CONTENTS

Medical 2017

1. "The compound that cannot undergo addition reaction is:

   (a) Cycloproane (b) Benzene

   (c) Butyne (d) None of the above

2. Benzene gives more stable product when undergo:

   (a) Nucleophilic addition reaction

   (b) Oxidation reaction

   (c) Electrophilic substitution reaction
   (d) Electrophilic addition reaction

3. For callus formation, auxin and cytokinin are required in which ratio?

   (a) Balanced

   (b) Only cytokinin required

   (c) Low auxin, very high cytokinin

   (d) Only auxin

4. For which purpose myeloma cells (cancerous B.lymphocytes) are used in the production of monoclonal antibodies?

   (a) Increased rate of cell division

   (b) Immunization with antigen

   (c) To avoid contamination

   (d) As nutrient in media

5. DNA polymerase adds nucleotide .to the 3' end of the primer so the direction of replication will be?

   (a) $5'to3'$ (b) $3'to5'$

   (c) $3'$ end of the primer to $3'$ end of template strand

   (d) $3'$ end of template strand to the $3'$ end of the primer

6. The range of projectile is the same for two angles which are mutually;

   (a) Perpendicular (b) Supplementary

   (c) Complementary (d) 270°

7. A wave of amplitude 20 mm has intensity I_x another wave of the same frequency but of amplitude 5 mm has intensity I_y, what is I_x / I_y?

   (a) 2 (b) 4 (c) 16 (d) 256

8. The resistance of a device is designed to change with temperature. What is device?

   (a) A light-dependent resistor
   (b) A potential divider
   (c) A semiconductor diode (d) A thermistor

9. I enjoy _____ tennis.

   (a) to play (b) plays (c) playing (d) to playing

10. Catalytic converter reduces the emission of

    (a) Unburnt hydrocarbons (b) CO

    (c) NO (d) All of the above

11. What is the name of the carboxylic acid given below?

    $HOOC(CH_2)_3COOH$

    (a) Propane dioic acid (b) Pentane dioic acid

    (b) Pentane dicarboxylic acid

    (d) Propane dicarboxylic acid

12. $OH^-_{(alocholic)} + CH_3(CH_2)_2Br \rightarrow$ product the nature of OH^- in the above reaction is:

    (a) Nucleophile (b) Lewis base

    (c) Ligand (d) All of the above

13. When the sperm count is high, inhibit hormone release increases which:

    (a) Inhibits anterior pituitary release of follicle stimulating hormone

    (b) Increase anterior pituitary release of follicle stimulating hormone

    (c) Inhibit release of luteinizing hormone

    (d) Increase release of luteinizing hormone

14. Implantation of embryo takes place in which week of pregnancy?

    (a) 1^{st} (b) 2^{nd} (c) 3^{rd} (d) 4^{th}

15. XX-XY types of sex determination pattern is present in which of the following organisms?

    (a) Humans (b) Butterflies

    (c) Grasshopper (d) Drosophila

16. When will 1 C of charge pass a point in an electrical circuit?

    (a) When 1A moves through a voltage of 1V

    (b) When a power of 1 W is used for 1 s

    (c) When the current is 5 mA for 200 s

    (d) When the current is 10 A for 10 s

17. A cell of internal resistant $2.0\,\Omega$ and electromotive force (e.m.f.) 1.5 V is connected to a resistor of resistance $3.0\,\Omega$ what is the potential difference across 3Ω resistor.

    (a) 5 V (b) 1.2 V (c) 0.9 V (d) 0.6 V

18. In a stationary wave the distance between consecutive antinodes is 25 cm. if the wave velocity is 300 ms^{-1} then the frequency of the wave will be:

    (a) 150 Hz (b) 300 Hz (c) 600 Hz (d) 750 Hz

19. The path_____ paved, so we were able to walk through the path.

(a) had been (b) was (c) has been (d) being

20. Choose the correct sentence.

(a) Naila was so exhausted that she lain down for a nap.

(b) Naila was so exhausted that she liad down for a nap.

(c) Naila was so exhausted that she was lying down for a nap.

(d) Naila was so exhausted that she will lay down for a nap.

21. The bond energy of a H_2 molecule $H_2 \rightarrow 2H$ is:

(a) 436 Kj/mol (b) 40.7 Kj/mol

(c) 272 Kj/mol (d) 436÷Avogaros no Kj/mol

22. Considering the molecule, orbital theory (MOT) choose the correct relative energies order.

(a) $\sigma_{1s} < \sigma^{*}_{1s} < \sigma_{2s} < \sigma^{*}_{2s} = \pi_{2p_x} \quad p_y \quad p_z$

(b) $\sigma_{1s} < \sigma^{*}_{1s} < \sigma_{2s} < \sigma^{*}_{2s} < \pi_{2p_{y2}} \quad p_z \quad p_{zx}$

(c) $\sigma_{1s} < \sigma^{*}_{1s} < \sigma_{2s} < \sigma^{*}_{2s} < \pi_{2p_{x2}} \quad p_z \quad p_y$

(d) $\sigma_{1s} < \sigma^{*}_{1s} < \sigma_{2s} < \sigma^{*}_{2s} < \pi_{2p_{y2}} \quad p_z \quad p_x$

23. The oxidation of pent -2-one (2-pentanone) with nascent oxygen gives:

(a) Propanal (b) Propanoic acid

(c) Ethanoic acid (d) Pentanoic acid

24. If medulla oblongata of a person brain is damaged which of the following processes will be disturbed?

(a) Thinking (b) Sleep

(c) Thirst (d) Swallowing

25. Otitis media is an inflammation of which part of the body?

(a) Brain (b) Middle ear

(c) Lungs (d) Urinary tract

26. In which of the following disorder the structure and function of normal spinal cord is damaged?

(a) Arthritis (b) Sciatica

(c) Spondyiosis (d)

27. A stationary nucleus has nucleon number A. The nucleus decays by emitting a proton with speed v to form a new nucleus with speed u. The new nucleus and the proton move away from one another in opposite direction. Which equation gives v in terms of A and u?

(a) v = $(A / 4 - 1)\,u$ (b) v = $(A - 1)\,u$

(c) v = $A\,u$ (d) v = $(A + 1)\,u$

28. a person, travelling on a motorway a total distance of 200 km, travles the first 90 km at an average speed of 80 km h^{-1}. Which average speed must be obtained for the rest of the journey if the person is to reach the destination in a total time of 2 hours 0 minutes?

(a) 110 km h^{-1} (b) 122 km h^{-1}

(c) 122 km h^{-1} (d) 126 km h^{-1}

29. An object of mass "m" travelling with speed "v" has a head-on collision with another object of mass "m" travelling with speed "v" in the opposite direction. The two objects stick together after the collision. What is the total loss of kinetic energy in the collision.

(a) 0 (b) $\frac{1}{2}mv^2$ (c) mv^2 (d) $2mv^2$

30. He asked me what my name was and what I did.

(a) He said to me, "What was my name and what did I do?"

(b) He said to me, "What is your name and what do you do?"

(c) He said to me, "What my name was and what I do?"

(d) He said to me, "What his name was and what did he do?"

31. Four beakers containing ethanal, ethanol, propanane and phenol separately. Aqueous bromine was added to each beaker. A white ppt was produced in one beaker. This beaker contain:

(a) Ethanol (b) Phenol (c) Ethanals (d) propanone

32. To differentiate between the white ppt of $AgCl$ and off-white ppt of $AgBr$ we use:

(a) Dil. Solution of $NaOH$

(b) Dil. Solution of $Pb(NO_3)_3$

(c) Dil. Solution of NH_3

(d) Dil. Sulution of $FeCl_3$

33. $CH_3CH_2NH_2 + CH_3C(=O)H \rightarrow$ Product

(a) Sheft's base (b) Diazonium sait

(c) Amide (d) Imine + Amide

34. If the primer annealing temperature is increased to 94 °C. What will happen?

(a) Annealing (b) Extension

(c) No annealing (d) Primer-dimer formation

35. Choose acids that are showing leveling effect.

i) Hcl ii) HI iii) HCl iv) HF

(a) i & iv (b) i, iii & iv

(c) iii & iv (d) i, ii, & iii

36. The experiments by Hershey and Chase helped confirm that DNA was the hereditary material on the basis of the finding that:

(a) Radioactive phage were found in the pellet

(b) Radioactive phage were found in the supernatant

(c) Radioactive sulfur was found inside the cell

(d) Radioactive phosphorus was found in the cell

37. How many nucleotides are 12 mRNA codons?

(a) 12 (b) 24 (c) 36 (d) 48

38. Which of the following is a suitable vector to be incorporated with a large external DNA fragment?

(a) Small size vector

(b) Large size vector

(c) Large size vector with no srcin of replication

(d) Small size vector with no srcin of replication

39. A value for the acceleration of free fall on Earth is given as (10 ± 2) m s^{-2}. Which statement is correct?

(a) The value is accurate but not precise.

(b) The value is both precise and accurate.

(c) The value is nether precise nor accurate.

(d) The value is precise but not accurate.

40. Which experimental technique reduces the systematic error of the quantity being investigated?

(a) Adjust an ammeter to remove its zero error before measuring a current

(b) Measuring several internodal distances on a standing wave to find the mean internodal distance

(c) Measuring the diameter of a wire repeatedly and calculating the average

(d) Timing a large number of oscillations to find a period

41. A metal sphere of radius r is dropped into a tank of water. As it sinks at speed v, it experiences a drag force F given by F = k r v, where k is a constant. What are the S.I base units of k?

(a) Kg m^2 s^{-1} (b) Kg m^2 s^{-2}

(c) Kg m^1 s^{-1} (d) Kg m s^{-2}

42. Choose the correct sentence.

(a) How long are you wearing glasses?

(b) How long do you wear glasses?

(c) How long are you wear glasses?

(d) How long have you been wearing glasses?

43. A Carnot engine working between 200 k and 400 k has work output of 600 J are cycle. How much heat energy is supplied to the engine from the source in each cycle.

(a) 1400 J (b) 1200 J (c) 1700 J (d) 1300 J

44. What happens when charge is placed on a soap bubble?

(a) It collapse (b) Its radius increases

(c) Its radius decreases (d) None of the above

45. Choose the antonym for the word "ABROGATE"

(a) Transgress (b) Signify

(c) Allevate (d) Ratify

46. Which ion is stable in aqueous solution?

(a) Sc^{3+} (b) Li^{2+} (c) Ba^{3+} (d) Na^{-}

47. Colloidal particles can be separated by using:

(a) Ordinary filter paper

(b) Coarse filter paper

(c) Fine filter paper

(d) Extremely fine filter paper

48. Consider the following reaction

$$2FeCl_{3(aq)} + 2KI_{(aq)} \rightarrow 2FeI_{2(aq)} + I_{2(s)} + 2KCl_{(aq)}$$

Rate = $K[FeCl_3][KI]^2$ choose the correct molecularly and order of the reaction respectively

(a) 2 and 2 (b) 6 and 2 (c) 8 and 3 (d) 8 and 2

49. Which of the following nutrient is incorrectly paired with its function in plant?

(a) Iron – cytochromes and chlorophyll synthesis

(b) Molybdenum – ell permeability

(c) Cobalt – required by nitrogen fixers

(d) Calcium – formation of cell wall

50. Which cells are responsible for the movement of sugar as per mass flow hypothesis?

(a) Tracheids, vessel elements

(b) Tracheids, companion cells

(c) Vessel elements, companion cells

(d) Companion cell, sieve-tubes

51. After buying green bananas or unripe avocadoes, they can be kept in a brown bag to ripen. The hormone reieased by the fruit and trapped in the bag is probably:

(a) Abscisic acid (b) Cytokinin

(c) Ethylene (d) Gibberellic acid

52. For the location/detection of a gene in a DNA library which of the following is used?

(a) Primer (b) Probe

(c) Restrictionn enzyme (d) Taq polymerase

53. Under UV illumination, DNA bands are seen in agarose due to which of the following ?

(a) Agarose (b) Charge of DNA

(c) Fluorescent dye (d) Radioactive dye

54. When a car travelling with constant velocity passes a stationary observer, the observer hears a change in the frequency of the sound emmited by the car .Which is statement is correct?

(a) The cange in frequency is greater as the car moves away than as it approaches.

(b) The greater the speed of the car, the greater the change in observed frequency.

(c) The observed frequency is lower as the car moves towards the observer and higher as the car moves away from the observed.

(d) The volume of the sound heard by the oberved does not changes as the car approcahes.

55. A parachutist is falling constant (terminal) velocity. Which statement is not correct?

(a) Gravitational potential energy is converted into kinetic energy of the air.

(b) Gravitational potential energy is converted into kinetic energy of the parachutist.

(c) Gravitational potential energy is converted into thermal energy of the air.

(d) Gravitational potential energy is converted into thermal energy of the parachutist.

56. The time period of a simple pendulum is 2 seconds. If its length is increased by 4 times , then its period becomes :

(a) 16 s (b) 12 s (c) 8 s (d) 4 s

57. Choose the correct sentence.

(a) The village folk were present.

(b) The village folk was present.

(c) The village folks were present.

(d) The village folks was present.

58. The number of chiral centres in a molecule of 5-bromo 3-chloro hexan-2-Ol is /are:

(a) 1 (b) 3 (c) 2 (d) 5

59. Which group when attached to benzene will increase its reactivity :

(a) $-\overset{NHR}{\underset{+}{}}$ (b) $-NH_3$ (c) $-C\equiv N$ (d) $-COR$

60. The compound which is purely acidic is:

(a) $Mg(OH)^2$ (b) $Al(OH)^3$

(c) $Si(OH)_4$ (d) None of the above

61. Which of the following is a non-sense codon?

(a) UGA (b) UAU (c) CAU (d) GAU

62. If a disorder is not present in a child family but the fetus itself is infected before birth,it is known as?

(a) Somatic mutation (b) Hereditary mutation

(c) Germ line mutation (d) De novo mutation

63. What will happen if a nucleotide is deleted from a gene having 9 nucleotides in its transcriptional unit?

(a) Change in phenotype (b) No change in phenotype

(c) Synthesis of 3 amino acids

(d) Synthesis of 4 amino acids

64. Work function for a certain surface is 3.26 eV. Minimum frequency , light must have in order to eject electron from surface will be:

(a) 1.6×10^{15}Hz (b) 3.2×10^{15}Hz

(c) 4.8×10^{15}Hz (d) 7.87×10^{14}Hz

65. The unit of planck's constant is the same as that of:

(a) Angular momentum (b) Work

(c) Force (d) Torque

66. A radioactive substace has a half-life of 60 minutes. During 3 hours , the percentage of the material that decayed would be:

(a) 12.5% (b) 87.5% (c) 8.5% (d) 25.1%

67. While the city has earned record revenue this year, _____ well behind in exports.

(a) it still lag (b) it still lags

(c) it lag still (d) it lags still

68. The compound which can be hydrolyzed by means of water is:

(a) CCl_4 (b) $SiCl_4$

(c) CH_4 (d) None of the above

69. Choose the correct statement about cycloalkanes:

(a) Cyclopropane and cyclobutane are liquids at room temperature

(b) Cycloalkanes are insoluble in ethanol and ether but soluble in water

(c) Their melting and boiling points show a gradual increase with increase in no of corbon.

(d) Both (b) & (c) are correct

70. Which one is a strong nucleophile:

(a) $C_6H_5-O^-$ (b) $H-O^-$

(c) NH_3 (d) $C_2H_5-O^-$

71. Choose the correct arrangement of the various regions of the electromagnetic spectrum in terms of wave lengths.

(a) *IR > un > visible > microwave > radio frequency*

(b) *Microwave IR > uv > visible > > radio frequency*

(c) *Radio frequency > microwave > IR > visible > uv*

(d) *Visible > IR > uv > microwave > radiowave*

72. If one of the following component is missing bacteria can not increase the number of its plasmid copies?

(a) Antibiotic resistant gene (b) Origin of replication

(c) Cloning site (d) Ligases enzymes

73. Identify the mismatch pair in the following.
(a) Cyanobacteria- primary producer
(b) Grasshopper-primary consumer
(c) Fungi-decomoposer
(d) Zooplankton-secondary consumer

74. What will happen if a vector (plasmid) is cut with a different restriction enzyme which cuts the external DNA to be incorporated in the vector (plasmid)?
(a) Ligation (b) No ligation
(c) Tight ligation (d) Cloning

75. The acceleration of free fall on the Moon is one-sixth of that on Earth on Earth, it takes time "t" for a stone to fall from rest a distance of 2 m on the moon. What is the time taken of stone to fall from rest a distance of 2m on the moon?
(a) 6t (b) t/6 (c) $t\sqrt{6}$ (d) $\frac{t}{\sqrt{6}}$

76. Before a thunderstorm, the hairs on your head sometimes stand on end. A hair with mass 0.50 mg and charge 1.0 pC is supported by a force due to an electric field. Ignore any forces other than the weight of the hair and the electric force. What is the electric field strength ?
(a) 4.9×10^{3} N C^{-1} (b) 4.9×10^{5} N C^{-1}
(c) 4.9×10^{6} N C^{-1} (d) 4.9×10^{9} N C^{-1}

77. Two lamps are connected in series to a 250 v power supply. One lamp is rated 240 v, 60 w and the other is rated 10 v, 2.5 w. Which statement most accurately describes what happens ?
(a) Both lamps light at less than their normal brightness.
(b) Both lamps light at their normal brightness.
(c) Only the 240v lamp lights
(d) The 10v lamp blows.

78. Every person must learn _____.
(a) that how wisely his time can be used.
(b) to make wise use of this time.
(c) that his time needs a wise uses.
(d) to using his time in a wisely manner.

79. In movies during fighting a blood red solution is using as an artificial blood. Which of the following complex ion is used for this solution?
(a) $[Fe(H_2O)_6]^{+2}$ (b) $[Cu(NH_3)_4(H_2O)_2]^{+2}$
(c) $[Fe(SC)(H_2O)_5]^{+2}$ (d) $[Fe(H_2O)_6]^{+3}$

80. The compound which can form hydrogen bond with water is:
(a) CH_3–O–CH_3 (b) CH_3–CH_2–OH
(c) CH_3–CH_2–NH_2 (d) None of the above

81. The compound with most exothermic lattice energy is:
(a) $CaCl_2$ (b) K_2O (c) CaO (d) $BaCl_2$

82. Sarcolemma is the membrane around?
(a) Bone (b) Joins (c) Muscle flber (d) Heart

83. The deficiency of calcitonin result in ?
(a) Bone formation (b) Kidney stone
(c) Hyperthyroidism (d) Hypothyroidism

84. In which of the following the female workers are sterile?
(a) Ants (b) Honeybee (c) Baboon (d) Parrots

85. If in a situation some bacteria infected by a certain. Phages had somenow developed the ability to make a particular amino acid that was not in their genes before. What would be the possible explanation to this new ability?
(a) Introduction (b) Transformation
(c) Transduction (d) Conjugation

86. Identify in which of the following the genetic information is catalyzed using reverse transciptase?
(a) Protein → DNA (b) RNA → DNA
(c) DNA → RNA (d) RNA → Protein

87. Which one is not a opportunistic disease related to HIV infection.
(a) Destruction of body immune system
(b) Recurrent pneumonia
(c) Pulmonary tuberculosis (d) Toxoplasmosis

88. A turning fork A produces 4 beats / second with another turning fork B of frequency 280.Hz.When fork A is loaded with a little wax, the beat frequency change to 2. The frequency of fork A before loading is:
(a) 292 Hz (b) 284 Hz (c) 290 Hz (d) 288 Hz

89. The sound wave of frequency more than 20 khz are termed as:
(a) Supersonic (b) Audible
(c) Infrasonic (d) Ultrasonic

90. The refractive index is equal to the tangent of the angle of polarization. It is called:
(a) Brewster's Law (b) Malu's Law
(c) Bragg's Law (d) Grimaldi's Law

91. "He is busy. Would you like to leave a message?" said the assistant.
(a) The assistant told that he is busy and asked me to leave a message.
(b) The assistant told that he was busy and ask me to leave a message.
(c) The assistant told that he was busy and asked me to leave a message.

(d) The assistant told that he was busy and asked me to leave a message?

92. The less energetic and more stable compound among the following is:

(a) Cyclobutane (b) Hex-1-ene

(c) Cyclopropane (d) Propene

93. Amorphous solids are made by fusing silicates with:

(a) Boric acid (b) Aluminum oxide

(c) Phosphorus pent oxide (d) All of the above

94. What is the product when chlorine gas is passed over element silicon in powdered state on heated it produce colorless liquid having formula?

(a) $SiCl_2$ (b) $SiCl_4$ (c) Si_2Cl_3 (d) SiCl

95. Compound resistant to thermal decomposition is:

(a) Li_2CO_3 (b) $NaNO_3$ (c) $Ba(NO_3)_2$ (d) Na_2CO_3

96. If $C0_2$ level increase from the normal level, what will happen ?

(a) Decrease in sea level (b) Increase in sea level

(c) Longer winter season (d) Daytime will increase

97. Approximately how much calories of free energy is stored in plant biomass for every mole of C_{0^2} fixed during photosynthesis ?

(a) 110 (b) 112 (c) 114 (d) 116

98. Which of the following vaccine has least side effects

(a) Attenuated vaccine (b) Killed vaccine

(c) Subunit vaccine (d) Toxoid vaccine

99. The energy stored in the spring of watch is:

(a) Kinetic energy (b) Electric energy

(c) Elastic potential energy (d) Solar energy

100. The kinetic energy and potential energy of a particle executing simple harmonic motion will be equal for the displacement (where x_0 is the amplitude)

(a) $x_0\sqrt{\frac{2}{3}}$ (b) $\frac{X_0}{2}$ (c) $\frac{X_0}{\sqrt{2}}$ (d) $x_0\sqrt{2}$

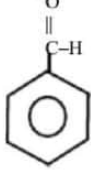
101. If x-component of a vector is $\sqrt{3}$ and y-component is 1, then the angle made by the vector along x-axis is:

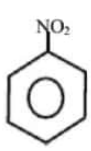
(a) 60^0 (b) 30^0 (c) 45^0 (d) 90^0

102. Which compound will undergo substitution reaction faster than benzene?

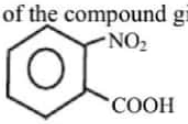
(a) 

(b) 

(c) 

(d) 

103. The IUPAC name of the compound given below:



(a) M- nitrobenzene acid

(b) O- nitrobenzene methanoic acid

(c) O- nitrobenzoic acid

(d) None of the above

104. The first organisms that oxygenated the atmosphere:

(a) Cyanobacteria (b) Phototrophic organisms
(c) Anaerobic organisms (d) All of the above

105. What event is thought to have contributed to the evolution of eukaryotes ?

(a) Global warming (b) Glaciation

(c) Volcanic activity

(d) Oxygenation of the atmosphere

106. Which of these locomotor organs would likely be the shortest ?

(a) A flagellum (b) A cilium

(c) An extended pseudopod (d) A pellicle

107. In young's double slit experiment with sodium light, the slits are 0.589 m apart. What is the angular width of the third maximum given = 589 nm

(a) $\sin^{-1}(3 \times 10^{-6})$ (b) $\sin^{-1}(3 \times 10^{-8})$
(c) $\sin^{-1}(0.33 \times 10^{-6})$ (d) $\sin^{-1}(0.33 \times 10^{-8})$

108. Which of the following cannot be polarized ?

(a) Radio waves (b) Ultraviolet rays

(c) X-rays (d) Ultrasonic waves

109. When a ray of light enters a glass slit from air:

(a) Its wavelength decreases

(b) Its wavelength increases

(c) Its frequency increases

(d) Its frequency decreases

110. Choose the antonym of the word "UNTENABLE"

(a) Tender (b) Sheepish

(c) Supportable (d) Tremulous

111. Coagulation of proteins may be caused by:
(a) Heat (b) Change in PH

(c) Heavy metal salts (d) All of the above

112. Kolbe's electrolysis of sodium butyrate $CH_3CH_2CH_2COON_a$ gives:

(a) C_6H_{12} (b) C_6H_{14} (c) C_5H_{10} (d) C_5H_{12}

113. Chlorine gas dissolve in water to some extent to give:

(a) Yellow colored solution

(b) Greenish colored solution

(c) Bluish colored solution (d) Colorless solution

114. One of the following statement is true regarding Basidiomycota:
(a) They are most important source of antibiotics
(b) They have known sexual stage
(c) Hyphae fuse to give rise to dikaryotic mycelium
(d) The vast majority of spores are formed asexually

115. The sprouting gametophyte of a moss consists of a filamentous, branched structure called:
(a) Mycelium (b) Hyphae (c) Protonema (d) Bud

116. Which seedless plant is a renewable source of energy ?
(a) Club mass (b) Horsetail
(c) Sphagnum moss (d) Fern

117. Light of waves 500×10^{-9}m falls normally on a plane diffraction grating having $8\times10^{+3}$ lines per cm. The minimum number of images seen is:
(a) 3 (b) 4 (c) 5 (d) 1

118. The speed of sound in air at NTP 300 m/s. If the air pressure become 4 times then the speed of the sound will be:
(a) 150m/s (b) 300m/s (c) 600 m/s (d) None

119. Standing waves are produced in 10m long stretched string. If the string viberates in 5 segments and wave velocity is $20m^{-1}$. Its frequency is:
(a) 2 Hz (b) 4 Hz (c) 5 Hz (d) 10 Hz

120. Why did your supervisor take such a strong disciplinary action when you were innocent ?
(a) Why has such a strong disciplinary action taken by your supervisor when you were innocent?
(b) Why was such a strong disciplinary action being taken by your supervisor ?
(c) Why was such a strong disciplinary action taken by your supervisor when you were innocent?
(d) Why such a strong disciplinary action was taken by your supervisor when you were innocent?

121. Ka values of some compound are given below select the correct order of acidic strength:
(a) ROH > H_2O > C_2H_5OH > RCOOH
(b) C_2H_5OH > H_2O > ROH > RCOOH
(c) RCOOH > C_2H_5OH > H_2O > ROH
(d) RCOOH > ROH > C^2H^5OH > H^2O

122. The compound which cannot be hydrolyzed by water is:
(a) $CH_3 - CH_2 - C$ - Br
(b) $CH_3 - CH_2 - O - CH_2 - CH_3$
(c) CH3 – CH2 – C – NH_2 (d) None of the above

123. KOH alcoholic + $CH_3C(CH_3)_2$ $CH_2Br_{(i)}$ → The reactants in the condition given will undergo:
(a) Nucleophilic substitution reaction
(b) Elimination reaction
(c) Nucleophilic addition (d) None of the above

124. Phosphorus (white) catches fire in air and burns with the formation of white smoke the product formed is:
(a) Phosphorus (iii) oxide
(b) Phosphorus (v) oxide
(c) Phosphorus (ii) oxide (d) Both (a) & (b)

125. Coordination number six complexes having d^2Sp^3 hybridization exist in:
(a) Tetrahedral shape (b) Square planar shape
(c) Trigonal bipyramidal shape (d) Octahedral shape

126. What types of hybridization is/ are present in Hex-4-ene 1-yne:
(a) Sp^2 (b) Sp (c) Sp and Sp^2 (d) Sp. Sp^2, Sp^3

127. In order to see various aspects of specimen a three dimensional image of the object can be produced using:
(a) Compound microscope
(b) Dark-field microscope
(c) Transmission electron microscope
(d) Scanning electron microscope

128. The usual position of the two centrioles in relation to each other is at right angle in:
(a) Higher plant cell (b) Lower plant cells
(c) Animal cells (d) Both (b) & (c)

129. In saturated fatty acids more hydrogen are not accommodated because of:
(a) Presence of single bonds between carbon atoms
(b) Presence of Double bonds between carbon atoms
(c) Presence of triple bonds between carbon atoms
(d) Absence of bond between carbon atoms

130. A particle executes SHM along a straight line. Its amplitude is A. The potential energy of the particle is equal to the kmetic energy, when the displacement of the particle from the mean position is:
(a) Zero (b) $\pm$ A/2 (c) $\pm$ A/$\sqrt{2}$ (d) 2A

131. In S.H.M., the fraction of kinetic energy to total energy when displacement is one-half of the amplitudes is:
(a) $\frac{1}{8}$ (b) ½ (c) ¼ (d) ¾

132. Laplace corrected Newton's formula for the velocity of sound in gases, because the sound propagates:
(a) As longitudinal waves (b) Adiabatically
(c) Isothermally (d) Under isobaric conditions

133. Rhizobium belongs to:
(a) Beta-protobacteria (b) Gama-protobacteria
(c) Alpha-protobacteria (d) Delta-protobacteria

134. Poisonous red-tides in coastal area are caused by the blooms of:
(a) Euglenoids (b) Rhodophyta
(c) Diatoms (d) Dinoflagellates

135. Two bodies are dropped from different heights h_1 and h_2. The ratio of the times taken by them to reach the ground will be
(a) $h_2^2 : h_1^2$ (b) $h_1 : h_1^2$
(c) $\sqrt{h_1} : \sqrt{h_2}$ (d) None of them

136. A bullet of mass m moving with a velocity ■ is fired into large wooden block of mass M. of the bullet remains embedded in the wooden block, the velocity of the system will be:

(a) $\frac{M}{M+m}v$ (b) $\frac{m}{M+m}v$

(c) $\frac{M}{M-m}v$ (d) $\frac{m}{M-m}v$

137. A particle is moving with a constant speed along a straight line. A force is NOT required to:
(a) Increase Speed
(b) Decrease the momentum
(c) Change the direction
(d) Keep it moving with uniform velocity

138. He is grieving _____ his deceased father.
(a) at (b) for (c) on (d) over

139. Which of the following atoms in the given oxidation state have the highest electro negativity.
(a) Mo (ii) (b) Mo (iii)
(c) MO (v) (d) Mo (vi)

140. The existence of He_2 is not possible because
(a) It would be disproportion
(b) It would be radio active
(c) It violate the Pauli Exclusion principle
(d) No H – H bond would form

141. Choose the anisotropic behavior
(a) Coefficient of thermal expansion
(b) Lattice energy
(c) Viscosity
(d) Infrared Spectroscopy

142. Acetabulariamediterranea is:
(a) A fungus (b) An algae
(c) A protozoan (d) A prokaryote

143. Excess of Ag_2CrO_4 was dissolved in distilled water its solubility was found to be 1.3×10^{-4}mol dm^{-3} what is the solubility product:
(a) Ksp = $[1.3 \times 10^{-4}]^2 [1.3 \times 10^{-4}]$
(b) Ksp = $[2.6 \times 10^{-4}]^2 [1.3 \times 10^{-4}]$
(c) Ksp = $[1.3 \times 10^{-8}] [1.3 \times 10^{-4}]$
(d) Ksp = $[1.3 \times 10^{-8}]^2 [1.3 \times 10^{-4}]^2$

144. Double fertilization occurs is:
(a)Pinus (b) Ferns
(c) Marchantia (d) Maize

145. Most conspicuous sea weeds are:
(a) Red algae (b) Blue algae
(c) Green algae (d) Brown algae

146. An acinus is composed of:
(a) 10-20 Acinars (b) 20-40 Acinars
(c) 20-30 Acinars (d) 30-40 Acinars

147. A circular disc of mass M and radius R is rotating about its axis with uniform speed v its kinetic energy is:
(a) Mv^2 (b) ½ MV ^{2}
(c) ¼ Mv^2 (d) 1/8 Mv^2

148. Moment of inertia of an object does not depend upon:
(a) Mass of object (b) Mass distribution
(c) Angular Velocity (d) Axis of rotation

149. A body of mass 10Kg is hanging from a spring balance inside a lift. If the lift falls with an acceleration $10ms^{-2}$, then what will be the reading of spring balance:
(a) Zero (b) 2.5 Kg
(c) 5 Kg (d) 10 Kg

150. That a driver swerves in order to avoid an accident can be proven by examining the marks on the pavements.
(a) Stops quickly (b) Turns sharply
(c) Hits something else (d) Goes backward

151. A container is having mixture of gases, 20% ammonia, 30% hydrogen and 50% oxygen under 50a.t.m pressure choose the correct partial pressure respectively.
(a) 10 atm, 25 atm, 15 atm (b) 10 atm, 15 atm, 25 atm
(c) 25atm, 10 atm, 15 atm (d) 15 atm, 25 atm, 10 atm

152. A man walks for some time with velocity v due east. Then he walks for same time with velocity v due north. The average velocity for the man is:
(a) 2v (b) $\sqrt{2v}$(c) v (d) $\frac{v}{\sqrt{2}}$

153. The sum of 2 forces acting at a point 16N. if the resultant force is 8N and its direction is perpendicular to minimum force, then the force is;
(a) 6N and 10N (b) 8N and 8N
(c) 4N and 12N (d)

154. A body walks to his school at a distance of 6Km with a speed of 3Km/h and walks back with a constant speed of 2Km/h. his average speed for round trip in Km/h is:
(a) 2.5 (b) 2.4 (c) 5 (d) 2.3

155. Though Aleem is poor, _____ he is honest.
(a) but (b) nevertheless
(c) yet (d) still

156. Which cation is unstable in aqueous solution?
(a) Sb^{3+} (b) Bi $^{3+}$
(c) Sn^{3+} (d) Fe $^{3+}$

157. Choose the incorrect statement about corrosion.
(a) Corrosion cannot be eliminated completely.
(b) Employing modern techniques corrosion can be completely eliminates.
(c) Corrosion process can be slowed down by certain methods.
(d) The presence of acidic oxide in the environment can accelerate the process of corrosion.

158. AlBr3 which is used in the alkylation of benzene possess the properties of:
(a) A catalyst (b) A Lewis Acid
(c) An electron deficient specie
(d) All of the above.

159. 2-$FADH_2$ can yield energy:
(a) 4 ATP (b) 8 ATP
(c) 6 ATP (d) 10 ATP

160. ABO blood group is an example of:
(a) Multiple alleles and incomplete dominance

(b) Codominance and incomplete dominance
(c) Incomplete dominance only
(d) Multiple alleles and condominance

161. In a mating between two individuals that are heterozygous for a recessive lethal allele. What genotypic ratio (homozygous domiant: heterozygours: homozygous recessive) would you expect to observe in the offspring?
(a) 1:2:1 (b) 3:1:1
(c) 1:2:0 (d) 0:2:1

162. How much kinetic energy will be gained by an α-particle ion going from a point at 70 V to another point at 50 V?
(a) 40 e V (b) 40 KeV
(c) 40 MeV (d) Zero

163. The potentials of the two plates of a capacitor are +10V and -10V. The charge on one of the plates is 40C. The capacitance of the capacitor is:
(a) 2 F (b) 4 F
(c) 0.5 F (d) 0.25 F

164. In a simple electrical circuit, the current in a resistor is measured as (2.50 ± 0.05) mA. The resistor is marked as having a value of 4.7 Ω± 2%. If these values were used to calculate the power dissipated in the resistor, what would be the percentage uncertainty in the value obtained?
(a) 2% (b) 4 % (c) 6 % (d) 8 %

165. Choose the synonym for the word "ABRIDGE".
(a) To make a bridge (b) Shorten
(c) Magnify (d) Divert

166. Choose the true product of the following reaction?
$CH_3C = N + 2H_2O + HCl \rightarrow$
(a) $CH_3 COOH + NH_3$
(b) $CH_3 COOH + NH_4 Cl$
(c) $CH_3 COCl + NH_3$
(d) $CH_3 CONH_2$

167. Which polyatomic anion is unstable in solution.
(a) BO^{-2} (b) SnO^{2-}_3 (c) $S_2O^{4-}_3$ (d) MnO^{2-}_4

168. Choose the molecule that could not be represented by single electronic structure formula:
(a) CH_4 (b) H_2O (c) SO_2 (d) O_2

169. Alkene + O_3 → Ozonide + Zn+H_2O Propanone → Propanal the IUPAC name of the alkene is:
(a) Hex-2-ene (b) Hex-3-ene
(c) 2-methyl pent-1-ene (d) 2-methyl pent-2-ene

170. If a new born baby possesses, carboxy hemoglobin instead of oxhymoglbin, the condition may be;
(a) Embolism (b) Artherosclensis
(c) Cyanosis (d) Arteriosclerosis

171. Of 100 ml of Arterial blood, oxygen provided to the tissues is:
(a) 2 ml (b) 3 ml
(c) 4 ml (d) 5 ml

172. Nervous system that prepares itself fight of flight:
(a) Para Sympathetic (b) Sympathetic
(c) Somatic (d) Peripheral

173. In a stream lined flow, the velocity of the liquid in contact with the containing vessels is:
(a) Zero (b) Minimum but not zero
(c) Large (d) Infinite

174. Eight drops of water, each radius 2 min are falling through air at a terminal velocity of 8cm s^{-1}. If they coalesce to form a single drop, the terminal velocity of the combined drop will be:
(a) $8cms^{-1}$ (b) 16cms $^{-1}$
(c) $24cms^{-1}$ (d) $32cms^{-1}$

175. The frequency of a second's pendulum is:
(a)1 Hz (b) 2 Hz
(c) 5 Hz (d) None of the above

176. It is a general perception that doctors have callous disregard for the feelings of others, (The underlined word nearly means).
(a) Respectable (b) Careful
(c) Unfeeling (d) Sensitive

177. The ratio of the electric force between two protons to that between two electrons is of the order of:
(a)10^{42} (b) 10^{39} (c) 10^{36} (d) 1

178. When 10^{12} electrons are received from a neutral metal sphere. The charge on the sphere becomes:
(a) 0.16μc (b) -0.1μc
(c) 0.32μc (d) -0.32μc

179. An electric charge in an accelerated motion produce:
(a) An electric field only (b) A magnetic field only
(c) Electromagnetic radiation only (d) All of the above

180. Choose the synonym for the word "ATTENUATE".
(a) Appear (b) Be absent
(c) Weaken (d) Testify

181. At standard conditions 45 liters of oxygen gas weights about 6g, where as 45 liters of hydrogen weights only about 4g. Which gas diffuses faster? Calculate how much faster.
(a) Hydrogen $4\gamma O_2$ (b) Hydrogen $2\ \gamma O_2$
(c) Oxygen, 8γHz (d) Oxygen, 3γHz

182. Arrange the following oxide of chromium in increasing acidic character:
(a) $CrO > Cr_2O_3 > CrO_3$ (b) $CrO_3 > Cr_2O_3 > CrO$
(c) $Cr_2O_3 > CrO > CrO_3$ (d) $CrO_3 > CrO > Cr_2O_3$

183. Choose Mercaptans of the following:
(a)  (b)  (c)  (d) 

184. If black and white true breeding mice are mated and the result is all gray offspring, what inheritance pattern would this be indicative of?
(a) Dominance (b) Codominance
(c) Multiple Alleles (d) Incomplete Dominance

185. The rules forbid passengers to cross the railway line.

(a) Passengers were forbidden by the rules to cross the railway line.
(b) Passengers are being forbidden by the rules to cross the railway line.
(c) Passengers are forbidden by the rules to cross the railway line.
(d) Passengers are forbid by the rules to cross the railway line.

186. Many hexaaqua complex ions can undergo reaction with water as given below: The reaction is classed as:
(a) Redox reaction (b) Acid base reaction
(c) Decomposition reaction (d) Substitution reaction

187. Propene react with hypochlorous acid to form

(a) $CH_3-\underset{\displaystyle Cl}{\underset{|}{CH}}-CH_2OH$ (b) $CH_3-CH(OH)-CH_2Cl$

(c) $CH_3-\underset{\displaystyle Cl}{\underset{|}{CH}}-CH_2Cl$ (d) $CH_3-\underset{\displaystyle OH}{\underset{|}{CH}}-\underset{\displaystyle OH}{\underset{|}{CH}}$

188. Which of the following radiations cannot cause excitation in a molecule:
(a) Red Colour (b) Green Colour
(c) Ultra Voilet (d) None of the above

189. Which of the following do not play a role in intracellular movement?
(a)Microfilaments and intermediate filaments
(b) Microfilaments and microtubules
(c) Intermediate filaments and microtubules
(d) Only microfilaments

190. Which statement about thylakoids in eukaryotes is not correct?
(a)Thylakoids are assembled into stacks
(b) Thylakoids exist as a maze of folded membranes.
(c) The space surrounding thylakoids is called stroma
(d) Thylakoids contain chlorophyll

191. The three non infective genes in HIV are:
(a) gag, pol, rev (b) gag, pol, vpu
(c) gag, pol, vpr (d) gag, pol, env

192. A bomb explodes on the moon. How long will it take for the sound to reach the earth:
(a)10 sec (b) 1000 sec
(c) 1 day (d) None of the above

193. Macronutrients are:
(a)K-Mg-N-P (b) Cu-Mg-Mn-S
(c) Mn-S-P-Cu (d) Mg-Mn-Ca-P

194. Shagnum is also called as:
(a)Sphenopsida (b) Peat moss
(c) Club moss (d) Maiden hair ferns

195. A body of mass 2 Kg collides with a wall with speed $100ms^{-1}$ and rebounds with the same speed the force exerted on the wall is 2×10^4 N. The time of contact is:
(a)1/50 Sec (b) 1/25 Sec
(c) 1/60 Sec (d) 1 Sec

196. An engine pumps out 40 Kg of water in one second. The water comes out vertically upwards with a velocity of $3ms^{-1}$, the power of engine in kilowatt is:
(a) 1.2 kw (b) 12 kw
(c) 120 kw (d) 1200 kw

197. Two boys weighing in the ration 4:5 goes up stair taking time in the ratio 5:4. The ratio of their power is:
(a) 1 (b) 16/25 (c) 25/16 (d) 4/5

198. A <u>thrifty</u> buyer purchases fruits and vegetables in season.
(The underlined word nearly means)
(a) Careful (b) Professional
(c) Disinterested (d) Healthy

199. $10.0dm^3$ gas cylinder containing mixture of various gases $50cm^3$ of nitrogen gas is in the mixture what is the concentration of N_2 gas in part per billion (ppb):
(a) $\frac{50}{1000} \times 10^9$ (b) $\frac{50}{10000} \times 10^9$
(c) $\frac{50}{100000} \times 10^6$ (d) $\frac{50}{1000} \times 10^6$

200. Consider the following reactions.
i. $C_2H_{4(g)} + H_{2(g)} \rightarrow C2H_{6(g)}$
ii. $N_{2(g)} + 3H2_{(g)} \rightarrow 2NH_{3(g)}$
Choose the catalysts employed for the reaction.
(a) Ni for both the reactions (i) and (ii)
(b) Fe_2O_3 for both the reactions (i) and (ii)
(c) Ni for reaction (i) and Fe_2O_3 for (ii)
(d) Fe_2O_3 for the reaction (i) and Ni for (ii)

Engineering 2017

1. Moeen asked Ali, "Could you lend me a hundred rupees until tomorrow?"

   (a) Moeen asked Ali whether he could lend him a hundred rupees until tomorrow.

   (b) Moeen asked Ali whether he could lend him a hundred rupees until the next day.

   (c) Moeen asked Ali whether he could lend me a hundred rupees until the next day.

   (d) Moeen asked Ali whether he could lend a hundred rupees until the next day.

2. For the function

   $f(x,y)z = x\,y\sin(\quad)xyz$

   $\frac{d}{dx}(1.1,\frac{\pi}{2}) =$ _____

   (a) $\frac{\pi}{2}$ (b) $3\frac{\pi}{2}$ (c) π (d) 1

3. For a continuous function $f(x)$ on [a, b] the approximate root lies in the interval [c, b]if

   (a) $f(x)$ has opposite signs at x = a x = b

   (b) $f(x)$ has opposite signs at x = a x = c

   (c) $f(x)$ has opposite signs at x = a x = b

   (d) $f(x)$ has opposite signs at x = c x = b

4. For $y = x^2 + c$ the equation of orthogonal trajectory is

   (a) $2y = \ln\left(\frac{c}{\sqrt{x}}\right)$ (b) $y = \ln\left(c\sqrt{x}\right)$

   (c) $y = \ln\sqrt{x} + c$ (d) $y = \ln\left(\frac{\sqrt{x}}{c}\right)$

5. Choose the wrong statement.

   (a) Operating life for fuel cell is unlimited

   (b) Electrode in fuel cell may be porons solid and may contain catalyst

   (c) The fuel in fuel cell can be gas, liquid, solid or solution

   (d) In fuel cell the cell products cannot be regenerated

6. Which element has the highest 2nd ionization energy?

   (a) Sr (b) Li (c) Mg (d) Ca

7. The equilibrium constant for the Protolysis of ammonium ion, $\left(NH_4^+ + H_2O \rightleftharpoons NH_3 + H_3O^+\right)$ is 5.6×10^{-10} at $15°C$. The pH of 1.0 M NH_4Cl solution is closet to which of the following.

   (a) 9 (b) 7 (c) 5 (d)3

8. Which condition must apply for the work done by an expanding gas to be $P\Delta V$, where p is the pressure of the gas and ΔV is its change in volume?

   (a) No thermal energy must be supplied to the gas.

   (b) The expansion must be at a constant rate.

   (c) The pressure must be constant.

   (d) The temperature of the gas must be constant.

9. Domain of $\vec{F}(t) = 2t\vec{j} - 3t\vec{j} + t^{-1}\vec{k}$ is

   (a) Set of all values of t

   (b) For all t except $t \neq 0$

   (c) For all t except t = 0

   (d) Set of al real numbers

10. Which of the following is an ionic oxide?

    (a) Mn_2O_7 (b) ZnO (c) CO (d) H_2O_2

11. A solution 0.1 M in H_2CO_3 and 0.1 M in $NaHCO_3$ is made. The pH of the resulting solution should be closest to

    Note: H_2CO_3 Pka = 6.37

    (a) 6.37 (b) 4.35 (c) 6.28 (d) 7.37

12. Most solution s containing ferric ions are usually yellow or yellowish brown, this is due to the formation of

    (a) $\left[Fe(H_2O)_6\right]^{3+}$ (b) $\left[Fe(H_2O)_5OH\right]^{3+}$

    (c) $\left[Fe(H_2O)_3OH_2\right]^{+}$ (d) $\left[Fe(H_2O)_3OH_3\right]^{0}$

13. A student kept her 60Watt and 120volt study lamp turned on from 2:00PM until 2:00 AM. How many coulombs of charge went through it?

    (a) 3600 (b) 7200 (c) 18000 (d) 21600

14. Solenoid B has the twice radius and six time the number of turns per unit length as solenoid A. The ratio of the magnetic field in the interior of B to that in the interior of A is:

    (a) 2 (b) 4 (c) 6 (d) 1

15. As a loop of wire with a resistance of 10Ω moves in a constant non uniform magnetic field. It loses K.E at a uniform rate of 4.0 mJ/Sec the induced current in the

loop is :

(a) 0 (b) 2mA (c) 2.8mA (d) 20mA

16. Which of the following is not an adjective?

(a) Bravery (b) Intelligent

(c) Beautiful (d) Honest

17. $\frac{d}{dx}(\ln|x|) = \frac{1}{x}$ then $\int \frac{1}{x}dx =$

(a) $\frac{1}{x}$ (b) $x\ln x$

(c) $x\ln x - 1$ (d) $x\ln x - x$

18. Planets travel in _____ paths

(a) Circular (b) Parabolic

(c) Elliptical (d) Hyperbolic

19. Equation of the tangent to the circle $x^2 + y^2 = a^2$ at point (x_1, y_1) is given by

(a) $xx_1 - yy_1 = 0$ (b) $xx_1 + yy_1 = a^2$

(c) $xx_1 + yy_1 = a$ (d) $xy_1 + yx_1 = a^2$

20. If measure of the central of a minor arc is θ the measure of the angle subtended by the corresponding major arc is:

(a) 2θ (b) $\frac{\theta}{2}$ (c) $\frac{\theta^2}{2}$ (d) $\frac{\pi^2}{2}$

21. Which of the following is an acid?

(a) OH^- (b) PH_3 (c) HCO_3^- (d) SO_4^{2-}

22. Consider the following reaction

$PCl_{5\,(g)} \Leftrightarrow PCl_{3\,(g)} + Cl_{2\,(g)}$

When Kp at 500K is 0.85 . what will be the value of Kc at the same temperature

(a) $Kc = \frac{0.85}{0.82\times500}$ (b) $Kc = \frac{0.82}{0.85\times500}$

(c) $Kc = \frac{0.85\times500}{0.82}$ (d) $Kc = \frac{0.85}{0.82}$

23. What is the relative rates of diffusion of equal volume ($500\ cm^3$) of hydrogen and oxygen under same condition of temperature and pressure?

(a) 4:1 (b) 8:1 (c) 16:1 (d) 2:1

24. Monochromatic green light of wave length 5×10^{-7} illuminates a pair of slits 1mm apart the separation of bright lines on the interference pattern formed on a screen 2m away is

(a) 0.25m (b) 0.1mm (c) 1.0mm (d) 0.01m

25. There are two charges each of $5\mu c$ the ratio of the force acting on them will be

(a) 1:25 (b) 1:5 (c) 1:1 (d) 5:1

26. In the M.K.S system of units ϵ_0 equal

(a) $\frac{1c^2}{N-m^2}$ (b) $9\times10^{9}\ Nm^2\ C^2$

(c) $\frac{1}{4\pi\times9\times10^{9}}\left(\frac{c^2}{Nm^2}\right)$ (d) $\frac{1}{9\times10}\frac{c^2}{Nm^2}$

27. There is a current of 3.2 amp in a conductor. The number of electrons that cross any section normal to the direction of flow per second is:

(a) 2×10^{19} (b) 0.2×10^{19}

(c) 20×10^{19} (d) 200×10^{19}

28. The example of a non-ohmic resistance is

(a) Ge-resistance (b) Carbon resistance

(c) Copper wire (d) Diode

29. The feminine of MILKMAN is:

(a) Milkgirl (b) Milkmaid

(c) Milkwoman (d) Milklady

30. If an equation involve the derivative of dependent variable of one independent variable , is called

(a) Ordinary differential equation

(b) Partial differential equation

(c) Integral equation

(d) Partial integro-diffrential equation

31. $y = x + A$ is a solution of the D.E

(a) $dy + dx = 0$ (b) $\frac{dy}{dx} = 0$

(c) $\frac{dy}{dx} = 1$ (d) $\frac{dy}{dx} = C$

32. If slope of the family of curved $F(x, y, c_1)$ for the equation $x^2 + y^2 = C$ is $\left(-\frac{x}{y}\right)$ then slope of the orthogonal Trajectory of the second family $G(x, y, c_2)$ is

(a) $\frac{x}{y}$ (b) $-\frac{x}{y}$ (c) $\frac{y}{x}$ (d) $\frac{1}{x}$

33. Select the electronic configuration which can form easily -3 oxidation stat:

(a) $1s^2 2s^2 2p^3$ (b) $1s^2 2s^2 3p^3$

(c) $1S^2 2S^2 2P^3$

(d) $1S^2 2S^2 2P^3\ 3S^2 3P^6\ 4S^2$

34. Steam of chlorine is passed over heated sulphur and form an orange colored foul smelling liquid having formula :

(a) SCl_2 (b) S_2Cl_2

(c) S_2Cl (d) Mixture of SCl_2 and S_2Cl_2

35. Select the one having half-filled P orbital's on losing an electron:

(a) Nitrogen (b) Lithium

(c) Oxygen (d) Fluorine

36. What is not conserved in nuclear processes?

(a) Charge (b) momentum

(c) The total number of neutrons

(d) The total number of nucleons

37. What behavior is the copper exhibiting?

(a) Brittle only (b) Elastic only

(c) Plastic only (d) Both (a) & (b)

38. The orbital velocity 'v' and the radius 'r' of the satellite are related by

(a) $v \alpha r$ (b) $v \alpha \frac{1}{r^2}$ (c) $v \alpha \frac{1}{r}$ (d) $v \alpha \frac{1}{\sqrt{r}}$

39. Katherine made her children _____ chores on Sunday

(a) make some (b) take some

(c) do some (d) does some

40. $\frac{1}{6!}+\frac{2}{7!}+\frac{3}{8!}=$

(a) $\frac{6}{8}$ (b) $\frac{6!}{8!}$ (c) $\frac{75}{8!}$ (d) $\frac{6}{2!}$

41. The objective function in a linear programming is usually denoted by

(a) $f(x,x)=ax$

(b) $f(x,y)=ax+by\ a\ b\in R$

(c) $f(x)=x(x)by$

(d) $f(x,y)=ax+by+cz$

42. Non-negative constraints in a Linear problem is given by

(a) $x>0, y<0$ (b) $x\geq 0, y\geq 0$

(c) $x=0, y=0$ (d) $x\leq 0, y\leq 0$

43. Magnesium metal burn in air, the product form is

(a) Mgo (b) Mg_3N_2

(c) $MgCO_3$ (d) Both (a) and (b)

44. Complexes exists in various coordination numbers, choose the coordination number which is less common:

(a) 2 (b) 4 (c) 5 (d) 6

45. Choose the mineral which is not of chromium

(a) Chrome irons stone (b) Chrome ochre

(c) Cordite (d) Chalcodite

46. The diode is used as:

(a) A modulator (b) An amplifier

(c) A rectifier (d) An oscillator

47. A photon of frequency f has a momentum associated with it if C is the velocity of light this momentum is:

(a) hf (b) $2hf$ (c) $\frac{hf}{c}$ (d) $\frac{hf}{c^2}$

48. The numerical ratio of displacement to distance is:

(a) Always less than one

(b) Always equal to one

(c) Always more than one

(d) Equal to or less than one

49. The synonym for the word "ANIMOSITY"IS:

(a) Powerful (b) Hatred

(c) Hatful (d) Quarrelsome

50. $\lim_{(x,y)\to(0,0)} f(x,y)=\frac{x^2}{x^2+y^2+2}$ is

(a) $\frac{1}{4}$ (b) $-\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

51. Degree of the homogenous function $f(x,y)=\frac{\sqrt{x}+\sqrt{y}}{x+y}$ is

(a) 1 (b) Zero (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

52. Numerical method are used for solution of:

(a) Linear equation (b) Quadratic equation

(c) Cubic equation (d) Non-linear equation

53. Compounds of vanadium exists in the following oxidation states 5+, 4+, 3+, 2+ The compounds in the 3+ and 2+ oxidation states behave as

(a) Good oxidizing agent (b) Good reducing agent

(c) Weak oxidizing agent

54. Choose the correct name of the complex $K_2[PtCl_6]$

(a) Potassium hexa chloroplatinum (IV)

(b) Potassium hexa chloroplatinate (VI)

(c) Potassium hexa chloropalatinate (IV)

(d) Potassium chloro platinate

55. Choose the least stable of the following butenes:

(a) 1 –Butene (b) CiS - 2 - Butene

(c) Trans-2-butene (d) Iso butylene

56. Select the wrong statement about adsorption .

(a) The phenomenon of accumulation of molecules of a gas or liquid at the solid surface is called adsorption.

(b) The process of adsorption is selective in nature.

(c) Adsorption in general increases with increase in temperature.

(d) Adsorption on solid is reversible in nature

57. Select an incorrect statement about collides.

(a) Colloidal particles carry charges

(b) Addition of electrolytes coagulates the solution

(c) Every substance can be made to behave like lyphobic collides

(d) Every solid substance can be brought to colloidal state

58. Aproton is about 1840 times heavier than an electron .When it is accelerated by a potential difeerence of 1 KV, its kinetic energy will be:

(a) 1840 keV (b) $\frac{1}{1840}$ keV

(c) 1 keV (d) 920 keV

59. Charge is distribuited uniformily on the surfacde of large flat plate. The electrical field 2cm from the plate is 30 $\frac{N}{c}$. What is the electrical field at 4cm from the plate.

(a) 120 $\frac{N}{c}$ (b) 30 $\frac{N}{c}$ (c) 15 $\frac{N}{c}$ (d) 7.5 $\frac{N}{c}$

60. Two identical capacitor each with capacitance C, are connected in parallel and the combination is connected in series to a third identical caoacitor. The equivalent capacitance of this arrangement is

(a) $\frac{2c}{3}$ (b) c (c) 2c (d) 3c

61. Naila has two

(a) Sister-in-laws (b) Sisters-in-law

(c) Sister-in-law's (d) Sister's-in-law

62. Graph of the function y = sin x over the interval (0.2π) intersects the x – axis at

(a) One point (b) Two points

(c) Three points (d) Infinite points

63. Which of the following expresses periodic property

(a) $\sin(-\theta) = -\sin\ \theta$

(b) $\sin(\theta \pm 2\ \pi) = \sin\ \theta$

(c) $\sin(\theta - \pi) = -\sin\ \theta$

(d) $\sin(\pi - \theta) = \sin\ \theta$

64. The people ~~who are hardworking~~ always succeed. The underlined part of the sentence is

(a) Non defining clause (b) Phrase

(c) Defining clauses (d) Adjective clause

65. In the equation $4px = y^2$, if $p > 0$, then the parabola is symmetric with respect to

(a) Negative X-axis (b) Positive Y-axis

(c) Positive X-axis (d) X-axis

66. In the horizontal ellipse if foci are $F_1(h - c, k) and\ F_2(h+c,k)$, then its standard equation is give by

(a) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ (b) $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$

(c) $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$

(d) $\frac{(x-c)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$

67. In translation of axis

(a) Direction of axes changing

(b) Origin is changing

(c) Both axes and srcin are changing

(d) Axes are changing through some angle

68. A sample containing copper weighing 10.0g yield 2.0g of copper sulphide. What is the percent of copper (amu Cu = 63.54) in the sample.

(a) $\frac{2.0\times100}{10.0}$ (b) $\frac{2.0\times2\times63.54\times100}{10\times95.60}$

(c) $\frac{2.0\times95.6}{10\times2\times43.54}$ (d) $\frac{2.0\times63.4\times100}{10\times95.60}$

69. Solubility of non-polar solute in non-polar solvent is because of:

(a) Their same molecular sizes

(b) Large difference in molecular sizes of solute and solvent

(c) Weak van der Waal's forces of solvent and solute particles

(d) Both (a) & (c)

70. An X-ray photon due to transition from M-shell to the vacancy in the k-shell is called:

(a) K α characteristic of X-ray

(b) K β characteristic of X-ray

(c) K γ characteristic of X-ray

(d) K characteristic of X-ray

71. Which of the following is correct?

(a) $Joule = \frac{coulomb}{volt}$ (b) $Joule = volt \times ampere$

(c) $Joule = \frac{volt}{ampere}$ (d) $Joule = coulomb \times volt$

72. A spring is stretched by 5 cm. Its potential energy is E. If it is stretched by 10 cm, is potential energy will be:

(a) 2E (b) 4E (c) 8E (d) 16E

73. Hussain suffer from no _____ about his capabilities

(a) Doubts (b) Hallucinations

(c) Illusion (d) Imaginations

74. If $f(x) = \begin{cases} +k(x+1), & if\ x \le 0 \\ k(1-x^2), & if\ x > 0 \\ 0, & if\ x = 0 \end{cases}$ then if $f(2) = 5, k =$

_____

(a) 0 (b) $\frac{5}{3}$ (c) $\frac{-5}{3}$ (d) 5

75. A cone is 9 cm high and has a vertical angle of 60^0 then the diameter of its base is:

(a) $3\sqrt{3}$ (b) $6\sqrt{3}$ (c) $9\sqrt{3}$ (d) $18\sqrt{3}$

76. In any equilateral triangle the ration 1 : 2 : 3 holds for

(a) r_1: r : R (b) r : R : r_1

(c) r : r_1 : R (d) r_1 : R : r

77. Calculate E^0 cell from the half-cell reactions:

$Zn \rightarrow Zn^{+2} + 2e^-$ $E^0_{ox} = +0.76v$ or $E^{red} \; 0.76v$

$Cu^{2+} + 2e^- \rightarrow Cu$ $E^0_{red} = +0.34$

(a) 1.10v (b) 1.20v (c) 1.0v (d) 1.40v

78. Alkali metals lime "Rb" & "Cs" catch fire in air and produce superoxide such as:

(a) Rab_2O & Cs_2O (b) RbO_2 & CsO_2

(c) RbO & CsO (d) RbO_2 & Cs_2O

79. Which of the following is amphoteric I nature;

(a) MgO (b) VeO (c) K_2O (d) CaO

80. Two springs of spring constant k_1 and k_2 are stretched by the same force. They are stretched by x_1 x_2 respectively, if $K_1 > K_2$ then:

(a) $x_1 = x_2$ (b) $x_1 > x_2$ (c) $x_1 < x_2$

(d) Depends on the length of the spring

81. Equation of a line parallel to Negative y - axis at a distance b units to the left of y – axis is given by:

(a) x = b (b) x = -b (c) y + b = 0 (d) y = -b

82. The point $p(x_1, y_1)$ lies above the line ax + by + c = 0. If

(a) $ax_1 + by_1 + c = 0, b = 0$

(b) $ax_1 + by_1 + c > 0, b < 0$

(c) $ax_1 + by_1 + c > 0, b > 0$

(d) $ax_1 + by_1 + c < 0, b > 0$

83. The following dynamics equilibrium exist between

CrO_4^{2-} lons in solution $CrO_4^{2-} \rightleftharpoons Cr_2O_7^{2-}$

(a) Equilibrium shifts to the right

(b) $Cr_2O_7^{2-}$ is decomposed to CrO_4^{2-}

(c) Equilibrium remains unaffected

(d) Equilibrium shifts to the left

84. Which of the following electronic configuration is/are correct?

i. $Cu_{29}[Ar]4S^2 3d^{10}$

ii. $Ti_{22}[Ar]4S^2 4d^2$

iii. $Fe_{26}[Ar]4S^2 3d^5 4P^1$

(a) I only (b) I & ii only

(c) ii& iii only (d) I & iii only

85. Select completely immiscible pair of liquids:

(a) Phonol-water system

(b) Trimethylamine and water system

(c) Carbon disulphide and water system

(d) Ethanol and water system

86. If the 100g mass having 32ft/sec^2 then its force is

(a) 320 b (b) 9.8 N

(c) 320 dyne (d) none of the above

87. The uncertainty in position of an electron in a certain state is 5×10^{-10} m the uncertainty in its momentum might be

(a) 5.0×10^{-24} kg. m/s (b) 4.0×10^{-24} kg. m/s

(c) 3.0×10^{-24} kg. m/s (d) 1.5×10^{-24} kg. m/s

88. When a hydrogen atom makes the transition from the

second excited state to the ground state (at-13.6ev) the energy of the photon emitted is

(a) 1.5ev (b) 9.1ev (c) 12.1ev (d) 10.2ev

89. The plural of LOUSE is:

(a) Lices (b) Lice (c) Louses (d) Lyces

90. What is a proton?

(a) A hadron

(b) A particle consisting of two down quarks and one up quark

(c) A positive fundamental particle

(d) A positive lepton

91. What is correct for all transverse waves?

(a) They all involve the oscillation of atoms

(b) They can all be polarized

(c) They can all travel through a vacuum

(d) Both (a) & (b) are correct

92. I always _____ defy any authoritarianism.

(a) have and always will (b) have and will

(c) have defied and always will

(d) haven't but will

93. In factorial term n(n-1) (n-2) can be written as

(a) n! (b) $\frac{n!}{(n-3)!}$ (c) $\frac{(n-1)!}{(n-2)!}$ (d) (n-2)!

94. The common ratio of the geometric sequence $(a^n)= 2^n$ is given by

(a) 2 (b) $\frac{1}{2}-$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

95. $\sum_{j=2}^{10} \frac{1}{j} - \sum_{j=1}^{8} \frac{1}{j+2}$

(a) Zero (b) $\frac{9}{10}$ (c) $\frac{1}{2}$ (d) $\frac{1}{10}$

96. How many grams of $(NH_4)_2 SO_4 6H_2O$ be dissolved in 500cm^3 of distilled water to get 0.1 *M* solution? (*Molecular mass of Mohr's slat is 392*)

(a) 39.2g (b) 3.92g (c) 19.6g (d) 1.96g

97. According to transition state theory the reacting molecules form some kind of hypothetical structure that loses,

i. The structure

ii. The ability to rotate

iii. The ability to vibrate

Choose the correct option:

(a) i & ii (b) ii & iii (c) i & iii (d) i, ii & iii

98. Dimethyl glyoxime is used for the preparation of:

(a) Cu^{2+} ions (b) Co^{2+} (c) Ni^{2+} (d) Fe^{2+}

99. A sequence is a function whose domain is

(a) Real numbers (b) Natural numbers

(c) Integers (d) Positive

100. Choose the suitable catalyst for the following the reaction: $ROH+HCl \rightarrow RCl+ H_2O$

(a) $AlCl_3$ (b) $ZnCl_2$ (c) $TiCl_4$ (d) $FeCl_3$

101. 50.0 cm^3 of a KOH solution is titrated to the phenolphthalein end point with 7.50 cm^3 of 1.0 M HCl. The concentration of KOH

(a) 7.5M (b) 0.75M (c) 0.15M (d) 1.5M

102. Diethyl ether react with Acetyl chloride in presence in presence of anhydrous $Zncl_2$ to form:

(a) $C_2H_5Cl + CH_3COOH$ (b) $CH_2=CH_2 + CH_3COOH\ HCl$

(c) $C_2H_5COOC_2H_5 + Cl$

(d) none of the above

103. A fireman wants to slide down a rope. The breaking strength for the rope is $\frac{3}{4}$ of the weight of the man with what minimum acceleration should the fireman slide down

(a) $\frac{1}{2}$ g (b) $\frac{1}{4}$ g (c) $\frac{3}{4}$ g (d) Zero

104. A ball is projected upwards. Its acceleration at the highest point is:

(a) Zero (b) Directed upwards

(c) Directed downward

(d) Can't be predicted

105. A projectile is projected with a kinetic energy K. its range is R. it will have minimum kinetic energy after covering a horizontal distance equal to

(a) 0.25R (b) 0.5R (c) 0.75R (d) R

106. The emperor _____ his kingship and become a hermit.

(a) abolished (b) abated

(c) abdicated (d) abandoned

107. Choose the correct sentence:

(a) Brazil is a populous country; the beache's are warm sandy and spotless clean.

(b) Brazil is a populous country: the beaches are warm, sandy and spotlessly clean.

(c) Brazil is a populous country, the beaches are warm sandy and spotlessly clean

(d) Brazil is a populous; country the beaches are warm, sandy and spotlessly clean

108. By means of numerical procedure we obtain:

(a) Actual solution (b) Exact solution

(c) Approximate solution

(d) Specific solution

109. Newton Raphson's method is:

(a) Two points iterative

(b) One point iterative

(c) Many points iterative

(d) Infinite point iterative

110. By Trapezoidal Rule better approximate can be obtained if, The value of (Trapezoids n)

(a) Small (b) Large (c) Zero (d) Undefined

111. Molality of 10% w/w NaOH solution is

(a) 1.5m (b) 2.0m (c) 2.5m (d) 3.5m

112. If the force of attraction exists between the particles of dispersed phase and the dispersion medium terms the Sol is called:

(a) Lyophilic (b) Lyophobic

(c) Hydrophilic (d) Hydrophobic

113. The reaction between peroxodisulphate ions and iodide ions is given below:

$S_2O_8^{2-} + 2I^- \rightarrow 2SO_4^{2-} + I_2$

(a) Ni^{2+} (b) Fe^{2+} & Fe^{3+}

(c) Fe^{3+} (d) Fe^{2+}

114. A man of mass 60 kg climbs up a 20 m long staircase to the top of a building 10 m high. What is the work done by him: Take g = 10 ms^{-2}

(a) 12 KJ (b) 6 KJ (c) 3 KJ

(d) None the above

115. When a force retards the motion of a body the work done is:

(a) Zero (b) Negative

(c) Positive (d) +ve or –ve depending upon the magnitude of force and displacement

116. $CH_3 - \overset{O}{\underset{C}{\|}} - OONO_2$ is the formula of:

(a) PAN (b) Smog

(c) Ozone (d) Chlorofluro carbons

117. Two copper wires S and T of equal length are connected in parallel. A potential difference is applied across the ends of this parallel arrangement. Wire S has a diameter of 3.0 mm. Wire T has a diameter of 1.5 mm. What is the value of the ratio $\frac{current\ in\ T}{current\ in\ S}$?

(a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) 2 (d) 4

118. A pedal bicycle is fitted with an electric motor. The rider switches on the motor for a time of 3.0 minutes. A constant current of 3.5 in the electric motor is provided from a battery with a terminal voltage of 24 V. What is the energy supplied by the battery?

(a) 84J (b) 250J (c) 630J (d) 15000J

119. A sound wave has a speed of 330 m/s and a frequency of 50 Hz. What is a possible distance between two points on the wave that have a phase difference of 60° ?

(a) 0.03m (b) 1.1m (c) 2.2m (d) 6.6m

120. People claim to have seen the suspect in several cities.

(a) The suspect was claimed to be seen by the people in several cities.

(b) The suspect is claimed to have been seen in several cities.

(c) The suspect has claimed to be seen by the people in several cities.

(d) The suspect is being claimed to be seen in several cities by the people.

121. The asymptotes of the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is given by

(a) $y = \pm \frac{b}{a}x$ (b) $y = \pm \frac{a}{b}x$

(c) $y = \pm \frac{c}{a}x$ (d) $y = \pm \frac{a}{c}x$

122. $ady + by\sin rdx = 0is$

(a) Linear differential equation

(b) Homogeneous differential equation

(c) Separable differential equation

(d) Non Separable differential equation

123. $\frac{k!}{(k+1)!} =$ _____

(a) (k+1) (b) K (c) $\frac{1}{k}$ (d) $\frac{1}{k+1}$

124. If A and B are disjoint events, then P (A U (B) =

(a) P (A) + P (B) (b) P(A)+P(B)–P(A)∩(B)

(c) P (A) U P (B) (d) $\frac{n(AUB)}{n(S)}$

125. $\binom{n}{n-r} =$ _____

(a) $\binom{n}{r}$ (b) $\binom{n+1}{r}$ (c) $\binom{n+1}{r-1}$ (d) $\binom{n}{r-r+1}$

126. Adipic acid react with dimethylter thalate to form condensation polymer:

(a) Nylon-6,8 (b) Dacron

(c) Teflon (d) Bylon-6,6

127. $R-COONa \quad NaOH \xrightarrow[heat]{CaO} RH \quad Na_2CO_3$

The above relation is known as:

(a) Carboxylation (b) Decarbxylation

(c) Neutralization (d) Reduction

128. 1,3-Dihydroxybenzene is also known as:

(a) Catchol (b) Resorcinol

(c) Hydroqunire (d) Cresol

129. Two bodies of mass m and 4 m are moving with equal kinetic energies. The ratio of their linear momentum will be:

(a) 1:4 (b) 4:1 (c) 1:2 (d) 2:1

130. The kinetic energy of a body of mass 1 kg and momentum 2Ns is equal to:

(a) 1J (b) 10J (c) 5J (d) 2J

131. A man of mass 90 kg is standing in an elevator whose cable broke suddenly , if the elevator falls freely , the force exerted by the floor on the man is :

(a) Zero (b) $90\times9.8N$ (c) 90 N (d) -90 N

132. Silver accylide in dry condition is highly explosive, it reacts with nitric acid to form:

(a) Sliver oxide, carbon dioxide and water

(b) Silver nitrate and ethyne

(c) Silver nitrate ethane

(d) Silver nitrate and carbon dioxide

133. Food article spoiling involves oxidation reduction processes, to prevent this reaction we usually add preservative which act as:

(a) An oxidizing agent (b) A reducing agent

(c) An acid(d) A base

134. The vector P makes 120^0 with x-axis and the vector Q makes 30^0 with y-axis, their resultant is:

(a) $\bar{P}+\bar{Q}$ (b) $\bar{P}-Q$

(c) $\sqrt{P^2+Q^2}$ (d) $\sqrt{P^2-Q^2}$

135. A car travels a distance s on a straight road in 2 hours and then returns to the starting point in the next 3hour. Its average velocity is:

(a) $\frac{S}{5}$ (b) $\frac{2S}{5}$ (c) $\frac{S}{2}+\frac{S}{3}$ (d) zero

136. When we kick a stone, we get hurt it happens due to:

(a) Inertia (b) Velocity

(c) Reaction (d) Momentum

137. The antonym for the word "ACQUIT" is:

(a) Retreat (b) Convict

(c) Conceal (d) Deprive

138. For two vector $\vec{a}$ and $\vec{b}$ it holds that $\vec{a}\vec{b}=|\vec{a}|\,|\vec{b}|\cos\theta$ then it holds $|\vec{a}|=\sqrt{a.a}$ for $\vec{a}=\vec{b}$ if and only if

(a) When $\vec{a}$ and $\vec{b}$ are parallel

(b) When $\vec{a}$ and $\vec{b}$ are perpendicular

(c) When $\vec{a}$ and $\vec{b}$ are in the opposite direction

(d) When $\vec{a}$ and $\vec{b}$ are parallel but opposite direction

139. The 3rd term of the expression $\frac{n^2-2}{n}$ is

(a) $\frac{7}{3}$ (b) $-\frac{7}{3}$ (c)3 (d)1

140. The angular momentum of a wheel change from 2L to 5Lin 3 seconds. The magnitude of the torque acting on it is:

(a) $\frac{L}{S}$ (b) $\frac{L}{3}$ (c) $\frac{L}{2}$ (d) L

141. If a sphere is rolling, the ratio of its rotational energy to total energy is given by :

(a) 7:10 (b) 2:5 (c)10:7 (d) 2:7

142. The angular velocity of a second hand in watch is :

(a) $\frac{\pi}{30}$ (b) 2π (c) π (d) $\frac{60}{\pi}$

143. She said "I passed the examination long ago "

(a) She said that she had passed the examination long ago

(b) She said that she had passed the examination long before.

(c) She told she had passed the examination long before

(d) She asked that she had passed the examination long ago (b) (c) (d)

144. $if\ y=\operatorname{cosec}^{-1}(e^{-x})\ then\ \frac{dy}{dx}=$_____

(a) $\frac{e^{-x}}{\sqrt{e^{-2x}-1}}$ (b) $\frac{-e^{-x}}{\sqrt{e^{-2x}-1}}$

(c) $\frac{+1}{\sqrt{e^{-2x}-1}}$ (d) $\frac{-1}{\sqrt{e^{-2x}-1}}$

145. Let $f(x)$ be a differentiable function on (a, b) if then if (x) is strictly decreasing on (a, b) if

(a) $f'(x)>0\ for a<x<b$ (b) $f'(x)<0\ for a<x<b$

(c) $f'(x)=0\ for a<x<b$ (d) $f'(x)\le0\ for a<x<b$

146. If $f(x)$ has a critical value at x = c i.e $f'(c)=0$ and $f''(x)=0$ exists on (a, b) containing C then $f''(c)=0$ provided that

(a) Function has maximum value at x = c

(b) Function has a minimum value at x = c

(c) Function has no minimum value or minimum at x = c

(d) Function is undefined at x = c

147. Silver mirror is given by :

(a) Aldehyde (b) Ketone (c) Ethers

148. The carbonyl group of carboxylic acid do not exhibit the characteristics reaction of aldehyde and ketone due to :

(a) The C of carboxyl is less positive

(b) The C of carboxyl is more positive

(c) The C of Ketone is less positive

(d) Does not depend on C atom

149. $Z = f(x,y) = \frac{x^3 e^{y/x}}{y} - 3\frac{y^2}{x}\sqrt{x^2y^2}$ is homogeneous of degree

(a) 0 (b) 1 (c) 2 (d) 3

150. Blue baby syndrome is caused due to:

(a) A phosphate in diets

(b) Chlorates in diets

(c) Excessive nitrate in diets

(d) Deficiency of nitrate

151. Select the IUPAC name of the following compound.

$CH_3\ OCH_2\ CH_3$

(a) Methoxy ethane

(b) Ethyl metyl ether

(c) Methyl ethyl ether

(d) Ethoxy methane

152. Which polyatomic anion is unstable?

(a) $B_4O_7^{2-}$ (b) $Cr_2O_7^{4-}$ (c) $S_4O_6^{2-}$ (d) CrO_4^{2-}

153. Which statement is not valid?

(a) Current is the speed of the charged particles that carry it.

(b) Electromotive force *(e.m.f)* is the energy converted to electrical energy from other forms per unit charge.

(c) The potential difference *(p.(d)* between two points is the work done per unit charge when moving charge from one point to another.

(d) The resistance between two points is the *(p.d.)* between the two points per unit current.

154. Which pair contains one vector and one scalar quantity?

(a) Displacement acceleration

(b) Force kinetic energy

(c) Momentum velocity

(d) Power speed

155. A man standing next to a stationary train hears sound of frequency 400 Hz emitted from the train's horn. The train then moves directly away from the man and sounds its horn when it has a speed of 50 m s^{-1}. The speed of sound is 340 m s^{-1}. What is the difference in frequency of the sound heard by the man on the two occasions?

(a) 51Hz (b) 69Hz (c) 349Hz (d) 469Hz

156. Nylon (6,6) six carbon atom in each monomer is the example of:

(a) Addition polymers

(b) Substitution polymers

(c) Condensation polymers

(d) Condensation monomers

157. Angular momentum has the same unit as:

(a) Impulse x distance

(b) Linear momentum x time

(c) Work x frequency

(d) Power x time

158. Two particle having mass M and m are moving in a circular path having radius R and r. if their time period are same , then the ratio of their angular velocity will be:

(a) $\frac{r}{R}$ (b) $\frac{R}{r}$ (c) 1 (d) $\sqrt{\frac{R}{r}}$

159. Which equation represents β + decay?

(a) Neutron→ proton +positron +antineutrino

(b) Neutron → proton + positron + neutrino

(c) Proton → proton + neutron+ antineutrino

(d) Proton + neutron+ positron + neutrino

160. To have an old head on young shoulders' means:

(a) To be wiser than one's age

(b) To be young but appear old

(c) To have low IQ

(d) To be old but appear young

161. The equation of directrix for the parabola $y^2 = -4px$ is

(a) $y=-p$ (b) $y = p$

(c) $x=-p$ (d) $x = p$

162. The angle of the tangent line $x - y = 0$ to a curve $y = f(x)$ is

(a) 30° (b) 45° (c) 60° (d) 0

163. The line $2x - y + c = 0$ will touch the ellipse $\frac{x^2}{3} + \frac{y^2}{4} = 1$ if c = _____

(a) ± 4 (b) ± 7 (c) ± 9 (d) ± 11

164. Polyester resin-polyurethane resin is:

(a) Hot adhesive (b) Multipart adhesive

(c) One art adhesive (d) Contact adhesive

165. What is the colour of oxidizing smog:

(a) Reddish brownish gray

(b) Bluish brownish gray

(c) Brownish gray (d) Yellow

166. Carboxylic acid react with ammonia to form ammonium salts which on heating produces:

(a) Co_2 (b) Alkane (c) Ester (d) Acetamide

167. For a body moving with constant speed in a horizontal circle, which of the following remains constant:

(a) Velocity (b) Centripetal force

(c) Acceleration (d) Kinetic energy

168. If a gymnast sitting on a rotating stool with his arms outstretched suddenly lowers his hands:

(a) The angular velocity decreases

(b) His moment of velocity decreases

(c) The angular velocity stays constant

(d) The angular momentum increase

169. The unit of gravitational potential is

(a) Joule (b) Joule / kilogram

(c) Joule kilogram (d) Kilogram

170. Do not disturb him for nothing.

(a) Let not he be disturbed for nothing

(b) He is not to be disturbed for nothing

(c) Nobody should disturb him for nothing

(d) We should not disturb him for nothing

171. Let $\vec{G}(t) = \vec{t}\vec{i} - (t+1)^{+2}\vec{j} + t^{-1}\vec{k}$ the Domain of the vector function $\vec{G}(t)$ is

(a) All value of t

(b) Only non-negative value of t

(c) All positive values of t

(d) All values except t = 0

172. The order of steepness of lines $L_1: y - x + 3 = 0, L_2: y - \frac{1}{3}x - 5, L_3: y - 0.3x + 6$ is

(a) L_1, L_2, L_3 (b) L_2, L_3, L_1

(c) L_3, L_2, L_1 (d) L_1, L_3, L_2

173. The point A (4.5) is above the line:

(a) $3x - 7y - 15 = 0$

(b) $3x - 7y + 15 = 0$

(c) $3x + 7y - 15 = 0$

(d) $3x + 7y + 15 = 0$

174. Solvent dyes are also known as:

(a) Spirit - soluble dyes

(b) Ether – soluble dyes

(c) Direct dyes (d) Basic dyes

175. Light naphtha contain hexane & heptane is obtained in the boiling range of

(a) 60 - 100℃ (b) 80 - 100 ^{0} C

(c) 40 - 60℃ (d) 60 - 80 ^{0} C

176. Which of the following is both unit less and dimensionless:

(a) Angle (b) Solid angle

(c) Mechanical equivalent of heat

(d) Refractive index

177. The maximum error in the measurement of mass and length of the side of a cube are 3% and 2% respectively. The maximum error in the measurement of its density will be:

(a) 3% (b) 5% (c) 6% (d) 9%

178. The area under the acceleration time graph represent:

(a) Displacement (b) Velocity

(c) Change in velocity (d) Distance travelled

179. Disillusioned with life in a communist country, he _____ to the west.

(a) emigrated (b) travelled

(c) defected (d) deserted

180. If $x + iy = (5 - 3i)^3$, then x = _____ and y = _____

(a) (10, 198) (b) (10, -198)

(c) (-10, +198) (d) (-10, -198)

181. $|Z| = |-Z|$ for a complex number Z, if and only if it hold that (i) Z = -Z

(ii) $Z = \vec{\bar{Z}}$ (iii) $Z = -\vec{\bar{Z}}$ (a) Only (i) holds

(b) (i) and (ii) both holds

(c) (i), (ii) and (iii) holds

(d) Either (i) or (ii) holds

182. If $A = \begin{bmatrix} 2 & \lambda \\ 3 & 1 \end{bmatrix}$ is a non singular matrix, then λ can takes all the real values except for

(a) 0 (b) $\frac{2}{3}$ (c) $-\frac{2}{3}$ (d) $\frac{3}{2}$

183. The largest number of molecules are present in the:

(a) 22g of CO_2 (b) 64g of O_2

(c) 14g of N_2 (d) 90g of H_2SO_4

184. A centripetal force F acts on a body moving with angular speedω. If the angular speed is tripled then the magnitude of centripetal force becomes;

(a) 8F (b) 9F (c) 3F (d) 4F

185. Colour fringes observed in soap bubbles are the example of

(a) Diffraction (b) Interference

(c) Reflection (d) Refraction

186. The product of pressure and volume has the same SI base units as

(a) Energy (b) Force

(c) Power (d) Heat capacity

187. Cannon had _____ unique qualities _____ it was used widely in ancient times.

(a) such, so (b) that, since

(c) that, that (d) such, that

188. If $\frac{\theta}{2}$ lies in the 3rd or 4th quadrant, then $\sin\frac{\theta}{2}$ =

(a) $\sqrt{\frac{1+\cos\theta}{2}}$ (b) $\sqrt{\frac{1-\cos\theta}{2}}$

(c) $-\sqrt{\frac{1-\cos\theta}{2}}$ (d) $\pm\sqrt{\frac{1-\cos\theta}{2}}$

189. If $\theta < \pi$, then the relation between $\frac{\theta}{2}$ and $\frac{\pi}{2}$ is given by

(a) $\frac{\theta}{2}=\frac{\pi}{2}$ (b) $\frac{\theta}{2}<\frac{\pi}{2}$

(c) $\frac{\theta}{2}>\frac{\pi}{2}$ (d) $\frac{\theta}{2}\leq\frac{\pi}{2}$

190. $\frac{\cos5\theta+\cos3\theta}{\sin5\theta-\sin3\theta}$

(a) $\sin2\theta$ (b) $\cos8\theta$

(c) $\cot\theta$ (d) $\tan\theta$

191. Consider the flowing reaction: $3Ag+HNO_3 \rightarrow 3AgNO_3+NO+H_2O$ select the true statement.

(a) Silver is reduced (b) NO_3^- is oxidized to NO

(c) Silver gains electrons

(d) Nitrogen accepts electron

192. A fly wheels rotates at a constant speed of 3000 rpm (rev/min). The angle described by the shaft in radian in one second is:

(a) 2π (b) 30 π (c) 100 π (d) 3000 π

193. A ring and a disc have same mass and same radius. If we denote the moment of inertia of disc by I_d and that of ring by I_r then:

(a) $I_r > I_d$ (b) $I_r < I_d$ (c) $I_r = I_d$

194. The perpetual motion of the earth as it turns on its axis creates the change of seasons,

[The underlined word means]:

(a) ancient (b) rhythmic

(c) leisurely (d) constant

195. If $|\vec{a}+\vec{b}| = |\vec{a}-\vec{b}|$ for two non zero vectors $\vec{a}$ and $\vec{b}$ then it holds that

(a) $\vec{a}$ and $\vec{b}$ are perpendicular

(b) $\vec{a}$ and $\vec{b}$ are parallel

(c) $\vec{a}$ and $\vec{b}$ are coplanar

(d) $\vec{a}$ and $\vec{b}$ are non coplanar

196. Let $f(x) = \sqrt{x^2+1}$ $0 < x < 4$ then f

(a) 1 (b) -1 (c) 2 (d) -2

197. $\frac{d}{dx}(\operatorname{cosec}^{-1}x)$ = _____ when x < 0

(a) $\frac{1}{x\sqrt{x^2+1}}$ (b) $\frac{-1}{x\sqrt{x^2-1}}$ (c) $\frac{-1}{x\sqrt{1-x}}$ (d) $\frac{1}{x\sqrt{1+x^2}}$

198. Select the correct order in boiling point:

(a) Butonal<2-Butanol<2 Methyl-2-proponal

(b) Butanol<1-Butonol<2-Methyl-2-propanol

(c) 2-Methyl-2-propanol<1-Butanol<2-Butanol

(d) 2-Methyl-2Propanol<2-Butanoic<1-Butonol

199. The carbon-carbon triple bond length in acetylene is

(a) $1.09A^0$ (b) $1.119A^0$

(c) $1.39\ A^0$ (d) $1.19A^0$

200. In Wurt "z" synthesis alkyl halide react with sodium the solvent used is:

(a) Water (b) Alcohol

(c) Pyridine (d) Ether

Medical 2016

1. The tissues present in anglosperms but absent in gymnosperms are:
   (a) Vessels (b) Companion cell
   (c) Sieve tube (d) Both (a) and (b)

2. Individuality of every persons is maintained by nucleotide genome sequence difference of:
   (a) 1% (b) 2% (c) 3% (d) 5%

3. Mature cells of cartilage are:
   (a) Chondrocytes (b) Osteocytes
   (c) Osteoblasts (d) Osteoclasts

4. The total energy of a particle executing S.H.M. is:
   (a) Inversely proportional to the square of the amplitud
   (b) Directly proportional to the amplitude
   (c) Zero
   (d) Directly proportional to the square of the amplitude

5. A weight suspended from an ideal spring oscillates up and down with a period T. If the amplitude of the oscillation is doubled, the period will be:
   (a) T (b) 1 (c) 2T (d) T

6. A heat engine:
   (a) Converts heat input to an equivalent amount of work
   (b) Converts work to an equivalent amount of heat
   (c) Takes heat in, doeswork, and loses energy as heat
   (d) Uses positive work done on the system to transfer heat from a low temperature reservoir to a high temperature reservoir

7. Choose the correct sentence.
   (a) Each contained a different specie of insect.
   (b) Each contained a different species of insect.
   (c) Each contained a different specie of insects.
   (d) Each contained a different specei of insect.

8. The hydrated cations of first transition series that imparts a blue color:
   (a) Cr^{+2}, CO^{+2}, Cu^{+2} (b) Cu^{+2}, Zn^{+2}, Ti^{+4}
   (c) Tt^{+3}, Zn^{+2}, Cu^{+2} (d) Cr^{+3}, Tt^{+4}, Cu^{+2}

9. Select the correct order of the acids strength?
   (a) $CH_3COOH>>CHCl_2COOH>CH_2ClCOOH$
   (b) $CHCl_2COOH>CH_2ClCOOH>CH_3COOH$
   (c) $CH_3COOH>CHCl_2COOH>CH_2ClCOOH$
   (d) $CHCl_2COOH>>CH_2COOH>CH_2ClCOOH$

10. If 50 KV is the applied potential in ax X-ray tube then the minimum wavelength of X-rays produced is:
    (a) 0.2 nm (b) 2 nm (c) 0.02 nm (d) 2A

11. Two projectiles are in flight at the same time. The acceleration of one relative to the other:
    (a) Is always 9.8 m/s^2 (b) Can be as large as 19.8 m/s^2
    (c) Can be horizontal (d) Is zero

12. Choose the correct sentence.
    (a) He can speak Japanese because he was born in Canada.
    (b) He can speak Japanese until he was born in Canada.
    (c) He can speak Japanese even though he was born in Canada
    (d) He can speak Japanese so he was born in Canada.

13. Which is not correct about the manufacture of ammonia by Haber – Process? The break opening of the nitrogen triple bond ($N \equiv N$) to form N_2H_2 in first step of the reaction is taken as:
    (a) Very difficult step (b) Highly unstable product
    (c) Highly endothermic (d) None of the above

14. Carbon monoxide can be converted by hydrogenolysis to alkanes by the process known as:
    (a) Contact process (b) Fischer-tropsch (FT) process
    (c) Fermentation process (d) Haber-Bosch process

15. How much phosphorus is required by an adult man per day?
    (a) 500 mg (b) 400 mg (c) 800 mg (d) 1800 mg

16. Of the following the dioeclous plant be
    (a) sun-flower (b) Wheat
    (c) Mulberry (d) Maize

17. Each kidney of human being is weighing about:
    (a) 140 grams (b) 160 grams
    (c) 130 grams (d) 150 grams

18. How many sodium ions (Na^+) will be pumped out, when IO-postassium ions (K^+) are transported inward of resting member potential.
    (a) 5 (b) 10 (c) 15 (d) 20

19. At absolute zero the molecules of hydrogen gas will have:
    (a) Only translational motion
    (b) Only vibrational motion
    (c) Only rotational motion
    (d) All the motion are ceased

20. Which one of the following discovered the vaccine for first time against the small pox in 1796.
    (a) Edward Jenner (b) Hoistem wings
    (c) F. H Herbor (d) JammesShwang

21. The main axis culminates in a flower and produces three or more daughter axis each of which continues the branching in similar manner is know as:
    (a) Uniparous cyme (b) biparous cyme
    (c) Multiparous cyme (d) Cymosecapitulum

22. The ripened & fertilized ovule is called:
    (a) Fruit (b) Seed
    (c) Endosperm (d) Perisperm

23. In Compton scattering from stationary electrons the largest change in wavelength occurs when the photon is scattered through:
    (a) 0^0 (b) 45^0 (c) 90^0 (d) 180^0

24. If the potential difference across a resistor is doubled:

(a) Only the current is doubled
(b) Only the current is halved
(c) Only the resistance is doubled
(d) Only the resistance is halved

25. Nuclear fusion in the sun is increasing in supply of:
(a) Hydrogen (b) Helium (c) Nucleons (d) Positrons

26. _____ my mind, what we need in this company is a better marketing plan.
(a) For (b) In (c) To (d) At

27. A dilute hydrochloric acid is added to a flask containing time stone a gas is produced which is dissolved in time water in a test tube a white precipitate is formed the precipitate is of:
(a) $CaSO_4$ (b) $CaCO_3$ (c) $CaCl_2$ (d) $MgCO_3$

28. $2XeF_6 + SiO_2 \rightarrow 2XeOF_4 + SiF_4$ Consider the above chemical reaction. If 122.6 g of XeF_6 reacts with 60 g of SiO_2 to form the products. Select the limiting reagent and amount of SiF_4 formed: (XeF_6 245.3 amu, SiO_2 = 60 amu, SiF_4 = 104 amu)
(a) XeF_6, 26 g (b) SlO_2, 26 g
(c) XeF_6, 52 g (d) SlO_2, 52 g

29. Ethanal reacts with CH3CH2Mg Br the product formed is:
(a) $CH_3CH_2CH_2OH$ (b) $\begin{matrix}CH_3\\CH_3\end{matrix}>CHOH$
(c) $\begin{matrix}CH_3\\CH_3CH_2\end{matrix}>CHOH$ (d) $CH_3CH_2CH_2\overset{O}{\overset{\|}{}}OH$

30. The functional group region in infra-red spectrum lies between:
(a) $500 - 1300cm^{-1}$ (b) $600 - 1500cm^{-1}$
(c) $1500 - 4000cm^{-1}$ (d) $2500 - 3500cm^{-1}$

31. Which one of the following comes into existence when bacterial plasmid naturally modified to produce it?
(a) pBR 322 (b) Npq 303
(c) oSR 210 (d) kMG 319

32. Exophthalmia is a classic symptom of:
(a) Hyperthyroidism (b) Hypocalcemia
(c) Hypochondria (d) Hyperglycemia

33. Percentage of CO carried by plasma is:
(a) 5% (b) 6% (c) 7% (d) 8%

34. In stationary waves:
(a) There is not transfer of energy
(b) Energy is constant at all points
(c) Phase is the same for all points
(d) both (a) & (b)

35. If each vector have unit magnitude than $\vec{A}.\vec{A}$ is:
(a) South (b) One (c) North (d) West

36. Which is not true about Grignard reagent?
(a) They are highly reactive compounds
(b) They are very stable compounds and can be isolated easily
(c) They have synthetic importance
(d) They are represented by general formula RMgX.

37. Choose reaction that is not correct?
(a) $RC(=O)-OH + SOCl_2 \rightarrow RC(=O)Cl + HCl + SO_2$
(b) $RC(=O)-OH + PCl_3 \rightarrow RC(=O)Cl + HCl + POCl_3$
(c) $2CH_3COOH + PO \rightarrow CH_3-C(=O)-O-C(=O)-CH_3$
(d) $CH_3C(=O)-OH + CH_3CHCl \rightarrow CH_3C(=O)Cl + CHOH$

38. "C.S.F" is found in between.
(a) Pia matter and dura mater
(b) Pia mater and arachnoid mater
(c) Pia mater and neural canal
(d) Dura mater and arachnoid mater

39. Kelps are:
(a) Diatoms (b) Red-algae
(c) Green-algae (d) Brown-algae

40. Independent gametophyte and sporophyte are found in:
(a) Liverworts (b) Tracheophytes
(c) Ectocarpus (d) Mosses

41. In a purely resistive circuit the current:
(a) Leads the voltage by one-half of a cycle
(b) Leads the voltage by one-fourth of a cycle
(c) Leads the voltage by one-half of a cycle
(d) Is in phase with the voltage

42. ----------

43. ----------

44. Your friend proved more sympathetic than I, expected he _____ do.
(a) will (b) shall (c) would (d) should

45. XYZ are the elements in the same short period of the periodic table the oxide of X is amphoteric the Exide of Y is basic and the Exide of Z is acidic what is the order of increasing atomic number for these elements?
(a) XYZ (b) XZY (c) YXZ (d) ZXY

46. In which of the following reaction hydrogen acts as oxidizing agent.
(a) $H_2 + Cl_2 \rightarrow 2HCl$ (b) $C_2H_4 + H_2 \rightarrow C_2H_6$
(c) $2Na + H_2 \rightarrow 2NaH$ (d) $N_2 + 3H_2 \rightarrow 2NH_3$

47. The correct order of the reactivity of hydrocarbon given below is:
(a) $C_2H_4 > C_2H_2 > C_6H_6$ (b) $C_6H_6 > C_2H_4 > C_2H_2$
(c) $C_2H_4 > C_2H_4 > C_6H_6$ (d) $C_2H_2 > C_6H_6 > C_2H_4$

48. The guard cell of the stomata in Monocot is:
(a) Kidney shape (b) Oval
(c) Rounded (d) Dumbbell shaped

49. Photorespiration involved the following reaction which occurs in the sequence of:

(a) Glycolate→ Glycine, Glycine → Serine + CO2, RuBP + O2→Glycolate
(b) RuBP+ O2→Glycolate, Glycine → Serine+ CO2, Glycolate→ Glycine
(c) RuBP+ O2 →Glycolate, Glycolate→ Glycine, Glycine → Serine + CO2
(d) Glycine → Serine + CO2, RuBP+ O2→Glycolate, Glycolate→ Glycine

50. Which of the following statement is correct?

(a) High concentration of ADH increases blood pressure
(b) High concentration of ADH decreases blood pressure
(c) High concentration of ADH does not affect blood pressure
(d) High concentration of ADH bring blood pressure to normal

51. The number of ejected photoelectrons increases with increase.

(a) In intensity of flight (b) In wavelength of light
(c) In frequency of light (d) Never

52. How many oxygen atoms are present in 278g of Hydrated Ferrous Sulphate?

($FeSO_4$.7Hz 0 = 278 any)

(a) 6.023×10^{23} (b) 6.525 $\times 10^{24}$
(c) 2.408×10^{23} (d) 6.023 $\times 10^{22}$

53. Porifera is related to the sub Kingdom of:

(a) Protozoa (b) Parazoa (c) Metazoa (d) Aves

54. The females of one of the following classes possess a single overy, that is:

(a) Pisces (b) Amphibia (c) Reptilia (d) Aves

55. The florescent pigments in the eyes of fruit fly is an example of:

(a) Over dominance (b) Complete dominance
(c) Incompliete (d) Co-dominance

56. The number of loops in the standing waves is directly dependent on:

(a) Wavelength (b) Frequency
(c) Velocity (d) Speed

57. In Einstein's universe what is the fourth dimension:

(a) Distance (b) Speed (c) Time (d) Energy

58. A.C and D.C have the same:

(a) Affect in charging battery
(b) Affect in charging capacitor
(c) Heating effect through a resistance
(d) Affect passing through an inductance

59. "I am disappointed that you feel you have to lie to me, lason," said his father.

Select the correct indirect speech:

(a) His father said to Jason that he is sorry to feel disappointed that he has to lie to me.
(b) Jason's father said to him that he was sorry that he felt he had to lie to me.
(c) Jason's father said that he was disappointed to know that he felt he had to lie to him.
(d) Jason's father was disappointed and sorry that he had to lie to him and that he felt it.

60. Which is strong electrolyte?

(a) $Ca(OH)_2$ (b) $SiCl_4$ (c) KCl (d) $SrCl_2$

61. The roots given out from rhizome of fern are called:

(a) Pneumatophore (b) Phizophores
(c) Rhizoids (d) Adventitious roots

62. Pigment combination of a carotenoid is:

(a) Blue, green, brown, or red
(b) Orange, yellow, blue, or brown
(c) Yellow, orange, red, or brown
(d) Blue, red, orange, or brown

63. The study of fishes is called:

(a) Ornithology (b) Ichthyology
(c) Herpetology (d) Ethoogy

64. X-rays are widely used as a diagnostic tool in medicine because of its:

(a) Particle property (b) Cost of X-ray unit is low
(c) High penetrating power
(d) It is not electromagnetic waves

65. To obtain greater dispersion by a diffraction grating:

(a) The slit width should be increased
(b) The slit width should be decreased
(c) The slit separation should be increased
(d) The slit separation should be decreased

66. The unit "henry" is equivalent to:

(a) Volt-second/ampere (b) Volt/second
(c) Ohm (d) Ampere volt/ second

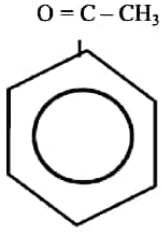
67. Choose the word most similar in meaning to the capitalized word "OBLITERATE":

(a) Offend (b) Haul (c) Rent (d) Destroy

68. The compound Aldehyde hydrazone is:

(a) $\begin{matrix} R \\ H \end{matrix} > CH{=}N{-}NH_2$
(b) $\begin{matrix} R \\ H \end{matrix} > CH{-}NH{-}O{-}NH_2$
(c) $\begin{matrix} R \\ H \end{matrix} > CH{-}NG{-}NH_2$
(d) $\begin{matrix} R \\ H \end{matrix} > CH{-}O{-}N{=}NH$

69. Which is the correct IUPAC name of the compound given below?



(a) Acetophenon (b) Phenylethanone
(c) Phenyl ethanal (d) Phenylacetate

70. Chromium compounds in which oxidation state of chromium is 2 + behaves as a:

(a) Strong oxidizing agent
(b) Strong reducing agent
(c) Very weak oxidizing agent
(d) Very weak reducing agent

71. Primary amines on treatment with alkyl halide yield;

(a) Secondary amine (b) Tertiary amine

(c) Quaternary ammonium salt

(d) Mixture of (a), (b) & (c)

72. D.N.A of bacterium is:

(a) Haploid, single stranded, coiled
(b) Diploid, double stranded, coiled
(c) Haploid, double stranded, coiled
(d) Diploid, single stranded, coiled

73. Chiroptera are:

(a) Flying mammals (b) Flesh eating mammals
(c) Hoofed mammals(d) Aquatic mammals

74. The swallowing process is regulated by:

(a) Throat (b) Pharynx
(c) Medulla oblongata(d) Stomach

75. A total charge of 100C flows through a 12W bulb in a time of 50 second. What is the potential difference across the bulb during this time?

(a) 0.12V (b) 2.0V (c) 6.0V(d) 24V

76. The total energy of a hydrogen atom in its ground state is:

(a) Zero (b) Negative
(c) Positive (d) None of the above

77. Becquerel is the unit of:

(a) Decay constant (b) Half life
(c) Mean life (d) Activity

78. The revolution in art has not lost its steam; it _____ on as fiercely as ever.

(a) Trudges (b) Meanders

(c) Ambles (d) Rages

79. The principal has forbidden smoking on the campus.

Select the correct passive voice:

(a) Smoking has been forbidden on the campus by the principal.
(b) Smoking had been forbidden on the campus by the principal.
(c) Smoking was being forbidden on the campus by the principal.
(d) It is forbidden by the principal to smoke on campus.

80. Choose reaction that does not require $ZnCl_3$ catalyst:

(a) $CH_3CH_2OH + HCl \rightarrow CH_3CH_2Cl + H_2O$
(b) $CH_3CH_2OH + HBr \rightarrow CH_3CH_2Br + H_2O$
(c) $CH_3CH_2OH + HI \rightarrow CH_3CH_2I + H_2O$
(d) Both (b) & (c)

81. Select the correct reaction of the following

(a) $SnO + 4NaOH \rightarrow Sn(OH)_4 + 2Na_2O$
(b) $SnO + 4NaOH \rightarrow Na_4Sn(OH)_4$
(c) $SnO + 2NaOH \rightarrow Na_2Sn(OH)_4$
(d) None of the above

82. Choose the true statement regarding the reaction given below

$$2Na_{(g)} + Cl_{2(g)} \rightarrow 2NaCl_{(s)}$$

(a) Chloride is oxidized and sodium is reduced
(b) Chlorine acts as an oxidizing agent and sodium as reducing agent
(c) Chlorine acts as a reducing agent and

(d) None of the above

83. World-wide, mortality rate per annum due to AIDS is more than:

(a) One million (b) Two-million
(c) Three million (d) five-million

84. "Portuguese-man of war" is the:

(a) Desert-snake (b) Coelenterate
(c) A big-reptile (d) Black-forest monkey

85. Rootless, stem-less and leafless plants are:

(a) Liverworts (b) Mosses
(c) Psilopsida (d) Onion

86. The changing electric flux in a certain region of space produces:

(a) An electric field (b) Magnetic field
(c) both S'' and A'' (d) None of the above

87. What are the values of principal quantum number and azimuthal quantum number for the last electron in Chlorine atom?

(a) 1.6 (b) 1.3 (c) 3.1 (d) 6.1

88. $K_p = K_c (RT)^{\Delta n}$ in the equation if $\Delta n < 0$ then:

(a) $K_p = K_c$ (b) $K_p < K_c$ (c) $K_p > K_c$ (d) $K_p < 0$

89. Amphibians generally have three chambers in their hearts. What type of chambers they are?

(a) One ventricle, one atrium, one outflow tract
(b) Two ventricles, one atrium
(c) One ventricle, one atrium
(d) One ventricle, one atrium, one sinus venous

90. Release of calcium from bone in to blood is controlled by

(a) Parathormone (b) Calcitonin
(c) Thyroxine (d) Both (a) & (b)

91. That 1st field trial of genetically engineered plants occurred in France and USA in:

(a) 1980 (b) 1982 (c) 1984 (d) 1986

92. A laser beam can be sharply focused because it is:

(a) Highly coherent (b) Plane polarized
(c) Intense (d) Highly directional

93. A charged capacitor stores 10 C at 40 V. Its stored energy is:

(a) 400 J (b) 4 J (c) 0.2 J (d) 200 J

94. A hydrogen atom that has lost its electron is moving east in a region where the magnetic moving east in a region where the magnetic fields directed from south to north. It will be deflected:

(a) Up (b) Down (c) North (d) South

95. Choose the word opposite in meaning to the capitalized word "TANGIBLE":

(a) Embodied (b) Conceptual
(c) Phenomenal (d) Verifiable

96. The colour of thin films is a result of:

(a) Dispersion (b) Absorption of light
(c) Scattering of light (d) None of the above

97. Together the old man and the young boy washed the dishes.
Select the correct passive voice:
(a) The old man and the young boy were washing the dishes together.
(b) The old man and the young boy together washed the dishes.
(c) The dishes were washed by the old man and the young boy together.
(d) Together, the old man and the young boy wash the dishes.

98. Shown below are portion of orbital diagrams representing the ground state electronic configuration of certain elements. Which of them obeys the Pauli's exclusion principle? Hund's rules?

(a) ↑ | ↑ | ↑↑ (b) ↑ | ↑↓ | ↑

(c) ↑ | ↑ | ↑↓ (d) ↑ | ↑↑ | ↓

99. Chemical shift in NMR spectroscopy is expressed as delta (δ) or tan (t) scale. Choose the correct relationship between δ and t:

(a) $\delta = 10 -$ (b) $\delta = 10 + t$
(c) $t = \delta - 10$ (d) $t = 10 - \delta$

100. Choose the correct statement:
DDT an insecticide is considered as:
(a) Very unstable molecule having half-life ½ to 1 year
(b) Unstable molecule having half-life 2 to 5 years
(c) Stable molecule having half-life 5 to 8 years
(d) Very stable molecule having half-life 10 to 15 years

101. Sense of taste is called:

(a) Gustation (b) Tactition
(c) Nociception (d) Olfaction

102. Select meta directing group of the following?

(a) –OH (b) $-NR_2$ (c) –CN (d) –OR

103. The osmotic pressure of dilute solution is given below by relationship:

(a) $\pi = \frac{MRT}{C}$ (b) $\pi = \frac{RCT}{M}$ (c) $\pi = \frac{MR}{TC}$ (d) $\pi = \frac{RC}{TM}$

104. Choose the one which is not the assumption of collision theory of reaction rate:

(a) For chemical reaction to occur molecule/ particles must colloids
(b) For reacting molecules/ Particles must possess a certain minimum amount of energy, the activation of energy
(c) Every collision is not productive
(d) For hydrogen molecule formation from atoms require specific orientation

105. Basidiocarps are developed by:

(a) Primary mycelium (b) Secondary mycelium
(c) Tertiary mycelium (d) Quaternary mycelium

106. Outer wall of guard cell is:

(a) Thick & elastic (b) Thick & non elastic
(c) Thin & elastic (d) Thin & non elastic

107. Eating of high carbohydrate food are signs and symptoms of:

(a) Obesity (b) Bulimia nervosa
(c) Dyspepsia (d) Anorexia nervosa

108. The frequency at which 1 henry inductor have reactance of 500Ω is:

(a) 80Hz (b) 800Hz (c) 8000Hz (d) 50Hz

109. A neutron with K.E equal to 0.04ev is called?

(a) Slow neutron (b) Thermal neutron
(c) Fast neutron (d) Both (a) and (b)

110. Radiation damages living organism is primarily due to:

(a) Excitation phenomena (b) Ionization

(c) Photo electric effect (d) Heating

111. Communication technology has brought a tremendous revolution in modern societies.
Select the correct passive voice:
(a) A tremendous revolution has been brought in communication technology in modern societies.
(b) In modern societies a tremendous revolutions has been brought in communication technology.
(c) A tremendous revolution has brought in communication technology in modern societies
(d) Communication technology has tremendous revolution brought in modern societies

112. Pka values of some acids are given below:
Choose the weaker acid?

(a) $HClO_4$ (–10) (b) HBr (–9)
(c) H_2SO_4 (–3) (d) HCl (–7)

113. The water formed in the combustion analysis is usually absorbed by:

(a) $Mg(NO_3)_2$ (b) $Mg(ClO_4)_2$
(c) $Mg(OH)_2$ (d) $Mg(ClO_2)_2$

114. When small amount of ammonia is added to $CUSO_4$ solution in water, blue PPt of $[Cu(H_2O)_4(OH)_2]$ is formed. The blue PPt dissolves on addition of excess of ammonia.

The product formed is:

(a) $[Cu(H_2O)_2(NH_3)_2(OH)_2]$ (b) $[Cu(NH_3)_4(OH)_2]$
(c) $[Cu(NH_3)_4(H_2O)_2]^{2+}$ (d) $[Cu(NH_3)_3(H_2O_3]^{2+}$

115. In case of immunity, the first line of body defense is:
(a) Macrophages (b) Lymphocytes
(c) Blood cells (d) Skin

116. Transport of organic solutes from the source of assimilation to the source of sink is:
(a) Transportation (b) Transduction
(c) Translocation (d) Transformation

117. The percentage of symbolic association by Ascomycota is more than:
(a) 50% (b) 40% (c) 20% (d) 30%

118. A vector of magnitude 20 is added to a vector of magnitude 25. The magnitude of this sum might be:
(a) Zero (b) 3 (c) 12 (d) 47

119. Graphite is one of the allotropic form of Carbon it is:
(a) Isotropic (b) Anisotropic
(c) Bond conductor of electricity (d) Both (b) & (c)

120. Delayed wound healing is caused by deficiency of:
(a) Zn (b) Fe (c) Co (d) Mn

121. If one Faraday was to be 30,230 coulombs instead of 96,500 coulombs then charge on an electron is:
(a) 1.5×10^{-19}C (b) 1×10^{-19}C
(c) 0.5×10^{-19}C (d) 6.02×10^{-19}C

122. Which of the following statements is correct?
(a) Antipyretic drugs lower the temperature set point
(b) Antipyretic drugs rise the temperature set point
(c) Antipyretic drugs do not effect on temperature set point
(d) Antipyretic drugs first lower the temperature set point and then rise

123. Which of the following is correct about speed of nerve impulse:
(a) Thicker the nerve fiber-less resistance to flow of current-faster the nerve impulse.
(b) Thicker the nerve fiber-more resistance to flow of current-slower the nerve impulse
(c) Thinner the nerve fiber-less resistance to flow of current-slower the nerve impulse
(d) None of the above

124. Archaea live in both extreme and moderate environments those living in extreme condition are called:
(a) Extremophile (b) Methanogeus
(c) Extremophyte (d) Extremogeus

125. In a cricket match 500 spectators are counted one by one. How many significant figures will be there in the final result?
(a) 0 (b) 1 (c) 2 (d) 3

126. The time period of a simple pendulum is 2 seconds. If its length is increased by 4 times, then its period becomes:
(a) 16 s (b) 12 s (c) 8 s (d) 4 s

127. A moving charged particle is surroundes ??
(a) 1 fields (b) 3 fields (c) 2 fields (d) 4 fields

128. Water flows from a 6.0cm diameter pipe into 8.0cm diameter pipe. The speed in the 6.0cm pipe is 5.0m/s. the speed in the 8cm pipe is:
(a) 2.8m/s (b) 3.7m/s (c) 6.6m/s (d) 8.8m/s

129. I insist _____ the withdrawal of your statement.
(a) for (b) on (c) at (d) in

130. In the $CH_3CH_2C \equiv CH + H_2O \rightarrow$?
(a) $CH_3CHO + CH_3CHO$ (b) $CH_3CH_2CH_2CH_2 - OH$
(c) $CH_3CH_2CH_2COOH$ (d) $CH_3CH_2COCH_3$

131. The infrared spectra commonly referred to as IR spectra is usually expressed as:
(a) Wave length (b) Wave number
(c) Frequency (d) All of the above

132. Which statement is correct for three way catalytic converter:
(a) Reduces emission of unburnt HC's
(b) Reduces pollutants
(c) Oxidize pollutant like CO (d) All of the above

133. Which of the following are components of homeostatic mechanism;
(a) Receptor, Regulators, Effectors
(b) Receptors, Integrator, Effectors
(c) Sensors, Brain, Effectors
(d) All of the above

134. The botanical name of deadly nightshade is:
(a) Atropa belladonna (b) Taxusbaccata
(c) Narcissus spp (d) Both (a) & (b)

135. Hormone inhibin is produced by:
(a) Hypothalamus (b) Pituitary gland
(c) Prostrate (d) Sertoli cells

136. A particle, held by a string whose other end is attached to a fixed point C, moves in a circle on a horizontal frictionless surface. If the string is cut, the angular momentum of the particle about the point: C.
(a) Increases (b) Decreases
(c) Does not change
(d) Changes direction but not magnitude

137. An electron has charge-e- and mass m. A proton has charge e and mass 1840m. A "Proton volt" is equal to:
(a) 1 eV (b) 1840 eV
(c) (1/1840) eV (d) $\sqrt{1840}\ eV$

138. The rotational inertia of a disk about its axis is 0.70 Kg. m2. When a 2.0-kg weight is added to itsrim, 0.40m from the axis, the rotational inertia becomes:
(a) 0.38 Kg – m^2 (b) 0.54 kg – m^2
(c) 0.86 kg – m^2 (d) 1.0 kg – m^2

139. As you have not prepared your work, ...

(a) You may not fail in the examination

(b) You could prepare harder next time

(c) You would do better in the examination

(d) You are not likely to do well this time

140. Which of the following is closest to a yard:

(a) 0.01 m (b) 0.1 m (c) 1 m (d) 100 m

141. You stand on a spring scale on the floor of an elevator. Of the following, the scale shows the highest reading when the elevator:

(a) Moves upward with increasing speed

(b) Moves upward with decreasing speed
(c) Remains stationary
(d) Moves downward with increasing speed

142. A wheel starts from rest and has an angular acceleration of 4.0 rad/s^2. When it has made 10 rev its angular velocity is:

(a) 16 rad/s (b) 22 rad/s (c) 32 rad/s (d) 250 rad/s

143. Choose the word opposite in meaning to the capitalized word "ANARCHIC":

(a) Riotous (b) Turbulent
(c) Disordered (d) Organized

144. The electronic transition that is involved in the visible region is:

(a) $\sigma - \sigma$ (b) $d - d$ (c) $\pi - \pi$ (d) $\pi - \sigma$

145. A water sample contains 3.8 $\times$ 10^3g of mercury per kilo gram of the sample. What is the concentration of mercury in parts per million?

(a) 3.8 ppm (b) 38 ppm (c) 0.38 ppm (d) 380 ppm

146. Select the reaction when the supply of air is very limited.

(a) $CH_4 + 20_2 \rightarrow CO_2 + 2H_2O$ + heat
(b) $2CH_4 + 3O_2 \rightarrow 2CO_2 + 4H_2O$ + heat
(c) $CH_3 - CH_3 + 7O_2 \rightarrow CO_2 + 6H_2O$ + heat
(d) $2CH_4 + 2O_2 \rightarrow 2C + 4H_2O$ + heat

147. All of the following are micronutrients accept

(a) Iron (b) Chlorine (c) Copper (d) Potassium

148. Auxin travels by diffusion towards:

(a) Shoot (b) Flowers
(c) Leaves (d) Base of plant

149. Reptiles flourished in _____ period.

(a) Jurassic (b) Mesozoic
(c) Metazolc (d) Both (a) & (b)

150. Signal from a remote control to the device operated by it, travels with the speed of:

(a) Sound (b) Supersonic
(c) Ultrasonic (d) Light

151. 'Frown on somebody' means to:

(a) Fall flat upon a stranger
(b) Stay alive working hard
(c) Unable to be successful
(d) Disapprove of somebody

152. The main components of lipstick are:

(a) Mixture of non-volatile oil and solid wax
(b) Mixture of volatile oil and wax
(c) Fats and wax (d) Fates, oil and wax

153. Which of the following solution will have

(a) 1 molar solution of urea
(b) 1 molar solution of glucose

(c) 1 molar solution of sodium chloride
(d) 1 molar solution of magnesium chloride

154. The spin states of a nucleus of an atom in absence of applied magnetic field have:

(a) Different energies (b) Equal energies

(c) Zero energies (d) High energies

155. The Sulphur Bacteria which obtain energy by oxidizing H_2S instead of water is called:

(a) Alpha proteobacteria (b) Beta proteobacteria
(c) Gamma proteobacteria (d) Gamma proteobacteria

156. Which of the following is non-steroidal hormone?

(a) Cortisol (b) Testosterone
(c) Insulin (d) Aldosterone

157. Stop codons are:

(a) UAA,UAG,UGA (b) UGC,UCG,AAA
(c) UUG,UCG,UCA (d) UAA,UGC,UCA

158. Which of the following electromagnetic waves has the smallest wavelength?

(a) X-rays (b) Gamma rays
(c) Microwaves (d) Ultraviolet rays

159. The temperature coefficient of resistance of a semiconductor is:

(a) Positive (b) Negative
(c) Imaginary (d) Zero

160. The ground state energy of H-atom is 13.6 eV. The energy needed to lonize H-atom from its second excited state is:

(a) 1.51 eV (b) 3.4 eV (c) 13.6 eV (d) 12.1 eV

161. The tissue culture method occur in the following sequence:

(a) Sterilization → media preparation → inoculation → callus development →plantlets
(b) Media preparation → sterilization → inoculation → callus development → plantlets
(c) Media preparation → inoculation → sterilization → callus development → plantlets
(d) Inoculation → sterilization → media preparation → callus development → plantlets

162. A condition in which the artery is thickened and blocked by cholesterol is called.

(a) Arteriosclerosis (b) Atherosclerosis
(c) Thrombosis (d) Embolism

163. The path traced by β particles in air is:
(a) Straight (b) Erratic
(c) Circular (d) Elliptical

164. Angle that a body traverses at the centre of a circle in two turns is:
(a) 4πRads (b) 720^0
(c) 12.6 Rads (d) All of the above

165. Two tuning forks of frequencies 256Hz and 260Hz are sounded together, the time interval between two consecutive maximum sound heard by a listener is:
(a) 0.5 Sec (b) 2 Sec (c) 1 Sec (d) 0.25 Sec

166. Choose the word most similar in meaning to the capitalized word "PRODIGIOUS":
(a) Enormous (b) Sacred (c) Seismic (d) Tiny

167. Oligosaccharides are involved in the formation of:
(a) Secreted proteins (b) Blood clotting factors
(c) Anti-bodies (d) All of the above

168. Select the correct product:

$$R - \underset{|}{\overset{OH}{C}} \equiv N + N_2O$$

The hydrolysis of Alkyl nitriles in the presence of acid form:
(a) $R\,CO\,NH_2$ (b) $R\,CH(NH_2)_2$
(c) $R\text{–}\underset{O}{\overset{\|}{C}}\text{–}NH_2$ (d) $R\text{–}\underset{O}{\overset{\|}{C}}\text{–}OH$

169. If p is a pressure and δis a density then p/δha units of:
(a) m^2/s^2 (b) N/m^2 (c) Kg/m^2 (d) m^3/Kg

170. Intrinsic semi-conductor can be converted into extrinsic semi-conductor by adding:
(a) Trivalent impurity (b) Pentavalent impurity
(c) Pentavalent or trivalent impurities
(d) None of the above

171. A 30-cm long string, with one end clamped and the other free to move transversely, is vibrating in its second harmonic. The wavelength of the constituent traveling waves is:
(a) 10 cm (b) 30 cm (c) 40 cm (d) 120 cm

172. If you like sport, this is a great place. There's a lot to choose _____.
(a) Among (b) From (c) At (d) For

173. What is the concentration $\frac{moles}{litre}$ of nitric acid solution having PH of 4?
(a) 4 (b) –4 (c) 10^{-4} (d) 10^{-10}

174. Ethoxy ethane when treated with conc: H_2SO_4, it produces:
(a) Carbocation (b) Oxonium ion
(c) Carbanion (d) Oxalate ion

175. A cell is constructed of the following two half cells. What is E^+ of the cell?
$Ag^+ + e^- \leftrightharpoons Ag + 0.80\ V$ $Al^{3+} + 3e^- \leftrightharpoons Al - 1.67\ V$
(a) 2.47 V (b) 0.087 V (c) – 0.87 V (d) 5.81 V

176. A slowly progressive disease of the brain that is characterized by the impairment of memory and eventually by disturbance in reasoning, planning, language and perception is one of the following?
(a) Alzheimer's disease (b) Meningitis
(c) Cerebrovascular accident (d) Malignant

177. If $\vec{A} \cdot \vec{B} = 1$, A = 2, B = 1 then the angle between them is:
(a) 30^0 (b) 60^0 (c) 90^0 (d) 45^0

178. An object of mass 1 g is whirled in a horizontal circle of radius 0.5m at a constant speed of 2m/s. The work done on the object during one revolution is:
(a) 0 (b) 1 J (c) 2 J (d) 4 J

179. The candidate _____ when asked why he had left his last job; he did not want to admit that he had been dismissed.
(a) Demurred (b) Confided
(c) Dissembled (d) Rejoiced

180. What is the formula of Dichloro-Bis-ethylenediamine cobalt (II)?
(a) $[CO(en)_2Cl_2]$ (b) $[CO(en)_2Cl_2]^{2-}$
(c) $[CO(ebn)_2Cl_2]^{1-}$ (d) $[CO(en)_2Cl_2]^{1+}$

181. Lithium reacts with air to form:
(a) Li_2O (b) Li_2N
(c) $Li_2O_2 + Li_2CO_3$ (d) Both (a) & (b)

182. What will be the shape of a molecule which contains two sigma bond pairs and one lone pair?
(a) Linear (b) V shape (c) Tetragonal (d) Triangular

183. The most abundant lymphocytes are:
(a) C–cells (b) A & B cells
(c) B & C cells (d) B & T cells

184. The number of cortical nephrons are:
(a) 70–80% (b) 80–90% (c) 60–70% (d) 60–80%

185. The outer tissue of cambium develops in to:
(a) Xylem (b) Phloem (c) Cortex (d) Epidermis

186. A mass accelerates uniformly when the resultant force acting on it is:
(a) Zero (b) Constant but not zero
(c) Increases uniformly with respect to time
(d) Both (a) & (c)

187. The 1st symptom of Leaf curl disease of cotton infection appear within:

(a) 1 – 2 weeks (b) 2 – 3 weeks
(c) 3 – 4 weeks (d) 4 – 5 weeks

188. The mutation that occurs in an egg or sperm cell, or those that occur just after fertilization, are called _____ mutation.
(a) New (b) De novo (c) Drift (d) Both (a) & (b)

189. In Young's double slit experiment both the separation between the slits and the distance between the slits and the screen are halved; then the fringe width is:
(a) Halved (b) Unchanged (c) Doubled (d) Zeros

190. In pure inductance, the average power dissipated is:
(a) 1 (b) Greater than 1
(c) Less than 1 (d) Zero

191. As a loop of wire with a resistance of 10Ω moves in a constant non-uniform magnetic field, it loses kinetic energy at a uniform rate of 4.0 ms/s. The induced current in the loop is:
(a) 0 (b) 2 mA (c) 2.8 mA (d) 20 mA

192. Choose the correct sentence
(a) Turn left by the crossroads when you reach it
(b) Turn left by the crossroads until you reach it.
(c) Turn left with the crossroads when you reach it.
(d) Turn left at the crossroads when you reach it.

193. Which of the following electronic configuration is / are correct?
(i) $^{23}Na\ 1S^2\ 2S^2\ 2P^6\ 3S^1$
(ii) $^{29}Cu\ [Ar]\ 4S^1\ 3d^{10}$
(iii) $^{24}Cr\ [Ar]\ 4S^2\ 3d^4$
(a) I only (b) I and III only
(c) I and II only (d) II and III only

194. Which of the following is spontaneous reaction?
(a) $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$
(b) $2NaCl_{(g)} \rightarrow 2Na_{(g)} + Cl_{2(g)}$
(c) $Zn^{2+} + Cu \rightarrow Zn + Cu^{2+}$
(d) $2Fe(OH)_3 \rightarrow 2Fe + 3O_2 + 3H_2$

195. Two objects, P and Q have the same momentum. Q has more kinetic energy than P if it:
(a) Weighs more than P
(b) Is moving faster than P
(c) Weighs the same as P
(d) Is moving slower than P

196. A child, riding on a large merry-go-round, travels a distance of 3000m in a circle of diameter 40m. the total angle through which she revolves is:
(a) SO rad (b) 75 rad (c) 150 rad (d) 314 rad

197. Anwar said, "Naveed must go tomorrow". Select the correct indirect speech:
(a) Anwar declared that Naveed must have gone the following day
(b) Anwar exclaimed that Naveed would have to go the following day.
(c) Anwar said that Naveed would have to go the following day.
(d) Anwar said that Naveed shall go the following day.

198. Choose atom that is not having a spin quantum number $\frac{1}{2}$.
(a) C^{13} (b) N^{15} (c) F^{19} (d) O^{16}

199. Select the correct reaction.

(a) NH_2 → $NHNe$ with $NaNO_2$, HCl, 0^6C

(b) NH_2 → NNH with $NaNO_2$, HCl, 0^6C

(c) NH_2 → $NNCl$ with $NaNO_2$, HCl, 0^6C

(d) NH_2 → $NHCl$ with $NaNO_2$, HCl, 0^6C

200. Excess of BaSO4 was dissolved in pure water at 25^0C. If itsKsp = 1×10^{-10} what is the Conc: of Ba^{2+} ions in water?
(a) 10^{-10} (b) 10^{-20} (c) 10^{-5} (d) 10^{-6}

Engineering 2016

1. A person walks 10 km north, 20 km east and 10 km south, then the result displacement is:
(a) 10 km north-east (b) 20 km north-east
(c) 20 km east (d) 20 km west

2. The sum of magnitudes of two forces is 10N. the resultant force is 8N and its direction is perpendicular to minimum force, then the forces are:
(a) 6N & 10N (b) 8N & 8N
(c) 4N & 12N (d) 2N & 14N

3. If $\left|\vec{A}\right| = \left|\vec{B}\right|$, then what is the angle between $\vec{A} + \vec{B}$ and $\vec{A} - \vec{B}$?
(a) 0^0 (b) 45^0 (c) 60^0 (d) 90^0

4. Multiplicative inverse of $-2-3i$ is:
(a) $-\frac{2}{13}+\frac{3}{13}i$ (b) $\frac{2}{13}-\frac{3}{13}i$
(c) $-\frac{2}{13}-\frac{3}{13}i$ (d) All of the above

5. A square matrix $A=\left[a_{ij}\right]$ is called diagonal matrix if:
(a) $a_{ij}=0$ for $i=j$ (b) $a_{ij}=0$ for $i\neq j$
(c) $a_{ij}\neq 0$ for $i\neq j$ (d) All of the above

6. If $f_{(x,y)}=\sin xy$, then $f_y=?$
(a) $\cos xy$ (b) $x\cos xy$ (c) $-x\cos xy$ (d) $xy\cos xy$

7. Consider the following reaction involved in the manufacture of Urea:
$CO_2 + 2NH_3 \rightarrow NH_2\,COONH_4$
If 22.0g of CO_2 react with 34 g of ammonia to form ammonium carbamate, the reaction is taken as irreversible and go to completion. Identify the limiting reagent and the amount of carbamate formed:
(a) CO_2, 78g (b) NH_3, 78g (c) CO_2, 39g (d) NH_3, 39g

8. When hydrogen gas is enclosed in a discharge tube using low pressure, it emits:
(a) Green light (b) Blue light
(c) Red light (d) Yellow light

9. Tetramethylsitane (TMS) is added to the compound as standard while carrying out its NMR spectra the TMS is:
(a) Non volatile compound (b) Less volatile compound
(c) Highly volatile compound
(d) Highly reactive compound

10. Aslam can readily answer any question about what is going on.
Select the correct passive voice:
(a) A question is readily answered on about what is going on
(b) About what is going on, Aslam can answer readily the questions.
(c) Aslam readily answered about ongoing questions.
(d) Any question about what is going on can be readily answered by Aslam.

11. A radioactive substance has a half-life of four months. Three fourth of the substance will decay in.
(a) 6 months (b) 8 months (c) 12 months (d) 16 months

12. Which two nuclei contain the same number of neutrons?
(a) and (b) and
(c) $^{25}_{11}Na$ and $^{24}_{12}Mg$ (d) $^{32}_{14}Si$ and $^{32}_{15}P$

13. The maximum efficiency of an engine operating between the temperature 400^0C and 60^0C is:
(a) 50% (b) 55% (c) 85% (d) 95%

14. $\frac{(-1)^{n-1}(n-1)!a^n}{(ax+b)^n}$ is the nth derivative of:
(a) $0\times(-1n\,a)\times b$ (b) $0\times(-1n\,a)\times b^{-n}$
(c) $0\times(-1n\,a)\times b^{n}$ (d) $0\times(-1n\,a)\times b$

15. A homogeneous system has non-trivial solution. If A is the coefficient matrix, then
(a) $\det(A)\neq 0$ (b) $\det(A)=0$
(c) $\det(A)<0$ (d) $\det(A)>0$

16. If a_1 is the first term and r is the common ratio of a G.P, then $a_5=?$
(a) a_1r^5 (b) a_1r^4 (c) $a_1(r-1)$ (d) a_1r

17. Most of the enzymes start showing activities in the range of PH between:
(a) 2–4 (b) 5–9 (c) 3–5 (d) 10–12

18. Hydrolysis of fats occurs in the mouth and stomach to a slight extent because:
(a) Very small amount of Lipase is secreted by the salivary glands
(b) Small amount of lipase is secreted by the salivary glands
(c) No lipase is secreted by the salivary glands
(d) Large amount of lipase is secreted by the salivary glands

19. Sulpholipids are class of compounds that bonds fatty acids, alcohols and carbohydrates. It contains a:
(a) Sulphite group (b) Sulphide group
(c) Sulphate group (d) bisulphite group

20. He said to me," I have been looking for work, but haven't found a job".
(a) He told me that he had been looking for work, but hadn't found a job
(b) He told me that he had looked for work, but hadn't found a job.

(c) He told me that he had being looked for work, but haven't found a job.
(d) He tolded me that he was looking for work, but hadn't find a job.

21. Thermocouples covert:
(a) Chemical into electrical energy
(b) Heat into electrical energy
(c) Mechanical into electrical energy
(d) Light into electrical energy

22. The kinetic energy and potential energy of a particle executing simple harmonic motion will be equal when displacement is: (Where a is the amplitude)
(a) $a\sqrt{\frac{2}{3}}$ (b) $\frac{a}{2}$ (c) $\frac{a}{\sqrt{2}}$ (d) $a\sqrt{2}$

23. In a stationary wave the distance between consecutive antinodes is 25 cm. If the wave velocity is $300ms^{-1}$ then the frequency of the wave will be:
(a) 150 Hz (b) 300 Hz (c) 600 Hz (d) 750 Hz

24. Speed of a vector function:
(a) 5 (b) 29 (c) 1 (d) $\sqrt{29}$

25. If $f(x)$ is integrable on the interval $[a, b]$ and has indefinite integral $F(x)$, then $\int_a^b f(x)dx = ?$
(a) $F(b) - F(a)$ (b) $-\int_b^a f(x)dx$
(c) $-Fa + Fb$ (d) All of the above

26. The estimated value of circumference of a circle with radius $r = \frac{5}{11}cm$, is:
(a) $\frac{10}{7}$ (b) $\frac{20}{7}$ (c) $\frac{7}{5}$ (d) $\frac{5}{5}$

27. Choose the macronutrient, mineral essential for life:
(a) Zinc (b) Calcium
(c) Manganese (d) Iodine

28. Secondary structure of proteins is elucidated by which of the following technique?
(a) Infrared spectroscopy (b) NMR spectroscopy
(c) X-ray diffraction technique (d) All of the above

29. Ethanol reacts with $K_2Cr_2O_7$ and H_2SO_4 to give:
(a) $CH_3CH_2\overset{O}{\overset{\|}{C}}OH$ (b) $CH_3CH_2\overset{O}{\overset{\|}{C}}OK$
(c) CH_3OH (d) $CH_3CH_2HSO_4$

30. Choose the correct sentence.
(a) I got outside and looked in at the field
(b) I went outside and look out at the field.
(c) I went outside and looking out in the field
(d) I went outside and looked out at the field

31. If two bulbs of 25W and 100W respectively, each rated at 220 volts are connected in series with the supply of 440 volts. Which of the bulb will fuse?
(a) 100W bulb (b) 25 W bulb
(c) Both (a) & (b) (d) None of the above

32. In 10 minutes 3000 coulomb of free electrons enter one end of a conductor and 3000 coulomb leave the other end. The current is:
(a) 5A (b) 10A (c) 30A (d) Zero

33. An electron enters a magnetic field acting vertically downwards with a velocity V from east. The electron is deflected along.
(a) North (b) South (c) East (d) West

34. $\pm\sqrt{\frac{1-\cos 2\alpha}{2}} =$
(a) $-\sin\alpha$ (b) $\cos\alpha$ (c) $\sin\alpha$ (d) $-\cos\alpha$

35. For the parabola $y^2 = -4ax$, the end points of latus-rectum are:
(a) $(-a, 2a), (-a, -2a)$ (b) $(a, 2a), (a, -2a)$
(c) $(2a, a), (-2a, a)$ (d) $(2a, 2a), (-2a, -2a)$

36. Slope of the tangent to the circle $x^2 + y^2 = 2$, which makes an angle $30°$ with the $x-$ axis, is
(a) 0 (b) -1 (c) $\frac{1}{\sqrt{3}}$ (d) Undefined

37. Choose the correct reaction?
(a) $(CH_3CO)_2O + NH_3 \rightarrow CH_3\overset{O}{\overset{\|}{C}}NH_2 + CH_3COOH$
(b) $(CH_3CO)_2O + NH_3 \rightarrow (CH_3CO)^{OH}NH + H_2O$
(c) $(CH_3CO)_2O + 2NH_3 \rightarrow 2CH_3 - \overset{O}{\overset{\|}{C}} - NH_2$
(d) $(CH_3CO)_2O + 2NH_3 \rightarrow 2CH_3CH_3NH_2 + H_2O$

38. What is the suitable catalyst for the reaction given below?
$H-C\equiv C-H + H_2O \rightarrow CH_2\equiv CHOH \rightarrow CH_3-\overset{O}{\overset{\|}{C}}-H$
(a) Zn, HCl (b) Li Al H_4
(c) $HgSO_4 + H_2SO_4$ (d) Al_2O_3

39. Which one is Hydrazine?
(a) NH_2OH (b) R_2NH
(c) $C_6H_5HNNH_2$ (d) H_2NNH_2

40. Each occupation has its own _____; bankers, lawyers and computer professionals, for example, all use among themselves language which outsiders have difficult following.
(a) Merits (b) Disadvantages
(c) Rewards (d) Jargon

41. A long solenoid has magnetic field strength 3.14×10^{-2} T inside it when a current of 5A passes through it. The number of turns in 1m of the solenoid is:
(a) 1000 (b) 3000 (c) 5000 (d) 10000

42. The fringe width in Young's double slot experiment increases when?

(a) Wavelength increases
(b) Distance between the source and slit decreases
(c) Distance between the slits increases
(d) The width of the slits increases

43. Which of the following properties of an electron is made use of in the electron Microscope?
(a) High velocity (b) Wave nature
(c) Interference (d) Diffraction

44. $a_n = \frac{2n}{n+1}$ is the general term of:
(a) 1, 2, 3, 4... (b) $1, \frac{4}{3}, \frac{6}{4}, \frac{8}{5}$ .....
(c) $1, \frac{1}{2}, \frac{2}{3}, \frac{4}{5}$ ..... (d) None of the above

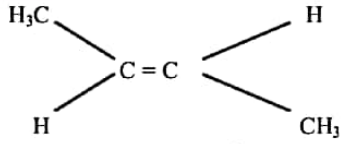
45. Sum of the series $1+\frac{1}{3}+\frac{1}{9}+\cdots+\frac{1}{3^n}$ ..., is:
(a) Zero (b) $\frac{2}{2}$ (c) $\frac{1}{3^n}$ (d) $\frac{n}{3^n}$

46. Two vectors $\vec{a}$ and $\vec{b}$ are called collinear if:
(a) $\vec{a} = k\vec{b}$ (for any scalar k) (b) Parallel to each other
(c) $\vec{a}+\vec{b}=\vec{0}$ (d) $\vec{a} \neq k\vec{b}$

47. Alcohols are weakly acidic with Ka values in the range of:
(a) 10^{-8} to 10^{-10} (b) 10^{-10} to 10^{-12}
(c) 10^{-12} to 10^{-25} (d) 10^{-16} to 10^{-18}

48. Choose the correct option of the following?
(a) Ammonia is stronger base than Allphatic primary amines
(b) Aliphatic primary amines are stronger bases than ammonia
(c) Aliphatic primary amines and ammonia have almost equal basic strength
(d) Aliphatic amines are not basic in nature

49. Choose the correct IUPAC name of the compound given below?



(a) 2-Butene (b) Cis2 Butene
(c) Trans 2 –Butene (d) Trans-dimethylethylene

50. Somebody broke into our bungalow last Friday. Select the correct passive voice:
(a) Our bungalow was broken into last Friday
(b) Our boungalow was broken in last Friday
(c) Our bungalow is broken in last Friday
(d) Our bungalow was beroken by somebody on last Friday.

51. Magnetic field will not deflect:
(a) rays (b) β^1 – rays
(c) β^{+1} – (d) α – rays

52. Work function for a certain surface is 3.26 eV. Minimum frequency, light must have in order to eject electron from surface will be:
(a) 1.6×10^{14} Hz (b) 3.2 $\times 10^{14}$ Hz
(c) 7.8×10^{14} Hz (d) 6.4 $\times 10^{14}$ Hz

53. A radioactive substance has a half-life of 60 minutes. During 3 hours the percentage of the material that decays would be:
(a) 12.5% (b) 87.5% (c) 8.5% (d) 25.1%

54. In equation $2x^2 + 2y^2 + 4x - 6y = 8$ 0 , centre is:
(a) $(-2, 3)$ (b) $(-ag, -af)$ (c) $\left(-1, \frac{3}{2}\right)$ (d) $(2, 3)$

55. S_∞ of an arithmetic – geometric series is given by:
(a) $\frac{a}{1-r}$ (b) [redacted]
(c) $\frac{a}{1-r} + \frac{dr}{(1-r)^2}$ (d) None of the above

56. Total three digit numbers formed from the digits 1, 2, 3 and 4 if repetition is allowed:
(a) 60 (b) 64 (c) 10 (d) 24

57. Choose the correct name of the compound given below.
$Ag^+ C^- \equiv C^- Ag^+$
(a) Silver carbide (b) Alkynide
(c) Silver dicarbide (d) None of the above

58. Select the o/p directing group but ring deactivators of the following?
(a) $-CH_3$ (b) $-Cl$ (c) $-NO_2$ (d) $-OH$

59. A solution contains 2 moles of sucrose's in 6 moles of water. What is the mole fraction of sucrose?
(a) 0.25 (b) 0.75 (c) 0.5 (d) 3.0

60. Choose the correct sentence.
(a) With the vial set inside the fly box, all the flies could be put to sleep within seconds.
(b) With the vial settled inside the fly box, all the flies could be put to sleep within seconds.
(c) With the vial set inside the fly box, all the flies could be putting to sleep within seconds.
(d) With the vial set inside the fly box, all the fly could be put to sleep in seconds.

61. In a nuclear reaction there is conservation of:
(a) Only mass (b) Only energy
(c) Only momentum (d) All of the above

62. A charge 'Q' is divided into two parts 'q' and 'Q'q' and separated by a distance 'R'. The force of repulsion between them will be maximum when:

(a) q = Q/4 (b) q = Q/2 (c) q = Q(d) q = Q/8

63. A ball of mass 0.5 kg is thrown normally against a wall at a speed of 12 ms^{-1}. It bounces back normally with a sped of $8sm^{-1}$. The collision lasts for 0.10s. what is the average force on the ball due to the collision?
(a) 0.2 N (b) 1 N (c) 20 N (d) 100 N

64. Equation of normal to the circle $x^2 + y^2 = a^2$ at the point (x_1, y_1) is:
(a) $xy_1 - yx_1 = 0$ (b) $xx_1 + yy_1 = 0$
(c) $xy + yx = 0$ (d) $xx_1 - yy_1 = 0$

65. Non-linear equation in the following equations is:
(a) $\frac{dv}{dt} = -32$ (b) $\frac{dy}{dx} = x + 1$
(c) $\frac{d^2y}{dx^2} + 2x\frac{dy}{dx} + y = 3$ (d) $\frac{d^2y}{dx^2} + 4y\left(\frac{dy}{dx}\right) + y = \cos x$

66. If $f(x, y)$ is a given function, then
$\lim_{\Delta y \to 0} \frac{f(x, y + \Delta y) - f(x, y)}{\Delta y} =$
(a) f_x (b) f_y (c) $f(x, y)$ (d) None of the above

67. The stability of colloidal system depends on:
(a) Charge on the particle (b) Solvation
(c) Brownian motion (d) All of the above

68. Atomic size of xenon is larger than Neon. Considering the London dispersion forces which one of the following is true.
(a) Neon molecules have weaker London dispersion forces
(b) Xenon molecules have weaker London dispersion forces
(c) Xenon and Neon have almost same London dispersion forces
(d) Xenon have lower boiling point than neon

69. The compound Y $BaCu_3O_3$ consists of:
(a) Cu(I) and Cu(II) Cations
(b) Cu(II) and Cu(III) Cations
(c) Cu (III) and Cu(IV) Cations
(d) Cu(II) and Cu(IV) Cations

70. Abid is _____ in his field; no other contemporary scientist commands the same respect.
(a) Disparaged (b) Ignominious
(c) Intelligent (d) Preeminent

71. A science museum designs an experiment to show the fall of a feather in a vertical glass vacuum tube. The time of fall from rest is too close to 0.5 s. What length of tube is required?
(a) 1.3 m (b) 2.5 m (c) 5.0 m (d) 10.0 m

72. When will 1C of charge pass a point in an electrical circuit?
(a) When 1A moves through a voltage of 1V
(b) When a power of 1W is used for 1s
(c) When the current is 5mA for 200s
(d) When the current is 10 A for 10s

73. The intensity of beam of monochromatic light is double, which of the following represent the corresponding change if the intensity of the monochromatic beam of light is double then the corresponding change in momentum of each photon will be:
(a) Increased (b) Double (c) Same (d) Halved

74. Let $\vec{n}$ be the unit vector orthogonal to both $\vec{a}$ and $\vec{b}$, then $\vec{n} = ?$
(a) $\vec{a} \times \vec{b}$ (b) $\vec{a} \cdot \vec{b}$ (c) $\frac{\vec{a} \times \vec{b}}{\left|\vec{a} \times \vec{b}\right|}$ (d) $\vec{a} - \vec{b}$

75. Pascal sequence for (n=3) is:
(a) 1, 1, 0, 0, 0, ... (b) 1, 2, 1, 0, 0,....
(c) 1,3,3,1,0,0,... (d) 1,4,6,4,1,0,....

76. Let Z be a complex number, then $Z.\bar{Z} = ?$
(a) $|Z|^2$ (b) $|-Z|^2$ (c) $|\bar{Z}|^2$ (d) All of the above

77. The coloursof MnO_4^{-1} and mN^{2+} solution in water are respectively:
(a) Intense dark purple colour and colourless
(b) Light purple colour and colourless
(c) Intense dark purple colour and brown colour
(d) Light purple colour and brown colour

78. A ring contains 1.2gram of diamond, the number of carbon atoms in the ring are:
(a) $N_A/10$ (b) N_A (c) $N_A/2$ (d) 1.2 N_A

79. Cylinder "A" contain 4.6 grams of C_2H_5OH and cylinder "B" has 3 grams C_2H_6:
(a) Both cylinder A and B have equal number of molecules
(b) Cylinder A has greater number of molecules than cylinder B
(c) Both cylinders have the equal number of hydrogen atoms
(d) Both (a) & (c)

80. They don't allow people to park in front of their gate. Select the correct passive voice:
(a) People are not allowed to park in front of their gate.
(b) People are un-allowed to park in front of their gate.
(c) People were not allowed to park in front of their gate.
(d) People were not being allowed to park in front of their gate.

81. The tip of a needle does not give a sharp image. It is due to:
(a) Polarization (b) Interference
(c) Diffraction (d) Refraction

82. A fluid is undergoing incompressible flow which represents that:
(a) The pressure at a given point cannot change with time
(b) The velocity at a given point cannot change with time
(c) The density cannot change with time or location
(d) The velocity must be the same everywhere

83. If C and R denote the capacity and resistance respectively the dimensions of CR are:
(a) M^0L^2T (b) M^0L^0T
(c) $M^0L^0T^0$ (d) M^0LT^{-1}

84. If y = f (x) is continuous on (a, b) then f (x) has inflection point at x = c, if:
(a) $f'(c)=0$ (b) $f'(c)>0$
(c) $f'(c)<0$ (d) $f''(c)=0$

85. $2x^2+2y^2-xy-2y=0$, does not represent a circle, because
(a) Degree is not two (b) Involving the term xy
(c) Coefficient of x^2 and y^2 are unequal
(d) None of the above

86. One root of $Z^2 + 2Z + 1 = 0$ is given by:
(a) $-1+i$ (b) $1+2i$ (c) $1-i$ (d) $1+i$

87. Helium shows negative joule Thomson effect due to its:
(a) Low viscosity (b) Inert nature
(c) Resistance to polarize (d) Low density

88. Bond energy of covalent bond decreases with the increase in:
(a) Polarity (b) Multiplicity
(c) Size of atom (d) All of the above

89. What volume of oxygen is required for complete combustion of $5cm^3$ of CH_4 and $5cm^3$ of C_2H_4 in same conditions?
(a) $5cm^3$ (b) $10cm^3$ (c) $25cm^3$ (d) $15cm^3$

90. He said to her, "What a hot day!" Select the correct Indirect speech:
(a) He exclaimed sorrowfully that it was hot day
(b) He told her that it was a hot day
(c) He exclaimed that it was a very hot day
(d) He said that it was a hot day

91. The power loss, P in resister is calculated by using the formula $p = \frac{V^2}{R}$. The uncertainty in the potential difference V is 3% and the uncertainty in the resistance R is 2%. What is the uncertainty in P?
(a) 4% (b) 7% (c) 8% (d) 11%

92. Vectors $\vec{A}$ and $\vec{B}$ each have magnitude L. when drawn with their tolls at the same point, the angle between them is 30^0. The value of $\vec{A}-\vec{B}$ is:
(a) Zero (b) L^2 (c) $L^2/2$ (d) $2L^2$

93. A stone is thrown upward from the top CA = 59.4m high cliff with an upward velocity component of 19.6m/s. How long is stone in the air?
(a) 4.00 s (b) 5.00 s (c) 6.00 s (d) 7.00 s

94. A square matrix $C=[c_{ij}]$ is called upper triangular if:
(a) $a_{ij}=0, \forall j>$ (b) $a_{ij}=0, i\forall <$
(c) $a_{ij}=0, i\forall =$ (d) Both (b) & (c)

95. The tangent line x + y = 0 intersects the parabola $x^2 = y_1$ at:
(a) Two coincident point
(b) Two real distinct points
(c) Two imaginary points (d) All of the above

96. Newton-Raphason method for numerical approximation of a function f (x) = 0 is:
(a) $x_{i+1}=x_i-\frac{f(x_i)}{'}$, $i=0,1,2,3,\cdots\cdots$
(b) $x_{i+1}=x_i+\frac{f(x^i)}{f'(x_i)}$, $i=0\,1,2,3,\cdots\cdots$
(c) $c=a-\frac{(a-b)f(a)}{f(a)-f(b)}$ (d) $c=a+\frac{(a-b)f(a)}{f(a)-f(b)}$

97. Which of the following sample contain maximum number of atoms?
(a) 4 grams of H_2 (b) 28 grams of N_2
(c) $22.4dm^3$ of CO_2 at STP (d) 1.5 mole of O_2

98. Earthen pots keep water cool in hot summer due to:
(a) Capillary action (b) Surface tension
(c) Evaporation (d) Combined effect of (a)&(b)

99. In the compound $^4CH_2=\,^3CH-\,^2CH=\,^1CH_2$
(a) C-1 and C-2 are SP2 hybridized
(b) C-1 and C-2 are SP hybridized and C-2 and C-3 are SP2 hybridized
(c) All the carbon atoms are SP2 hybridized
(d) All the statements are wrong

100. Choose the correct sentence
(a) My father is thinking that I should stop smoking
(b) My father thinks I should stop smoking
(c) My father through I should stop smoking
(d) My father think I should stop smoking

101. A 5Kg concrete block is lowered with a downward acceleration of $2.8m/s^2$ by means of a rope. The force of the block on the rope is:
(a) 14 N, up (b) 14 N, down
(c) 35 N, up (d) 35 N, down

102. A monkey is accelerating down a string whose breaking strength is two third of his weight. The minimum acceleration of the monkey should be:
(a) 1/3 g (b) 2/3 g (c) g (d) 0 m/s^2

103. For a wheel spinning on an axis through its center, the ratio of the radial acceleration of a point on the rim to the radial acceleration of a point halfway between the center and the rim is:
(a) 1 (b) 2 (c) ½ (d) 4

104. In the polynomial $p_x(x)=a_nx^n+a_{n-1}x^{n-1}+\ldots.+a_o$, o_n is called leading coefficient if:
(a) n< 0 (b) n < 0 (c) $n\neq 0$ (d) $a_n\neq 0$

105. If measure of the central angle of a minor are is θ, then measure of the angle made by the major are is:
(a) $\frac{1}{2}\theta$ (b) 20 (c) 30 (d) 10

106. For what value of 'm' the angle between $\vec{a} = m\hat{i} + \hat{j} - \hat{k}$ and $\vec{b} = \hat{i} + m\hat{j} - k$, is $\frac{\pi}{3}$?
(a) 1 (b) $\frac{1}{4}$ (c) 0 (d) 2

107. Fullerenes are solid allotropes of:
(a) Fluorine (b) Phosphorus (c) Sulphur (d) Carbon

108. DDT is used as insecticides its molar mass is 354.5g/mol when DDT was analysed by chemist he found that it contained 47.4% carbon. How many carbon atoms are there in DDT molecule:
(a) 10 (b) 12 (c) 14 (d) 16

109. Which of the following has the same number of electron as an alpha particle;
(a) He (b) H (c) H^+ (d) Li^+

110. Choose the correct sentence
(a) He probably isn't going to come to school tomorrow.
(b) He probably doesn't go to school tomorrow
(c) He probably isn't go to come to school tomorrow
(d) He probably won't come to school tomorrow

111. A piston in a gas supply pump has an area of 500 cm^2 and it moves a distance of 30cm during one stroke. The pump moves the gas against a fixed pressure of 4000 Pa. How much work is done by the piston during one stroke?
(a) 60 J (b) 6.0×10^3 J
(c) 6.0×10^3 (d) 6.0×10^3 J

112. A 0.50-kg block attached to an ideal spring with a spring constant of 80N/m oscillates on a horizontal frictionless surface. The total mechanical energy is 0.12 J. the greatest speed of the block is:
(a) 0.15m/s (b) 0.49m/s (c) 0.69m/s (d) 1.46m/s

113. Two trailers, X with mass 500 kg and Y with mass 2000 kg, are being pulled at the same speed. The ratio of the kinetic energy of Y to that of X is:
(a) 1:1 (b) 2:1 (c) 4:1 (d) 9:1

114. The approximate solution of a function y = f (x) lies in the interval (a, b) if:
(a) $f(a)f(b) < 0$ (b) $f(a) < 0$
(c) $f(a)f(b) < 0$ (d) $f(b) > 0$

115. The multiplicative inverse of Z = (–1, 1) is:
(a) $\frac{-1+i}{\sqrt{2}}$ (b) $\left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$ (c) $\frac{-1-i}{2}$ (d) $\left(\frac{-1}{\sqrt{2}}, \frac{-1}{\sqrt{2}}\right)$

116. If $a = \frac{125}{8}$, $r = \frac{2}{5}$, $n = 7$, then $a_n =$;
(a) $\frac{16}{625}$ (b) $\frac{8}{125}$ (c) $\frac{625}{16}$ (d) $\frac{16}{125}$

117. Grain spirit is:
(a) Isopropyl alcohol (b) Isobutyl alcohol
(c) n-propyl alcohol (d) Ethyl alcohol

118. Pickup the Arrhenius acid or Base:
(a) BF_3 (b) NH_3
(c) $AlCl_3$ (d) None of the above

119. In auto mobiles ethylene glycol is used to prevent:
(a) Freezing of water in cold winter
(b) Boiling of water in hot summer
(c) Drying up radiator (d) Both (a) & (b)

120. Chose the word most similar in meaning to the capitalized word "IGNOMINY":
(a) Dishonor (b) Enthusiasm (c) Besiege (d) Contrary

121. In the equation $d\sin\theta = m\lambda$ for the lines of a diffraction grating m is:
(a) The number of slits (b) the slit width
(c) The slit separation (d) The order of the line

122. Two point particles, one with charge $+8 \times 10^{-9}$C and the other with charge -2×10^{-9}C, are separated by 4m. The electric field in N/C midway between them is:
(a) 9×10^9 (b) 13, 500 (c) 36×10^{-9} (d) 22.5

123. The time constant RC has units of:
(a) Second/farad (b) Second/ohm
(c) 1/second (d) None of the above

124. If $f(x)$ and $g(x)$ are two functions, then $(f * g)^{-1}(x) = ?$
(a) $(g * f)(x)$ (b) $\left(f^{-1} * g^{-1}\right)(x)$
(c) $\left(g^{-1} * f^{-1}\right)(x)$ (d) $(g * f)\left(\frac{1}{x}\right)$

125. $\log_c a . \log_a b = ?$
(a) $\log_c a$ (b) $\log_b c$ (c) $\log_c b$ (d) 1

126. Domain of the function $f(x) = \frac{1}{x}$ is:
(a) Set of real numbers
(b) Set of non-zero real numbers
(c) Set of whole numbers (d) None of the above

127. Which of the following species have the same number of neutron and electron as in C-14:
(a) $^{17}_{7}N^{-1}$ (b) $^{19}_{9}F^{+1}$ (c) $^{16}_{8}O^{+2}$ (d) $^{28}_{14}Si$

128. For which of the following standard heat of formation is not zero:
(a) Cl(g) (b) Na (s) (c) Br_2 (g) (d) Hg(l)

129. Choose the correct order of decreasing basic strength:
(a) $MgO < Na_2O > P_4O_{10} > Al_2O_3$
(b) $Al_2O_3 > MgO > P_4O_{10} > Na_2O$
(c) $Na_2O > MgO > Al_2O_3 > P_4O_{10}$
(d) $P_4O_{10} > Na_2O > MgO > Al_2O_3$

130. The Govt. is making arrangements to _____ the fugitive who is now being detained in a foreign country.
(a) Exile (b) Extradite (c) Exonerate (d) Expel

131. Suppose A = BC, where A has the dimension L/M and C has the dimension L/T. Then B has the dimension:
(a) I/M (b) L^2/TM (c) TM/L^2 (d) L^2T/M

132. A rectangular loop of wire has area A. It is placed perpendicular to a uniform magnetic field B and then spin around one of its sides at frequency f. the maximum induced emf is:
(a) BAf (b) 1BAf (c) 2BAf (d) $2\pi BAf$

133. A 35-μF capacitor is connected to a source of sinusoidal emf with a frequency of 400 Hz and a maximum emf of 20 V. The maximum current is:
(a) 0 (b) 0.28 A (c) 1.8 A (d) 230 A

134. The probability of selecting a prime number from the set {1, 2, 3 … 20} is:
(a) $\frac{9}{20}$ (b) $\frac{1}{2}$ (c) $\frac{2}{5}$ (d) $\frac{7}{20}$

135. If $y = \cos^2 x$, then $y_3 =$:
(a) $-4\cos 2x$ (b) $-4\sin 2x$
(c) $4\cos 2x$ (d) $4\sin 2x$

136. If $\int_{-1}^{2} f(x)dx = 6$, $\int_{-1}^{2} g(x)dx = 9$, then $\int_{-1}^{2} [3f(x) + 4g(x)]dx =$:
(a) 18 (b) 54 (c) 35 (d) 60

137. Which of the following compounds has acidic hydrogen?
(a) Ethylene (b) 2-butyne
(c) Propyne (d) 3-butadiene

138. Benzene molecule have six carbon atoms and six hydrogen atoms the NMR spectrum of benzene will show:
(a) 12-peaks (b) 6-peaks
(c) 3-peaks (d) Only a single peak

139. Reaction of water with magnesium is:
(a) Slow (b) Fast
(c) It is slow in the start and become fast at the end
(d) It is slow in the start and become very slow at the end

140. Choose the word most similar in meaning to the capitalized word "VESTIGE".
(a) Servile (b) Embark (c) Hunch (d) Indication

141. The half-life of a radioactive isotope is 6.5 h. If there are initially 48×10^{32} atoms of this isotope, the number of atoms of this isotope remaining after 26 h is:
(a) 12×10^{32} (b) 6×10^{32} (c) 3×10^{32} (d) 6×10^{4}

142. The proper time between two events is measured by clocks at rest in a reference frame in which the two events:
(a) Occur at the same time
(b) Occur at the same coordinates
(c) Are separated by the distance a light signal can travel during the time interval
(d) Occur in Boston

143. In a photoelectric effect experiment the stopping potential is:
(a) The energy required to remove an electron from the sample
(b) The kinetic energy of the most energetic electron ejected
(c) The potential energy of the most energetic electron ejected
(d) The electric potential that causes the electron current to vanish

144. In terms of Δ, sin a = _____, where a, b, c are length of sides of a triangle.
(a) $\frac{4s}{bc}$ (b) $\frac{\Delta}{bc}$ (c) $\frac{2\Delta}{bc}$ (d) $\frac{2\Delta}{a}$

145. The range of $y = \cos^{-1}x$, is:
(a) $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ (b) $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$
(c) $[0, \pi]$ (d) $(-\pi, \pi)$

146. The eccentricity of an ellipse, $9x^2 + 4y^2 = 36$, is:
(a) $\frac{3}{5}$ (b) $\frac{\sqrt{5}}{3}$ (c) $\frac{3}{\sqrt{5}}$ (d) $\frac{5}{\sqrt{3}}$

147. When chlorine water is added to K1 solution the solution become
(a) Pale yellow (b) Violent
(c) Brown (d) Red

148. Which of the following elements with the given electronic configuration has the highest ionization energy?
(a) $1S^2\ 2S^2\ 2P^4$ (b) $1S^2\ 2S^2\ 2P^3$
(c) $1S^2\ 2S^2\ 2P^6\ 3S^1$ (d) $1S^2\ 2S^2\ 2P^6\ 3S^2\ 3P^3$

149. Lucas reagent is:
(a) H_2/ Pb (b) HCl/ $NaNO_2$
(c) HCl/ $NaNO_3$ (d) HCl/$ZnCl_2$

150. The custom department _____ the goods which were being smuggled into Pakistan.
(a) Usurped (b) Grabbed
(c) Confiscated (d) Possessed

151. A radium atom, ^{226}Ra (Z = 86) emits an alpha particle. The number of protons in the resulting atom is:
(a) 84 (b) 85 (c) 86 (d) 88

152. The function of the control rods in a nuclear reactor is to:
(a) Increase fission by slowing down the neutrons
(b) Decrease the energy of the neutrons without absorbing them
(c) Increase the ability of the neutrons to cause fission
(d) Decrease fission by absorbing neutrons

153. Soft X-rays have:
(a) High energy (b) Low energy
(c) High frequency (d) Refracted by heavy atom

154. If $g(x) = 3x + 1$, then $g^{-1}(g(x)) =$:
(a) Zero (b) x (c) $g(x)$ (d) None of the above

155. Coordinates of the focus of the Paramedical $y^2 = -x$ is given by:
(a) $(1, 0)$ (b) $\left(\frac{1}{4}, 0\right)$ (c) $\left(-\frac{1}{4}, 0\right)$ (d) $(4, 0)$

156. If $f(x) = \begin{cases} 3x+2, & \text{for } x \leq 1 \\ x^2 - 1, & \text{for } x > 1 \end{cases}$, then $f(1)$ is:
(a) -1 (b) 0 (c) 3 (d) 5

157. 60 a.m.u of C-12 contain carton atoms:
(a) 60 (b) $60 \times 6.02 \times 10^{23}$
(c) $5 \times 6.02 \times 10^{23}$ (d) 5

158. The heat of vaporization of the liquid A, B and C are 60, 30 and 40 recall/mule respectively the order of decreasing inter molecular forces among their molecules is:
(a) A>B>C (b) C>B>A (c) A>C>B (d) B>C>A

159. Complementary colour of orange colour is:
(a) Red (b) Green (c) Green blue (d) Yellow

160. Choose the correct sentence
(a) I am much thankful to you
(b) I am quite thankful to you
(c) I am just thankful to you
(d) I am very thankful to you

161. Two bodies of unequal mass, placed at rest on a frictionless surface, are acted on by equal horizontal forces for equal times. Just after these forces are removed, the body of greater mass will have:
(a) The greater acceleration
(b) The smaller momentum
(c) The greater momentum
(d) The same momentum as the other body

162. Joule degree–1 is the unit for
(a) Solar constant (b) Boltzmann's constant
(c) Stefan's constant (d) Planck's constant

163. An object moves in a circle. If the mass is tripled, the speed halved, and the radius unchanged, then the magnitude of the centripetal force must be multiplied by a factor of:
(a) 3/2 (b) 3/4 (c) 9/4 (d) 6

164. The general term u_n of the series $\frac{1}{1.4.7} + \frac{1}{4.7.10} + \frac{1}{7.10.13} + \cdots\cdots$, is:
(a) $\frac{1}{(3n-2)(3n)(3n+1)}$
(b) $\frac{1}{(3n-1)(3n)(3n+1)}$
(c) $\frac{1}{(3n-2)(3n)(3n+1)}$
(d) $\frac{1}{(3n-2)(3n)(3n+1)}$

165. If α, β, γ are the angles of a triangle with a, b and c as its sides, then which is the correct statement?
(a) $a^2 = b^2 + c^2 - 2bc.\cos\alpha$
(b) $a^2 = b^2 - c^2 - 2bc.\cos\alpha$
(c) $a^2 = b^2 + c^2 - 2bc.\cos\alpha$
(d) $a^2 = b^2 - c^2 - 2bc.\cos\alpha$

166. Equation of a tangent to the parabola $y^2 + 4zx$ in the slope form is:
(a) $y = mx + \frac{m}{a}$ (b) $y = mx + \frac{a}{m}$
(c) $my = m^2x + a^2$ (d) None of these

167. $CrO_{4(ag)}^{3-}$ and $Cr_2O_7^{2-}$ are inter convertible represented by equation:
$CrO_{4(ag)}^{3-} + 2H_{(ag)}^{+} = Cr_2O_{7(ag)}^{2-} + H_2O(l)$
Yellow Orange
In the above reaction
(a) $CrO_{4(ag)}^{2}$ act as base
(b) Addition of base change the color from orrange to yellow
(c) The addition of acid change the state of Cr from +6 to +4
(d) both (a) & (b)

168. The polymer which contain nitrogen is:
(a) Polyethene (b) Polyester (c) Teflon (d) Nylon

169. ----------

170. "Be Poles apart" means:
(a) Either of the two poles
(b) Having nothing in common
(c) Leading position in a race
(d) Affect somebody greatly

171. A 2.5kg stone is released from rest and falls towards Earth after 4.0s, the magnitude of its momentum is:
(a) 98 kg .m/s (b) 78 kg . m/s
(c) 39 kg .m/s (d) (0)

172. The angular speed of the minute hand of a watch is:
(a) $(60/\pi)$m/s (b) $(1800/\pi)$ m/s
(c) (π) m/s (d) $(\pi/1800)$ m/s

173. One end of a cylindrical pipe has a radius of 1.5cm. Water (density = 1.0×10^3 kg/m^{3}j which mass is leaving the pipe is:
(a) 2.5kg/s (b) 4.9kg/s
(c) 48 kg/s (d) 7.0×10^3 kg/s

174. If $f(x, y, z) = x + y = \frac{1}{2}$ then $\frac{1}{az} f(0,0,z) =$:

(a) z^2 (b) $\frac{1}{z^2}$ (c) $2+\frac{1}{z^2}$ (d) $-\frac{1}{z^2}$

175. The rank of matrix 'A' is the number of _____ rows in its echelon form.
(a) Zero (b) Identical (c) Non-zero (d) Equal

176. The number of signals that can be given by six flags of different colors, using three flags at a time are:
(a) 6 (b) 3 (c) 120 (d) 18

177. Which of the following cannot be explained by Bohr's theory?
(a) Be^{+++} (b) H (c) He (d) Li^{++}

178. A flask contain 6 gram of hydrogen gas and 64 gram oxygen at r.t.p the partial pressure of hydrogen gas in the flask of the total pressure (p) will be:
(a) 2/3 p (b) 3/5 p (c) 2/5 p (d) 1/3 p

179. Methanethiol and ethanethiol is added to the natural gas:
(a) To make the combustion of natural gas very easy
(b) To increase the bolling point
(c) to detect the gas leakage by smell
(d) Both (a) & (b)

180. He said, "May this child live long." Indirect form of the sentence is:
(a) He prayed that that child may live king
(b) He prayed that that child will living king
(c) He prayed that that child might live king
(d) He said that that child might live king

181. It is impossible for two particles, each executing simple harmonic motion, to remain in phase with each other if they have different:
(a) Masses (b) Periods
(c) Amplitudes (d) Spring constants

182. On a warm day a pool of water trainers energy to the air as heat and freezes. This is a direct violation of:
(a) The zeroth law of thermodynamics
(b) the first law of thermodynamics
(c) The second law of thermodynamics
(d) the third law of thermodynamics

183. Polaroid glass is used in sun glasses because:
(a) It is cheaper
(b) It increases the light intensity to one and a half times on account of polarization
(c) It reduces the light intensity to half its value on account of polarization
(d) It produces irritation in the eye

184. If $\theta = 0, \pm\pi, \pm 2\pi, \ldots, n \in Z$, then $R - \{t \mid t = n\pi, n \in Z\}$, is the domain of:
(a) Sine (b) Cosine (c) Tangent (d) Cotangent

185. If f (x,y)z x=y(2 2)x +y z 2, then $\frac{\partial}{\partial x} f(x, x, x) =$:
(a) $3x^3e^{2x} + 2x^2e^{2x} + 2x$ (b) $2x^3e^{2x} + 2x$
(c) $2x^3e^{2x} + 2x^2e^{2x} + 2x$ (d) $3x^2e^{2x} + 2x$

186. The coefficient of x^5 in the expansion of $\left(2x^2 - \frac{3}{x}\right)^{10}$, is:
(a) $-\binom{10}{5}2^5.3^5$ (b) $\binom{10}{5}2^5.3^5$
(c) $-\binom{10}{5}$ (d) $\binom{10}{5}$

187. A gas diffuses ½ times as fast as hydrogen gas its molecular mass is:
(a) 32 a.m.u (b) 25 a.m.u (c) 8 a.m.u (d) 16 a.m.u

188. A solution has three components A, B and C. the mole fraction of A and C are 0.15, 0.45 respectively the mole fraction of is;
(a) 0.25 (b) 0.005 (c) 0.40 (d) 0.60

189. Balance the given equation by using the suitable coefficients from the following sets:
$FeS_2 + O_2 \rightarrow Fe_2O_3 + SO_2$
(a) 4:11:2:8 (b) 1:10:2:8 (c) 6:5:3:7 (d) 2:11:4:8

190. Choose the word most similar in meaning to the capitalized word "REVILE":
(a) Perceive (b) Pawn (c) Abuse (d) Prevent

191. A certain wire has resistance R. Another wire of the same material, has half the length and half the diameter of the first wire. The resistance of the second wire is:
(a) R/4 (b) R/2 (c) R (d) 2R

192. The uncertainty in position of an election in a certain state is 5×10^{-10}m. The uncertainty in its momentum might be:
(a) 5.0×10^{-24}kg .m/s (b) 4.0×10^{-24}kg . m/s
(c) 3.0×10^{-24}kg .m/s (d) All of the above

193. A nucleus with mass number A and atomic number Z undergoes β decay. The mass number and atomic number, respectively, of the daughter nucleus are:
(a) A, Z - 1 (b) A – 1, Z (c) A + 1, Z (d) A, Z + 1

194. Period of the function y = 5 sin 3x, is:
(a) $\frac{5\pi}{2}$ (b) $\frac{3\pi}{2}$ (c) $\frac{2\pi}{3}$ (d) 2π

195. $Tan^{-1}\left(\frac{5}{6}\right) + Tan^{-1}\left(\frac{1}{11}\right) = ?$
(a) $-\frac{\pi}{4}$ (b) $\frac{\pi}{4}$ (c) $\frac{\pi}{5}$ (d) $\frac{\pi}{11}$

196. Domain and range of the relation: $x^2 + y^2 = 9$, is:
(a) R (b) $\{a \mid a \in R, a \neq 0\}$
(c) $\{-3, -3\}$ (d) $\{-3, 3\}$

197. Which one of the following is carbolic acid?
(a) H_2CO_3 (b) 5% solution of benzoic
(c) 5% solution of phenol
(d) 5% solution lactic acid

198. ----------

199. Methanal on treatment with Grignard's reagent CH_3MgBr the product formed is:
(a) CH_3CH_2OH (b) CH_3OH
(c) Manganese (d) Iodine

200. The foreign ministers would not _____ on the talks ended in a dead lock.
(a) Consult (b) Negotiate
(c) concede (d) Compromise

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	Nationalized	Subsidized	Nationalized	Subsidized	Nationalized	Subsidized	Nationalized	Subsidized	
Settled Area of Khyber Pakhtunkhwa	68	05	25	05	25	05	53	05	191
FATA	03	-	-	-	-	-	-	-	03
Bangladeshi	01	-	-	-	-	-	-	-	01
Indian held Kashmiri	01	-	-	-	-	-	-	-	01
Balochistan Province (HEC Nominees)	01	-	01	-	-	-	-	-	02
Azad Jammu & Kashmir	01	-	01	-	-	-	-	-	02
Gilgit Baltistan	01	-	-	-	01	-	-	-	02
Total	76	05	27	05	26	05	53	05	202

MARDAN CAMPUS

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Settled Area of Khyber Pakhtunkhwa	51	05	51	05	112
FATA	03	-	03	-	06
Balochistan Province (HEC Nominees)	01	-	01	-	02
Azad Jammu & Kashmir	01	-	01	-	02
Total	56	05	56	05	122

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	Nationalized	Subsidized	Nationalized	Subsidized	
Settled Area of Khyber Pakhtunkhwa	54	05	54	05	118
Balochistan Province (HEC Nominees)	01	-	-	-	01
Gilgit Baltistan	01	-	-	-	01
Afghan Nationals (HEC Nominees)	-	-	03	-	03
Total	56	05	57	05	123

KOHAT CAMPUS

CATEGORY	Electrical Engineering (Comm)		Total Seats
	Nationalized	Subsidized	
Settled Area of Khyber Pakhtunkhwa	45	05	50

JALOZAI CAMPUS

CATEGORY	Computer Science & IT		Total Seats
	Nationalized	Subsidized	
Settled Area of Khyber Pakhtunkhwa	50	–	50

MEDICAL PAPER 2015

1. All of the following are co-enzymes except:
(A) NAD (B) FAD(C) NADP (D) ADP

2. Carotenoids pigments are:
(A)Yellow, Red, Green, Blue
(B) Orange, Yellow, Red, Brown
(C) Green, Yellow, Blue, Brown
(D) Blue, Red, Green, Yellow

3. Polio immunization vaccine is effective:
(A)50% (B) 60% (C) 80% (D) 90%

4. $NH^4OH^{(aq)} \rightleftharpoons NH_4^+(aq) + OH^{-(aq)}$
Consider the above ionization, Ammonium chloride is added to the system.
Select the correct statement.
(A) The equilibrium will shift to the right
(B) The equilibrium will shift to the left
(C) The equilibrium will remain undisturbed
(D) The equilibrium will be attained quickly

5. Select molecule that has unpaired electrons in anti-bonding molecular orbitals:
(A)N_2 (B) Cl_2 (C) H_2 (D) O_2

6. Waxes are the esters of fatty acids with high molecular weight.
(A) Monohydroxy alcohols (B) Dihydroxy alcohol
(C)Trihydroxy alcohol (D) All of the above

7. The percentage error in the measurement of mass and speed are 5% or 6% respectively the maximum error in the measurement of K.E is:
(A) 17% (B) 30% (C) 15% (D) 90%

8. Weight rather than mass be used in calculating
(A)moment of inertia of a body
(B) the stress in a wire due to load hanging from it
(C) the binding energy of the nucleus
(D) the gravitational force between the two bodies

9. Two vectors $\vec{A}$ and $\vec{B}$ are such that $\vec{A} + \vec{B} = \vec{A} - \vec{B}$ then select the correct statement:
(A) $\vec{A}$ (B) $\vec{B} = 0$
(C)neither $\vec{A}$ nor $\vec{B}$ is zero (D) None of the above

10. He extolled the virtues of the Russian people. [The underlined word means:]
(A) Admired (B) Praised
(C) Censured (D) Adopted

11. Balantidium coli lives in the intestinal tract of:
(A) Pigs and rats (B) Pigs and monkeys
(C) Rats and dogs (D) Cats and sheep

12. Excited electrons from photo system-II are captured by:
(A) PC (B) PQ
(C) Cytochromb-b (D) Pentamerous

13. Dicotyledonous flowers are usually:
(A) Clmerous (B) Trimerous
(C) Tetramerous (D) Pentamerous

14. Select mineral that is considered asmacronutrient.
(A) Phosphorus (B) Zinc (C) Iron (D) Iodine

15. Two atoms A and B have the electronic configuration given below:
(x) $IS^2 2S^1 2P^6 3S^1$ (y) $IS^2 2S^2 2P^5$
Which of the following compounds are they likely to form?
(A) Xy (B) Xy^2 (C) X^1y (D) Xy^3

16. Which of the following ions can act both as bronsted acid and base in solvent water?
(A) CN^- (B) SO_4^{-2} (C) CH (D) PO_4^{-3}

17. Which of the following is the best evidence for the wave nature of matter?
(A) The photoelectric effect (B) The Compton effect
(C) The spectral radiation form cavity radiation
(D) The reflection of electrons by crystal

18. If P is the momentum of an object of mass m, then expression P^2/m has the same unit as:
(A) Acceleration (B) Energy (C) Force (D) Impulse

19. Conservation of linear momentum is equivalent to:
(A) Newton's 1st law of motion
(B)Newton's 2nd law of motion
(C) Newton's 3rd law of motion
(D) None of the above

20. He was _____ in bed all day yesterday.
(A) Laying (B) Lying (C) Lieing(D) Lied

21. All of the following are triploblastic animals except:
(A) Annelida (B) Mollusca
(C) Coelenterata (D) Echinodermata

22. Hermaphrodite phylum is:
(A) Annelida (B) Arthropoda
(C) Echinodermata (D) Mollusca

23. A hormone that helps in growing seedless grapes,
(A) Auxins (B) Cytokinins(C) Ethylene (D) Gibberellins

24. Oligosaccharides class of carbohydrates contain monosaccharides of about:
(A)2 to 8 units (B) 2 to 9 units
(C) 2 to 10 units (D) 2 to 11 units

25. Molar extinction coefficient (ε) a constant in Beer-Lambert law is the characteristics of the:
(A) Solute (B) Solvent
(C) concentration (D) Al of the above

26. The energy difference between adjacent energy levels of the hydrogen atom:
(A) Increases with increasing energy

(B) Decreases with increasing energy

(C) First increases and then decreases with increasing energy

(D) First decreases and then increases with increasing energy

27. A parachute of mass 80 kg descends verticallyat a constant velocity of 3.0 m-s1 takingacceleration of free fall as 10 m-s1, what is thenet force acting on him?
(A) 800 N upwards? (B) Zero
(C) 240 N downwards (D) 360 N downwards

28. Two projectiles are in flight at the same time. The acceleration of one relative to other:
(A) always 9.8 m-s^{-2} (B) can be horizontal
(C) can be as large as 19.8 m-s^{-2} (D) is zero

29. A body Is moving in a circle of radius (r) with a variable speed, the acceleration of the body is:
(A) centripetal acceleration (B) tangential acceleration
(C)angular acceleration (D) All of the above

30. He said to me, "Why have you come late?"[Indirect form of the sentence is:]
(A) He asked me why I had come late
(B) He asked me why I came late.
(C) He asked me why I have come late.
(D) He told me as to why I had come late.

31. The product of light reaction travel from:
(A) Cristae to stroma (B) Stroma to grana
(C) Grana to cristae (D) Grana to stroma

32. In stomach the pepsinogen is synthesized and secreted by:

(A) Mucus cells (B) Parietal cells

(C) Hormonal cells (D) Chief cells

33. Amount of O_2 carried by red blood cells is:
(A) 77% (B) 90% (C)87% (D) 97%

34. Choose the correct relationship, when E=energy, h=plank's constant, c=velocity of light, ■ =frequency, ■ =wave length:
(A) E = hvc (B)E = $\frac{c}{\lambda}$ (C)E = hv (D) E = $\frac{n\lambda}{c}$

35. Choose reactants whose reaction product is ester:
(A) CH_3COOH and CH_3OCH_3
(B) CH_3COOH and C_2H_5OH
(C) CH COOH and CH CHO
(D) CH_3^3COOH and $CH_3^3COCH_3$

36. Choose the IUPAC name of the following compound:

$$CH_3 - CH(CH_3) - CH_2 - CH = CH_2$$

(a)4- Methyl-1-Pentene (b) 2- Methyl-3- Pentene
(c) 2- Methyl-2- Pentene (d)4,4-Dirnethyl-2-Pentene

37. A particle of mass m has momentum P, its K.E will be:
(A) mP (B) P^2m (C) P^2/m (D) P^2/2m

38. The rotational analogue of mass in linear motion is:
(A) Torque (B) Weight
(C) Moment of inertia (D) Angular momentum

39. The ratio of inertial mass to the gravitational mass is equal to:
(A) 1/2 (B) 1 (C) 2 (D) No fixed number

40. Choose the Correct sentence:

(A) He throwed it out the window.

(B) He threw it out the window.

(C)He thrown out it the window.

(D) He thrown it out the window.

41. 6-NADH can yield:

(A) 12-ATP (B) 38-ATP

(C) 18-ATP (D) 36-ATP

42. Rhizobium belong to sub group of bacteriacalled:
(A) Alpha-Protobacteria (B) Beta-Protobacteria
(C)Gamma-Protobacteria (D) Delta-Protobacterla

43. Bacteria living in the gut, forms the associationof:
(A) Mutualism (B) Predation
(C) Parasitism (D) Commensalism

44. Which is the strongest acid?
(A) CH_3COOH (B) $CH_2ClCOOH$
(C)$CHCl_2COOH$ (D) CCl_3COOH

45. Choose the type of hybridization of carbon atoms in cyclopropane and the bond angleC– C–C.
(A) Sp^3, 109.5° (B) Sp^3, 60° (C) Sp^2, 120° (D) Sp^2, 107°

46. Hemiacetal containing both
(A) Alcohol and aldehyde functional groups
(B)Alcohol and ether functional groups
(C)Aldehyde and ether functional groups
(D) Alcohol and carboxylic acid functional groups

47. A satellite is orbiting close to the surface of the earth, its speed is:

(A) $\sqrt{2gR}$ (B) $\sqrt{Rg}$ (C)Rg/2 (D) Rg

48. In an adiabatic process there is no:

(A)Work done (B) Exchange of heat

(C)Change in temperature

(D) Change in internal energy

49. The ratio between the velocity of sound in air at 4 atm and that at 3. atm pressure would be:
(A)1 : 1 (B) 4 : 1 (C) 1 : 4 (D) 3 : 1

50. His bad friends will ruin him.
[Passive form of the sentence Is.1
(A)He will be ruin by his bad friends.
(B) He is ruined by his bad friends.
(C) He will be ruined by his bad friends.
(D) He is being ruined by his bad friends.

51. "Foraminifers" helps to determine the,

(A) Generation time (B) Geological age
(C) Ecological time (D) Physiological age

52. Phytochrome"Pr" absorbs red light of wavelength.
(A) 600 nm (B) 660 nm (C) 560nm (D) 730 nm

53. Basidiomycota is also called as:
(A) Club-mosses (B) Club-fungi
(C) Sac-fungi (D) Bread mold

54. Choose group that cause solubility of the dycin acids.
(A) –OH (B) $-NH_2$ (C) $-SO_2H$ (D) –COOH

55. What is the number of hydrogen atoms in 5moles of water?
(A) 3.0115×10^{24} (B) 6.023×10^{24}
(C) 6.023×10^{23} (D) 5.0×10^{23}

56. In themain postulates of Bohr atomic theory the angular momentum of electron in hydrogen atom is given by the relationship.
(A) $mv = \frac{\lambda}{2\pi}$ (B) $r = \frac{Ze^2}{4\pi E_0 mv}$
(C) $mvr = \frac{nh}{2\pi}$ (D) hvc

57. Colors of thin film result from
(A) Dispersion (B) Interference of light
(C) Absorption of light (D) Scattering of light

58. During a reversible adiabatic expansion of an Ideal gas, which of the following is not true?
(A) PV^v= constant (B) PV = constant
(C) PV = nRT (D) TV^v = constant

59. The energy absorbed as heat by an ideal gas for an isothermal process is equal to:
(A)The work done by the gas
(B) The work done on the gas.
(C)Change in the internal energy of the gas
(D) Zero, since the process is isothermal

60. It has been raining continuously _____ last night.
(A) since (B)for (C)from (D) with

61. Termites cut wood with the help of enzyme produced by
(A) Trichonella (B) Tripanosoma
(C) Trichonympha (D) Trichina

62. CSF Is found in between:
(A) Pia mater and dura mater
(B) Pia mater and arachnoid mater
(C) Grey mater and pia mater
(D)Dura mater and grey mater

63. Vernalization is the conversion of:
(A) Spring variety to the winter variety
(B) Winter variety to the spring variety
(C)Winter variety to the summer variety
(D) Summer variety to the winter variety

64. Which region of electromagnetic spectrum is involved in nuclear magnetic resonance (NMR spectroscopy)?
(A) Micro wave (B) Radio wave
(C) Infrared region (D) X-rays

65. The reduction of aldehydes and ketones in the presence of zinc amalgam and HCl is termed as:
(A) Grignard reduction
(B) Clemmenson reduction
(C) Wolf-kishner reduction
(D) Friedel-craft reduction

66. Aiman in laboratory dissolve 4g of NaOH in 250mi of water. The molarity of this solution is:
(A) 0.4M (B) 4M (C)0.2M (D) 0.1M

67. For all adiabatic processes
(A) the entropy of the system does not change
(B) the entropy of the system increases
(C)the entropy of the system decreases
(D) the entropy of the system does not decreases

68. A battery is permanently connected to a parallel plate capacitor and the energy stored is x joules. When one plate is moved so that separation of the plate is doubled, the energy now stored in joule is:
(A) 4x (B) 2x (C) x/2 (D) x/4

69. If $\frac{\Delta v}{\Delta r}$ is potential gradient, then the intensity of electric field at a point is
(A) $\frac{\Delta v}{\Delta r}$ (B) q $\frac{\Delta v}{\Delta r}$ (C) $-\frac{\Delta v}{\Delta r}$ (D) $\frac{\Delta x}{\Delta r}$

70. 'Be poles apart' means:
(A) Either of the two poles
(B) Have nothing in common
(C)Leading position in a race
(D) Affects some body greatly

71. Phosphodiester linkage is formed between.
(a) Two nucleotide bases (b) Amino acid
(c) Two sugar (d) Nucleotides and phosphates

72. A condition of excessive thirst due to diabetes is called:
(A) Polyuria (B) Glycusuria
(C) Polyphagia (D) Polydipsia

73. Implantation of zygote takes place in the:
(A) 2nd week (B) 3rd week
(C) 4th week (D) 5th week

74. The shape of $SnCl_2$ is:
(A)Linear (B) Trigonal pyramidal
(C)Trigonal planar (D) Angular

75. Which is not true about Grignard reagent?
(A) They are highly reactive compounds
(B) They are very stable compounds and can be isolated easily
(C) They have synthetic importance
(D) They are represented by general formula RMgX

76. Conc. HCl is added to a metal salt and then subjected to flame test on platinum wire. It Imparts crimson color to the flame. Which metal salt it is?
(A) Sodium (B) Potassium

(C) Strontium (D) Calcium

77. The unit of the electric field is:

(A) N/C (B) V/m

(C) J/C.m (D) All of the above

78. The electric field due to uniform distribution of charge on a spherical shell is zero.

(A) Every where (B) Only at the center of shell

(C) Only inside the shell

(D) Only one side of the shell

79. The quantity ½ E_0E^2 has the significant of

(A) energy/farad (B) Energy/ coulomb

(C) Energy/ volume (D) energy/volt

80. The rising price of electricity has _____ affected the less fortunate.

(A) positively (B) not

(C) adversely (D) slowly

81. Smallest gametophyte is present in:

(A)Adlantum (B) Funarla

(C)Marchantca (D) Anglosperms

82. Incubation period of "HCV" is:

(A) 2-6 weeks (B) 4-10 weeks

(C) 4-20 weeks (D) 4-26 weeks

83. Osteopenia starts at the age of:

(A) 30-40 (B) 30-35 (C) 40-45 (D) 50-60

84. The order of reducing power of halide ion is:

(A) I^{-1}> Br^->Cl^-> F^- (B) F^->Cl^-> Br^-> I^-

(C)I^{-1}>Cl^-> F^-> Br^- (D) Br^->Cl^-> I^-> F^-

85. Stable electronic configuration of Cu(29) is:

(A) [Ar] $4S^2$ $3d^4$ (B)[Ar] 4S ^{0} $3d^{10}$

(C)[Ar] $4S^1$ $3d^{10}$ (D) [Ar] 4S ^{2} $3d^7$ $4p^2$

86. The presence of microorganisms in drinking water is determined by:

(A) COD (B) TOC (C) BOD (D) TDS

87. For ohmic substance, the electron drift velocity is proportional to:

(A) Cross sectional of the sample

(B) The length of sample

(C) The mass of an electron

(D) The electric field in the sample

88. The sum of the e.m.f and potential differences around a closed circuit is zero is a consequence of:

(A) Ohm's law (B) Newton's 2nd law

(C) Conservation of energy (D)Conservation of charge

89. Four wires meet at a junction. The first carries 4A in to the junction, the second carries 5A out of the junction, and third carries 2A out of the junction. The fourth carries:

(A) 7A out of the junction (B) 7A into the junction

(C) 3A out of the junction (D) 3A in to the junction

90. He said, "May this child live long!"

[Indirect form of the sentence is:]

(A) He prayed that that child may live long.

(B) He prayed that that child will live long.

(C) He prayed that that child might live long.

(D) He said that that child might live long.

91. Blood pressure towards the brain during rest hours is:

(A) 850mm/minute (B) 900mm/minute

(C) 750mm/minute (D) 730mm/minute

92. Photo-respiration can generate:

(A) 4-ATP (B) 36-ATP

(C) 32-ATP (D) NO-ATP

93. Dark reaction gets completed by the regeneration of:

(A) PGA (B) PGAL (C) RUBP (D) RUBISCO

94. Sucrose on hydrolysis yield:

(A) Glucose (B) Glucose and fructose

(C) Glucose and maltose (D) Maltose and fructose

95. $N_2 + 3H_2 \rightleftharpoons 2NH_3$

In the above reaction the limiting reagent is:

(A) N_2 (B) H_2

(C)Ammonia (D) None of the above

96. If absolute temperature of the gas is doubled and pressure is increased 4 times, then the volume becomes:

(A) Half (B) Double

(C) 4 times (D) Unchanged

97. Four 20 Ω resistors are connected in parallel and combination is connected to a 20 V emf device. The current in the device is:

(A) 0.25 A (B) 1.0 A (C) 4.0 A (D) 5.0 A

98. An electron is moving north in a region when the magnetic field is south. The magnetic force exerted on the electron is:

(A) Zero (B) Up (C)Down (D) East

99. A 0.01A moving coil Galvanometer of 5 Ω resistance can be converted into a 0.2A ammeter by a resistance R with the Galvanometer when R is:

(A)0.25 Ωn parallel (B) 0.25 Ω in series

(C)0.50 Ωn parallel (D) 0.50 Ω in series

100. Your friend proved more sympathetic than I expected he _____ do.

(A) will (B) shall (C) would (D) should

101. Human body thermostat is:

(A) Medulla (B) Medulla oblongata

(C) Body fluid (D) Hypothalamus

102. How many pairs of cranial nerves are mixed in nature?

(A)02 pairs (B) 04 pairs

(C) 06 pairs (D) 08 pairs

103. "80–S" ribosome is formed by the combination of:

(A) 30S and 40S (B) 70S and 10S

(C) 50S and 30S (D) 60S and 40S

104. The electronic transition that is involved in the visible region is:

(A) $\sigma - \sigma$ (B) d –d (C) $\pi - \pi$ (D) $\pi - \sigma$

105. Hydrolysis of ester in the presence of KOH is called:
(A) Estrification (B) Decarboxylation
(C) Saponification (D) Neutralization

106. Salts which dissolve in water with evolution of heat. The effect of temperature on their solubility will be:

(A) Increases with increase in temperature

B Decreases with increase in temperature

(C) Solubility does not change

(D) In some cases it increases while in others it decreases

107. Two long parallel wires x and y carrying a current of 3A and 5A respectively. The force per unit length experienced by x is 5×10^{-5}N to the right, the force per unit length experienced by wire y is:
(A) 2×10^{-5}N to the left (B) 3×10^{-5}N to the right
(C) 5×10^{-5}N to the right (D) 5×10^{-5}N to the left

108. The charged particle is situated in a region of space and it experiences a force only when it is in motion. It can be deduce that the region encloses
(A) Both electric and magnetic field
(B) Both magnetic and gravitational field
(C) A magnetic field only
(D) An electric field only

109. If the direction of initial velocity of the charged particle is neither along nor perpendicular to that of magnetic field then the orbit will be:
(A) Circle (B) Helix
(C) Ellipse (D) Straight line

110. Choose the correct sentence:

(A) If I knew him better, I would have insisted that he change the hour of the lecture.

(B) If I knew him better, I would have insisted that he changed the hour of the lecture.

(C)If I knew him better, I would insist that he have change the hour of the lecture.

(D) If I knew him better, I would insist for him to change the hour of the lecture.

111. The interval between two successive division of bacteria is called:

(A)Ecological time (B) Population time
(C) Growth time (D) Generation time

112. Most disease symptoms appear during.

(A) Lag phase (B) Log phase

(C) Die (D) Generation time

113. Endotoxins are released only when bacteria
(A) Excrete (B) Reproduce
(C) Decline phase (D) Stop phase

114. The osmotic pressure of dilute solution is given by the formula:

(A) $\pi = \frac{RTC}{m}$ (B) $\pi = \frac{M}{RTC}$

(C) $\pi = \frac{RTC}{M}$ (D) None of the above

115. Select the test used for the estimation of glucose in blood and urine?
(A) Tollen's reagent test (B) Fehling's solution test
(C) Benedict solution test) (D) All of the above

116. Excess of ethanol is heated with conc: sulphuric acid keeping the temperature 140°C. The product formed is:
(A) $C_2H_5OC_2H_5 + H_2O$ (B) C_2H_4
(C) C_2OH_5 (D) C_2H_6

117. The mechanical energy spent by the, external agency is converted into electrical energy stored in the coil. This relates to:

(A) Ohm's law (B) Coulomb's law

(C) Lenz's law (D) Newton's law of motion

118. The efficiency of a transformer which draws a power of 20 watt is 60%, the power supplied by it is:
(A) 5 W (B) 1.2 W (C) 6 W (D) 12 W

119. A long solenoid has length Land totalnumber of N turns, each of which has a crosssectional area A, it4 Inductance:
(A) $\mu_0 Nl^2$ (B) $\mu_0 N^2 A/l$
(C) $\mu_0 N^2 A$ (D) $\mu_0 Nl/A$

120. I insist ——— the withdrawal of your statement.
(A) for (B) on (C) at (D) in

121. A protest that forms sea-weeds is:
(A) Red algae (B) Brown algae
(C) Green algae (D) Diatoms

122. Basidiocarp is formed in the:
(A) Secondary mycelium (B) Primary mycellum

(C) Tertiary mycelium (D) Pathogenic parasites

123. Best known "Apicomplex" is the:
(A) Obligate parasites (B) Facultative parasites
(C) Malarial parasites (D) Pathogenic parasites

124. First law of thermodynamics is expressed as:
(A) $q = \Delta E + W$ (B) $\Delta E = q - W$
(C) $q = \Delta E - P\Delta V$ (D) All of the above

125. The rate law equation for reaction is given as $\frac{dx}{dt} = K[FeCl_3]^3 [KI]^2$ the reaction is:

(A) First order (B) Second order

(C) Third order (D) Pseudo first order

126. Choose the correct order of reactivity of alkyl halides?

(A) R – I > R – Br > R – C! > R – F

(B) R – Br > R – I > R – F > R – Cl

(C) R – F > R – Cl> R – Br > R – I

(D) R – Cl> R – I > R – Br > R – I

127. Instantaneous emf at instant t is $\epsilon 20 \sin(100\pi t)$. The frequency of alternative current is
(A) 100 Hz (B) 200Hz
(C) 50 Hz (D) 150Hz

128. A flat coil of wire having 5 turns, has an inductance L. The inductance of similar coil having 20 turns is:
(A) 4L (B) L/4 (C) μL (D) L

129. Semi-conductor material have
(A) Ionic bond (B) Covalent bond
(C)Mutual bond (D) Metallic bond

130. She does not wash clothes on Fridays.
[Passive form of the sentence is:]
(A) Clothes are not being washed by her on Fridays.
(B) Clothes were not washed by her on Fridays.
(C) Clothes were not being washed by her on Fridays.
(D) Clothes are not washed by her on Fridays.

131. Misuse of cannabis results.
(A) Psychosis (B) Euphoria
(C) Paranoio (D) Photophobia

132. Outer wall of Guard cells is:
(A) Thin & elastic (B) Thick & elastic
(C) Thin & non elastic (D) Thick & non elastic

133. The critical day length of a short-day plant is:
(A) 11:00 hours (B) 15:00 hours
(C)11 ½ Hours (D) 15 ½ hours

134. Select ligand which is bidentate and can form chelates.
(A) CH_3NH_2 (B) PH_3
(C) H_2 (D) CH_2NH_2 / CH_2NH_2

135. The proton acceptor is:
(A) NH_3 (B) BF_3 (C) HCl (D) H^+

136. Which one of the following acids has a strong conjugate base?
(A) CH_3OH (B) HCl
(C) HNO_3 (D) H_2SO_4

137. The behavior of ferromagnetic domains in an applied magnetic field gives rise to
(A) Hysteresis (B) Ferromagnetism
(C) The Curie law (D) Gauss's law for magnetism

138. The shear modulus of elasticity G is:
(A) $\frac{F\theta}{A}$ (B) $\frac{A\theta}{F}$ (C) $\frac{A\theta}{F}$ (D) $\frac{F\theta}{A}$

139. In P type substances, the charge carriers in minorities are:
(a) Holes (b) Electrons (c) Protons (d) Positive ions

140. The local inns are bursting at the seams and may not be able to accommodate anymore.
[The underlined phrase means]:
(A) Unhygienic (B) Overcrowded
(C)Empty (D) Shutting Down

141. The larva of balanoglossus (Hemichordate) is called:
(A) Bipinnaria (B) Radiolaria
(C) Tornaria (D) Trochophore

142. The organs of excretion in crustacean are :
(A) Coxal glands (B)Flame cells
(C) Malpighian tubules (D) Nephridia

143. All of the following are micronutrients except:
(A) Iron (B) Copper (C) Zinc (D) Magnesium

144. What is true about modern methods used in the determination of the structure of compounds?
(A) Accurate but more time consuming
(B) Accurate, rapid but chemicals are used in large amounts
(C)Accurate, rapid but sophisticated and complicated
(D) Accurate, simple and less time consuming

145. 100% transmission in IR spectroscopy means:
(A) No absorption (B) 50% absorption
(C) 75% absorption (D) 100% absorption

146. The pH of 0.001M aqueous solution of NaOH is:
(A) 6 (B) 13 (C) 11 (D) 12

147. In an unbiased P-N junction
(A) The electric potential vanishes every where
(B) The electric field vanishes every where
(C)The diffusion current vanishes every where
(D) The diffusion and drift currents cancel each other

148. The isotope which decay by β^{-1} emission to produce $_{48}Cd^{111}$ is
(A) $_{47}Ag^{111}$ (B) $_{47}Ag^{110}$ (C) $_{47}Ag^{112}$ (D) $_{49}In^{111}$

149. An election is projected with a velocity V into a region where there exists a uniform electric field of strength E perpendicular to a uniform magnetic field of directly B. if the electron velocity to remain constant,V must be
(a) of magnitude B/E and parallel to B
(b) of magnitude E/B and parallel to B
(c) of magnitude B/E and perpendicular to both $\vec{E}$ and $\vec{B}$
(d) of magnitude E/B and perpendicular to both $\vec{E}$ and $\vec{B}$

150. The lady sitting _____ me has an elegant style.
(A) at (B) beside (C) about (D) around

151. Sunken-stomata are found in the leaves of:
(A) Hydrophytes (B) Xerophytes
(C) Mesophytes (D) Glbberellins

152. Which of the following animals is not endothermic?
(A) Salamander (B) Great white shark
(C) Polar bear (D) Butterfly

153. Embryonic mass can generate all of the following except:
(A) Amnion (B) Chorion (C) Yolk sac (D) Allantois

154. The aqueous solution of which one of the following compounds maintain its pH constant?
(A) CH_3COOH and $(NH_4)_2SO_4$
(B) NH_4NO_3 and KNO_3
(C) NH_4OH and NH_4Cl (D) NH_4OH and NaCl

155. $\pi - \pi^4$ electronic transition occurs in molecules that having
(A) Double bond (B) Triple bond
(C) Aromatic ring (D) All of the above

156. Select alkene of the following hydrocarbons:
(A) C_5H_{22} (B) C_5H_{10}
(C) C_5H_8 (D) C_4H_{10}

157. The wave nature of electrons is suggested by experiments on
(A) Line spectra of action
(B) the production of x-rays
(C) the photoelectric erect
(D) electrons diffraction by crystalline material

158. The principle of a simple form of mass spectrometer ions are passes through a narrow slits S^1 and S^2 and into a velocity selector. The ions after passing through the slit S^3 are deviated by uniform magnetic field the quantities that must remain constant for all ions arriving at photographic plate are.
(A) Charged (B) Charged/ mass(e/m)
(C) Kinetic energy (D) Mass

159. The proper time between two events is measured by clock at rest in a reference frame in which the two events
(A) Occurs at the same time
(B) Occurs at the same co-ordinates
(C)Are separated by the distance a light signal can travel during the time interval
(D) Satisfy none of the above

160. He said to me, "What a stupid fellow you are!" [Indirect form of the sentence is]:
(A) He exclaimed that I was a very stupid fellow.
(B)He told me that you were a stupid fellow.
(C)He exclaimed that what a stupid fellow I was.
(D) He did tell me that I had been a stupid fellow.

161. A hormone that prevents senescence In leaves is:
(A)Abscisic acid (B) Cytokinesis
(C) Seisomonasty (D) Demonasty

162. The following elements H,N,P and Mg are included in:
(A) Macronutrients (B) Micronutrients
(C) Trace elements (D)Minor elements

163. The only human disease caused by VIROID is:
(A) Hepatitis A (B) Hepatitis B
(C)Hepatitis C (D) Hepatitis D

164. The cathode in lead storage battery is made of:
(A) Lead (B) Lead oxide
(C) Led hydroxide (D) None of the above

165. The oxidation state of carbon in Na_2C_2 is:
(A) +4 (B) +2 (C) –1 (D) –4

166. Choose atom that having spin quantum number ½
(A) ^{12}C (B) ^{15}N (C) ^{16}O (D) ^{32}S

167. Which of the following electromagnetic radiation has photons with greatest momentum?
(A) Blue light (B) Yellow light
(C) X-rays (D) Radio wave

168. A LASER beam can be sharply focused because it is:
(A) Highly coherent (B) Intense
(C) Place polarized (D) Highly directional

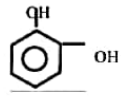
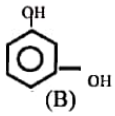
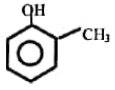
169. Binding energy of nucleus is the energy that must be supplied to:
(a) Remove nucleons (b) Remove an cc-particle
(c)Remove a B.-particle
(d) Separate the nucleus into its constituent nucleons

170. There is _____ fish in this pond.
(A) many (B) much (C)any (D) more

171. Which of the following animal is included in deuterostome?
(A) Mytelus (B) Chaetopterus
(C) Penguin (D) Jelly fish

172. The chloroplast size is about.
(A) 1-2 μM (B) 2-4 μM
(C) 4-6 μM (D) 6-8 μM

173. Heterospory occur in:
(A) Selaginella (B) Equisetum
(C)Lycopodium (D) Lepidodendron

174. Select cresol out of the following benzene derivatives?
(A) 
(B) 
(C) 
(D) 

175. The first ionization energy of an atom depends on:
(A) Charge on nucleus
(B) Screening effect
(C) Electronic configuration
(D) All of the above

176. For principle quantum number n=3 the value of magnetic quantum number will be:
(A) 3 (B) 6 (C) 5 (D) 7

177. Fission fragments usually decay by emitting:
(A) α-particles (B) electrons and neutrons
(C) Positron and neutrinos (D) only neutrons

178. Nuclear fusion at the sun is increasing its supply of:
(A) Hydrogen (B) Helium

(C) Nucleons (D) Neutron

179. Any baryon is a combination of:
(A) Three quarks (B) Two quarks
(C) Two quarks and an anti-quark
(D) One quark and one anti-quark

180. Choose the correct sentence:
(A) As far as I know, he bears a good moral character.
(B) So far as I know, he bears a good moral character.
(C) As long as I know, he bears a good moral character.
(D) Not that I know, he bears a good moral character.

181. The person is over weight of the body mass index is between:
(A) 15 to 24.9 (B) 17.5 to 24.9
(C) 18.5 to 24.9 (D) 25 to 29.9

182. The blood flow in milliliters/ minute during exercise to the skin is:
(A) 1500 ml (B) 1600 ml
(C) 1800 ml (D) 1900 ml

183. The number of Hydrogen bonds between guanine and cytosine are:
(A) One (B) Two (C) Three (D) Four

184. Chromium compounds in which oxidation state is 6+ behaves as:
(A) Strong oxidizing agent
(B) Strong reducing agent
(C) Very weak oxidizing agent
(D) Very weak reducing agent

185. Choose the correct reaction:
(A) $PbO + 4NaOH \rightarrow Pb(OH)_4 + 2Na_2O$
(B) $PbO + 2NaOH + H_2O \rightarrow Na2[Pb(OH)_4]$
(C) $PbO + NaOH + H_2O \rightarrow Na[Pb(OH)_3]$
(D) $PbO + 4NaOH + H_2O \rightarrow Na_4[Pb(OH)_6]$

186. The frequency of green light is 6×10^{14} Hz. Its wave length is:
(A) 50 nm (B) 500 nm
(C)5000 nm (D) 100 nm

187. One end of cylindirical pipe has a radius of 1.5cm, water stream (density = 1.0×10^3 kg/m^3) steadily out at 7.0m/s, the volume rate is:
(A) 4.9×10^{-3} m^3/s (B)4.9 m^3/s
(C) 7.0 m^3/s (D) 49 m^3/s

188. An Incompressible liquid flow along the pipe with area of cross section A_1 and A_2 with velocities V_1 and V_2 respectively. The ratio of the speeds V_1 / V_2 is:
(A) A_1 / A_2 (B) A_2 / A_1 (C) $\sqrt{\frac{A_1}{A_2}}$ (D) $\sqrt{\frac{A_2}{A_1}}$

189. Water flows through a constriction in horizontal pipe as it enters the constriction, the water's
(A) Speed increases and pressure remains constant
(B) Speed increases and pressure increase
(C) Speed increases and pressure decreases
(D) Speed decreases and pressure Increases

190. Will you give me your bicycle?
[Passive form of the sentence is:]
(A) Will your bicycle be given to me by you?
(B) Shall you be given to me by your bicycle?
(C) I shall be given your bicycle by you?
(D) Your bicycle will be given to me by you?

191. The optimum PH of enzyme maltase is:
(A)4 .5 (B) 5.5 (C) 6.1 -6.8 (D) 6.7 – 7

192. Mature ovum in human beings is surrounded by:
(A) Plasma membrane (B) Vitelline membrane
(C)Corona radiate (D) All of the above

193. In mitochondria UGA Codon act to specify
(A) Arginine (B) Glutamine
(C) Tryptophan (D) Valine

194. When an electron drop from any higher orbit i.e. $n_2 \geq 3$ to the second orbit $n_1 = 2$, the spectral lines produced fall in the region:
(A) Visible (B) Ultraviolet
(C) Infrared (D) None of the above

195. Select the correct formula of chloropenta-aqua-chromium (iii) chloride.
(A) $[Cr(H_2O)_5Cl]Cl_3$ (B) $[Cr(H_2O)_5Cl]Cl_2$
(C) $[Cr(H_2O)_5Cl_2]Cl$ (D) $[Cr(H_2O)_5Cl_3]Cl$

196. The components of bronze alloy are:
(A) Copper and zinc (B) Copper and tin
(C)Zinc and tin (D) Chromium and Tin

197. A larger water tank open at the top has small hole in the bottom when the water level is 30m above the bottom of the tank the speed of the water leaking from the hole is:
(A) 2.5m/s (B) 24 m/s
(C) 4 44 m/s (D) Cannot be calculated unless the area of the hole is given

198. A 6.0-kg block is released from rest 80m above the ground. When it has fallen 60m its kinetic energy is approximately:
(A) 4800 J (B) 3500 J (C) 1200 J(D) 120 J

199. A science museum designs an experiment to show the fall of a feather in a vertical glass vacuum tube. The time of fall from test is too close to 0.5 s. What length of tube is required?
(A) 1.3 m (B) 2.5 m (C)5.0 m (D) 10.0 m

200. 'Frown on somebody' means to:
(A)Fall flat upon a stranger
(B) Stay alive working hard
(C)Unable to be successful
(D) Disapprove of somebody

ENGINEERING PAPER 2015

1. The domain of principal sine function is:
   (A) $\left[0, \frac{\pi}{2}\right]$ (B) $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$
   (C) $\left[0, \frac{3\pi}{2}\right]$ (D) $[0, 2\pi]$

2. If any two rows or two columns in a square matrix A are interchanged, then the determinant of the resulting matrix is:
   (A) |A| (B) |A–2|
   (C) |A–2| (D) $-|A|$

3. If n is even in $(a + (b)^n$ then number of middle term is:
   (A) One (B) Two
   (C) No middle term (D) Three

4. Which of the following is not a state variable?
   (A) Work (B) Internal energy
   (C) Entropy (D) Pressure

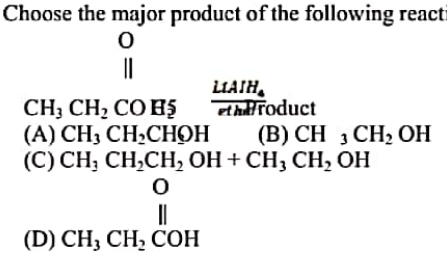
5. The acceleration of proton in a given electric field is:
   (A) 1840 times of that of electron in the same field
   (B) 10×1840 times of that of electron in the same field
   (C) 1/1840 times of that of electron in the same field
   (D) 10/1840 times of that of electron in the same field

6. The electric field at a distance of 10cm from an isolated point particle with a charge of 10^{-9} C is:
   (A) 1.8 N/C (B) 180 N/C
   (C) 18 N/C (D) 1800 N/C

7. Which of the following contain maximum number of atoms?
   (A) 6 mol of Sulphur(S) (B) 2 Mol of S_8
   (C) 5.0 mol of SO_2(D) 4.8dm^3 of CO_2 at STP

8. Equal volume of CO and N_2 are taken in identical conditions, the correct relation between masses of two gases is:
   (A) $CO < N_2$ (B) $CO > N_2$
   (C) $CO = N_2$ (D) $N_2 < CO$

9. Choose the major product of the following reaction:



   (A) $CH_3CH_2CH_2OH$ (B) CH_3CH_2OH
   (C) $CH_3CH_2CH_2OH + CH_3CH_2OH$
   (D) CH_3CH_2COH (O)

10. When a permanent magnet is strongly heated?
    (A) It becomes an induced magnet
    (B) It loses its magnetism
    (C) Its magnetism increases
    (D) Its polarity reverses

11. You _____ have told me the sad news earlier.
    (A) Would (B) Must (C) Should (D) Ought

12. If for the circle $x^2 + y^2 + 2gx + 2fy + c = 0$, $g^2 + f^2 - c > 0$, then it is called:
    (A) Real circle (B) Point circle
    (C) Imaginary circle (D) Circum circle

13. If $x = f(t)$ and $y = g(t)$, then $\frac{dy}{dx} =$
    (A) $\frac{dy}{dt} \cdot \frac{dt}{dx}$ (B) $\frac{dy}{dt} \cdot \frac{1}{\frac{dx}{dt}}$
    (C) $\frac{\left(\frac{dy}{dt}\right)}{\left(\frac{dx}{dt}\right)}$ (D) All of the above

14. $\int udv =$
    (A) uv (B) $uv - \int udu$
    (C) u - $\int vdu$ (D) All of the above

15. You push a permanent magnet with its north pole away from you towards the loop of conducting wire in front of you. Before the north pole enters the loop the current in the loop is:
    (A) Clockwise (B) Anti-clockwise
    (C) Towards left (D) Towards right

16. In an ideal transformer connected to a 240v A.C with number of turns in the primary coil are 1000 and in the secondary coil are 50 turns. The output connected to the load of 10Ω. The current passes through load is:
    (A) 1.2 A (B) 24 A (C) 48 A (D) 120 A

17. An alternating current in ampere varies with time to second as I = 4 sin (200πt), the frequency of current is:
    (A) 100 Hz (B) 50 Hz
    (C) 400 Hz (D) 150 Hz

18. The radius of hydrogen atom is:
    (A) 0.529 A° (B) 0.529×10^{-20} m
    (C) 0.529×10^{-8}cm (D) both ((A) & ((C)

19. Select ortho/para directing group of the following:
    (A) $-NO_2$ (B)– OH
    CN(C)– (D) $-C-OH$ (O)

20. The number of atoms in 18g of H_2O are equal to:
    (A) 6.023×10^{23}atoms (B) 6.023×10^{24} atom
    (C) 1.806×10^{24}atoms (D) 3.052×10^{23} atoms

21. Students _____ submit their assignments in time or they will be marked absent.
    (A) Would (B) Shall (C) Must
    (D) May

22. $\int \frac{x}{x^2+1}dx =$

(A) $\ln|x^2+1|+c$ (B) $\frac{1}{2}\ln|x^2+1|+c$

(C) $-\ln|x^2+1|+c$ (D) $-\frac{1}{2}\ln|x^2+1|+c$

23. The ratio of dy to dx for $xy = 2$ is:

A $\frac{dy}{dx} = y$ (B) $\frac{dy}{dx} = \frac{2}{y}$

(C) $\frac{dy}{dx} = \frac{-y}{x}$ (D) $\frac{dy}{dx} = \frac{-x}{y}$

24. The critical values of $f(x) = 2x^3 + 3x^2 - 12x + 5$ (for relative extreme) are:

(A) 1 and 2 (B) 1 and –2

(C) **1 and –2** (D) –1 and 2

25. In N type semi-conductor, conduction is due to mainly by:

(A) Hole (B) Protons

(C) Electrons (D) Neutrons

26. According to the band theory of solids in the conductors, the conduction band and valance band are:

(A) Separated by large space

(B) Overlapped

(C) Separated by forbidden energy gap

(D) None of the above

27. Starting from rest, a proton and an a-particle are accelerated through the same potential differences the ratio of their final speed $\frac{v_p}{v_\alpha}$ is:

(A) ½ (B) $\frac{1}{\sqrt{2}}$ (C) $\sqrt{2}$ (D) 2

28. The lines $a_1x + b_1y + c_1 = 0$, $a_2x + b_2y + c_2 = 0$ and $a_3x + b_3y + c_3 = 0$, are three non-parallel lines, then these three lines are concurrent if:

(A) $\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix} = 0$ (B) $\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix} = 1$

(C) $\begin{vmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{vmatrix} = 0$ (D) $\begin{vmatrix} b_1 & c_1 & c_1 \\ c_2 & b_2 & a_2 \\ b_3 & a_3 & c_3 \end{vmatrix} = 0$

29. Equation of the normal at (x_1, y_1) to the circle $x^2 + y^2 + 2gx + 2fy + c = 0$, is:

(A) $y - y_1 = \frac{y_1 + f}{x_1 + g}(x - x_1)$ (B) $y - y_1 = \frac{y_1 + f}{x_1 + g}(x - x_1)$

(C) $y_1 y + x_1 x = \frac{y_1 - f}{x_1 - g}(x + x_1)$ (D) $y_1 y + x_1 x = \frac{y_1 + f}{x_1 - g}(x - x_1)$

30. A rifle of mass M is initially at rest but free to recoil. It fires a bullet of mass am and velocity v (relative to the groun(d). After firing, the velocity of the rifle (relative to the groun(d) is:

(A) –mv (B) –Mv/m (C) –mv/ M (D) –v

31. Consider the following reaction

$A + B + C \rightarrow M + N + O$

The fact that enthalpy of M + N + O is higher than that of A + B + C indicates that:

(A) The reaction ex exothermic

(B) The reaction is endothermic

(C)Catalyst for the reaction is unnecessary

(D) The activation energy required for the reverse reaction is higher than for the forward reaction

32. X rays are:

(A) Electromagnetic waves

(B) Negatively charged ions

(C) Rapidly moving electrons

(D) Rapidly moving protons

33. London forces are stronger in:

(A) Br_2 (B) I_2 (C) F_2 (D) Cl_2

34. In SN^2 reaction, there is:

(A) 50% inversion of configuration

(B) 100% inversion of configuration

(C) 80% inversion of configuration

(D) No inversion of configuration

35. Let $f(x) = 2x + 1$ and $g(x) = \sqrt{2x + 5}$, then $f(g(2)) =$

(A) **5** (B) $\sqrt{11}$ (C) Undefined (D) –5

36. A square matrix $M = [a_{ij}]$ of order n with complex entries. If $(\overline{M})' = -M$, then which is correct?

(A) M is skew-hermitian

(B) $\overline{a_{ij}} = -a_{ji}$ for i, j =1, 2, 3, ……;n

(C) M is Anti-hermetian

(D) All of the above

37. A helicopter of mass 3.0×10^3 Kg rises vertically with a constant speed of 2m/s, what resultant force acts on the helicopter?

(A) Zero (B) 3×10^4 N downwards

(C) 4.5N upwards (D) 7.5×10^4 N upwards

38. The velocity of projectile equal to its initial velocity added to:

(A) A constant horizontal velocity

(B) A constant vertical velocity

(C)A constantly increasing horizontally

(D) A constantly increasing downward vertically

39. A feather and lead ball are dropped from rest in vacuum on the moon, the acceleration of feather is:

(A) More than that of the lead ball

(B) The same as that of lead ball
(C) Less than that of lead ball
(D) 9.8 ms^{-2}

40. Choose the statement which is NOT correct. When chlorine gas is passed through potassium iodide solution, iodine is liberated according to the reaction.
$2KI_{9(q)} + Cl_{2(g)} \rightarrow 2\,KCl + I_2$
(A) Chlorine acts as an oxidizing agent
(B) Chlorine accepts electron and form chloride ion
(C) Iodide ion done its electron to chlorine
(D) Iodine oxidizes chlorine to form chloride ion

41. Ammonium hydroxide is added to an aqueous solution containing Cu^{+2} ions deep blue colored solution is formed. The color is due to the formation of the complex:
(A) $[Cu(H_2O)_4(OH)_2]$ (B) $[Cu(NH_3)_4(H_2O)_2]^{2}$
(C) $[Cu(H_2O)_6]^{2+}$ (D) $[Cu(H_2O)_6]^{2-}$

42. The number of colliding molecules of different gases calculated from kinetic molecular theory per liter per second at standard condition is of the order of magnitude of:
(A) 10^{23} (B) 10^{29} (C) 10^{32} (D) 10^{43}

43. Choose the reaction that does not require $ZnCl_2$ catalyst:
(A) $CH_3CH_2OH + HCl \rightarrow CH_3CH_2Cl + H_2O$
(B) $CH_3CH_2OH + HBr \rightarrow CH_3CH_2Br + H_2O$
(C) $CH_3CH_2OH + HI \rightarrow CH_3CH_2I + H_2O$
(D) Both ((A) and ((B)

44. She is very nice to look _____.
(A) at (B) by (C) beside (D) on

45. The sigma notation for the series $a_1 + a_2 + a_3 + \cdots + a_n =$
(A) $\sum_{k=1}^{n} a_k$ (B) $\sum_{j=1}^{n} a_j$ (C) $\sum_{r=1}^{n} a_r$ (D) All of the above

46. If 1, 3, 3, 1 are the binomial coefficients in an expansion $(a+b)^n$, then the index n in the expansion is:
(A) 4 (B) 2 (C) 3 (D) 8

47. The in-radius of circle inscribed in a triangle with sides a, b, c is:
(A) $\frac{\Delta}{S-a}$ (B) $\frac{\Delta}{S-b}$ (C) $\frac{\Delta}{S-c}$ (D) $\frac{\Delta}{S}$

48. Conductivity is:
(A) The same as resistivity (B) Expressed in Ω^{-1}
(C) Equal to 1/ resistance (D) Expressed in $(\Omega\text{-m})^{-1}$

49. An electron travel due north through a volume in a region of uniform magnetic field that is also directed due north, it will
(A) Be unaffected by the field (B) Speed up
(C) Slow down (D) follow a clockwise path

50. If the streams of protons moves parallel to each other in the same direction, then they:
(A) Repeat each other (B) Attract each other
(C) Doesn't exert force on one anther
(D) Get rotate

51. Deficiency of iron in the body causes disease called:
(A) Anemia (B) Hemosiderosis
(C) Renal rickets (D) None of the above

52. Finger print region in IR spectroscopy lies between
(A) 300-600 cm^{-1} (B) 600-1500 cm^{-1}
(C) 500-1000 cm^{-1} (D) 1500-2000 cm^{-1}

53. Oxygen is prepared by the thermal decomposition of $KClO^3$ as:
$2K\,ClO_3 \xrightarrow{\Delta} 2KCl + 3O_2$. How many moles of $KClO_3$ are required to prepare 6 moles of oxygen?
(A)3.17 mol (B) 4.0 mol
(C) 5.01 mol (D) 2 mol

54. When "Na" burns in atmosphere of chlorine, it gives:
(A) Golden yellow flame (B) Bright orange flame
(C) Apple green flame (D) Crimson flame

55. The general formula of cycloalkane is C_nH_{2n} where:
(A) $n \geq 2$ (B) $n \geq 3$ (C) $n = 3$ (D) $n \leq 2$

56. He said to me, "Will you lend me your cell phone"? [Select the correct indirect speech]
(A) He said to me that will I lend him your cell phone.
(B) He asked to me that will your cell phone be lent?
(C) He asked me if I would lend him my cell phone.
(D) He inquired that whether your cell phone can be lent.

57. $\int_0^1 \frac{1}{x^2+1}\,dx$, is equal to:
(A) $\frac{\pi}{2}$ (B) 2π (C) $\frac{\pi}{4}$ (D) -2π

58. If $\frac{m_1 - m_2}{1 + m_1 m_2} < 0$, then the angle formed will be:
(A) Acute (B) Obtuse
(C) Right (D) All of the above

59. Length of the latus rectum of $3x^2 = 4y$, is:
(A) 4 (B) –4 (C) $\frac{4}{3}$ (D) $\frac{3}{4}$

60. Measurement of radiation from an astronomical source showed a decrease in the wave length at which the greatest energy was being received. This could mean that the source had:
(A) Increase in temperature
(B) Decrease in temperature
(C) Expand but maintained a constant temperature
(D) Moved further away

61. A certain automobile is 6m long at rest, if it is measured to be 4/5 as long, its speed is:
(A) 0.1c (B) 0.3c (C) 0.6c (D) 0.8c

62. 18 carat gold contain:
(A) 70-75% Gold (Au) and 15-20% copper (Cu)
(B) 70-75% Gold (Au) and 20-25% copper (Cu)
(C) 75-80% Gold (Au) and 20-30% Copper(Cu)
(D) 100% Gold (Au) with no Copper (Cu)

63. The correct sentence is:
(A) Everyone should mind his/her own business
(B) Everyone should mind their own business
(C) Everyone should mind one's own business
(D)Everybody should mind one's own business

64. $1 - x + \frac{x^2}{2} - \frac{x^3}{6} + \frac{x^4}{24} - \cdots\cdots$
(A) Sinx (B) Cosx (C) e^{-x} (D) $\log x$

65. The equation of continuity for fluid flow can be derived from the conservation of:
(A) Volume (B) Mass (C) Energy (D) Pressure

66. In a hyperbola, e =
(A) $\sqrt{\frac{a^2+b^2}{a^2}}$ (B) $\sqrt{\frac{a^2-b^2}{a^2}}$
(C) 1 (D) 0

67. The scientific notation of a number 0.0023 is expressed as:
(A) 2.3×10^{-3} (B) 0.023×10^{-2}
(C) 2.3×10^{-4} (D) 0.2×10^{3}

68. Which one of the following pairs of electrical unit are not equivalent?
(A) wbm^{-2}, T (B) $J\text{-}S^{-1}$, w
(C) $J\text{–}C^{-1}$, V (D) AS^{-1}, C

69. Two vectors A and B are such that $\vec{A}+\vec{B}=\vec{C}$ and $A^2+B^2=C^2$. If θ is the angle between positive direction of $\vec{A}$ and $\vec{B}$, then θ is:
(A) $\theta = 0$ (B) $\frac{\pi}{2}$ (C) $\theta = \frac{\pi}{3}$ (D) $\theta = \pi$

70. The energy of electromagnetic radiation depends on its:
(A) Frequency (B) Wave length
(C) Wave number (D) All of the above

71. 18.0 g of glucose is dissolved in 100g of solvent water the molality of the resultant solution is:
(A) 0.01m (B) 0.1m (C)1.0m (D) 10.0m

72. A leakage of natural gas is usually detected by the strong repulsive smell of certain compound such as:
(A) Methanethiol (B) Phenol
(C) Formaldehyde (D) Naphthalene

73. 'NEPOTISM' means:
(A) Criticism (B) Socialism
(C) Favoritism (D) Monotheism

74. For any Complex number Z, $Z.\bar{Z} =$
(A) $\bar{Z}.Z$ (B) $|Z|^2$
(C) $|\bar{Z}|^2$ (D) All of the above

75. For $n \in \mathbb{N}$, $\sum_{k=1}^{2n-1}(-1)^k =$
(A) 1 (B) 0 (C) ∞ (D) -1

76. Fehling's solution is added to the following compounds. Select the one that will show positive test.
(A) CH_3CCH_3 (B) $CH_3CCH_2H_5$
(C) $CH_3HC(=O)-CH_3$ (D) $CH_3CH_2C(=O)CH_2$

77. If you had _____ her on the matter, you would not have made this blunder.
(A) Advised (B) Consulted
(C) Discussed (D) Referred

78. What is the inverse function of $f(x) = 4 - 2x^2$
(A) $\frac{1}{2}(x-4)^2$ (B) $2-x^2$
(C) $4-x^2$ (D) $(4-x)^2$

79. $\frac{\cos^3\alpha - \sin^3\alpha}{\cos\alpha - \sin\alpha} =$
(A) 1 + 2 in a cos a (B) $1 - 2\sin\alpha\cos\alpha$
(C) $1+\sin\alpha\cos\alpha$ (D) $1-\sin\alpha\cos\alpha$

80. If $z = a + bi$, then $z.|z| =$
(A) $\sqrt{a^2+b^2}$ (B) $\sqrt{a^2-b^2}$
(C) (a^2+b^2) (D) $-(a^2+b^2)$

81. A body in simple harmonic motion makes n complete oscillation in one second. The angular frequency of this motion is:
(A)n rad-s^{-1} (B) 1/n rad-s^{-1}
(C) 2π rad-s^{-1} (D) $\frac{n}{2\pi}$ rad $- s^{-1}$

82. A particle performs simple harmonic motion of amplitude 0.02m and freq 2.5 Hz, what is its maximum speed?
(A) 0.0008 ms^{-1} (B) 0.125 ms^{-1}
(C) 0.157 ms^{-1} (D) 0.314 ms^{-1}

83. Newton second is the unit of:
(A) Work (B) Angular momentum
(C) Power (D) Liner momentum

84. Number of orbital's in the 3rd shell are:
(A) 3 (B) 6 (C) 9 (D) 18

85. Which element is required for maintaining the plasma concentration of vitamin A?

(A) Iron (B) Calcium (C)Zinc (D) Phosphorus

86. She found too late that her precious art pieces were not worth a dime.
The underlined phrase means:
(A) In good state (B)New
(C) Of little value (D) Priceless

87. The slope of a line is a measure of the:
(A) Height of a line (B) Steepness of a line
(C) Thickness of a line (D) None of the above

88. The line $y=mx+c$ is the tangent to the circle $x^2+y^2=a^2$, if:

(A) $c=\frac{a}{m}$ (B) $c=\pm a\sqrt{m^2+1}$

(C) $c=\pm a\sqrt{m^2+2}$ (D) $c=\pm a\sqrt{m^2-2}$

89. Degree of the equation $\left(\frac{dy}{dx}\right)+\left(\frac{d^2y}{dx^2}\right)+y=3$, is

(A) 5 (B) 2 (C)3 (D) 1

90. An A.C varies with time (t) sec as I = 4 sin(200πt), the r.m.s value of current in "A" is:
(A) 2 (B) $4\sqrt{2}$ (C) $\frac{4}{\sqrt{2}}$ (D) $\frac{2}{\sqrt{2}}$

91. The resonance frequency of an LCR circuit is:
(A) $\frac{1}{2LC}$ (B) $2\pi\sqrt{LC}$ (C) $\frac{1}{LC}$ (D) $\frac{1}{2\pi\sqrt{LC}}$

92. The phase angle between the voltage and current in A.C through a pure inductor is:
(A) 0^0 (B) 90^0 (C) 60^0 (D) 180^0

93. Two glucose units combined by glycoside bond the product formed is known as:
(A) Sucrose (B) Maltose (C) Lactose (D) Cellulose

94. In helium neon LASER, the laser light arises from a transition from a ____ state to _____.
(A) He-He (B) Ne-Ne (C) He-Ne (D) Ne-He

95. The half-life of radium is about 1600 years if a rock initially contains 1g of radium, amount left after 6400 years will be about:
(A) 62mg (B) 31mg (C) 16mg (D) Less then 16mg

96. Which of the following is a noble metal?
(A) Argon (B) Silicon (C) Gold (D) Iron

97. $800cm^3$ of a gas at 400 torr pressure and 60 ^{0}C was heated unit the volume of gas become $2000cm^3$. The final temperature of the gas will be:
(A) 832.5 K (B) 559.5K
(C) 1105.2 K (D) 726.5 K

98. A gaseous mixture contains 9.6% NH3, 22.6% N_2 and 67.8% H_2 gases. If the total pressure is 50 atm, then the partial pressure of H_2 is:
(A) $\frac{67.8\times100}{50}$ (B) $\frac{50\times100}{67.8}$ (C) $\frac{67.8\times50}{100}$ (D) $\frac{67.8+50}{100}$

99. The police arrested him for dangerous driving. (Select the correct passive voice:)
(A)He was arrested by the police for dangerous driving.
(B) He was arrested by the police for dangerous driving.
(C)For dangerous driving he was arrested by the police.
(D) By the police was he arrested for dangerous driving.

100. If n is a positive integer and $f(x)=x^{-n}$, where $x\neq0$, then $f'(x)=$
(A) nx^{n-1} (B) $-nx^{-n}$ (C) $-nx^{-n-1}$ (D) nx^{-n-1}

101. If $x=t^2-3t-2$, $y=2-t-t^2$, then $\frac{dy}{dx}=$
(A) $\frac{t^2+3t-2}{2-t-t^2}$ (B) $\frac{2t^2+3t-2}{-t-2t^2}$
(C) $\frac{-(2t+1)}{2t+3}$ (D) $\frac{2t+3}{-2t-1}$

102. N^{th} term of Arithmetical-Geometric series is:
(A) ar^n (B) $\left[a+(n-1)d\right]r^{n-1}$
(C) $(n-1)r^n$ (D) All of the above

103. If n is a unit vector in the direction of $\vec{A}$, then
(A) $n=\frac{\vec{A}}{|\vec{A}|}$ (B) $n=|\vec{A}|\vec{A}$
(C) $n=\frac{|\vec{A}|}{\vec{A}}$ (D) $n=n.\vec{A}$

104. A body initially at rest, explode into pieces of mass 2Kg and 3Kg respectively having total K.E "E", the kinetic energy of the piece of mass 2Kg after the explosion is:
(A) E/3 (B) E/5 (C) 2E/5 (D) 3E/5

105. A light and a heavy body have equal kinetic energies, which one have greater momentum?
(A)The light body (B) The heavy body
(C)Both have equal momentum
(D) Not possible to say anything

106. Grignard Reagent (RMgI) on reaction with aldehydes other than formaldehyde, the product formed on hydrolysis gives:
(A) Primary alcohol (B) Secondary alcohol
(C) Tertiary alcohol (D) Mixture of A, B & C

107. Halogens in uncombined state exist as diatomic covalent molecule (X^2), their discrete molecules are held together by:
(A) Dipole – dipole attraction
(B) Electrostatic attraction
(C) Weak Vander Waal's forces
(D) Strong Vander Waal's forces

108. $NH_{3(aq)} + H_2O(l) \leftrightharpoons NH_{4(aq)}^{+} + OH_{(aq)}^{-}$ Calculate the ionization constant for the above equation if (NH_4^+) is 10^{-5} M, (NH_3) is 1.0M and (OH) is 0.15M.
(A) 1.5×10^{-5} (B) 1.5×10^{-6} (C) 1.5×10^{-4} (D) 1.0×10^{-6}

109. A pale moon and watery sun are known as prognostics of rain. The underlined word means:
(A) Indications (B) Start (C) Cause (D) Friends

110. Linear programming plays important role in:
(A) Trade (B) Industry
(C) Agriculture (D) All of the above

111. 'CRANKY SPOUSE' implies:
(A) A carefully selected loving partner of life
(B) Fussy and bad-tempered wife or husband
(C) Money squandering younger second wife
(D) A device fitted behind the rear seat of a car

112. $\text{Sin}(2\pi - \beta) =$
(A) $\text{Sin}\beta$ (B) $\text{Cos}2\pi$ (C) $\text{Cos}\beta$ (D) $\text{Sin}2\pi$

113. The initial point of the vector $\vec{r} = (-2, -1, 2)$ for the terminal point $(4, -1, -2)$ is:
(A) $(2, 1, -2)$ (B) $(-4, 1, 2)$
(C) $(6, 0, -4)$ (D) $(-6, 0, 4)$

114. Area of a triangle having vertices $A(2, 2, 0)$, $B(-1, 0, 2)$ $C(0, 4, 3)$ is:
(A) 30 (B) 15 (C) 15/2 (D) 16

115. If the displacement of a particle executing S.H.M is given by $x = \frac{5}{n}\sin(20\pi t)$ cms, its amplitude is:
(A) $\frac{5}{n}$m (B) $\frac{5}{n}$cm (C) 20πcms (D) 100 cms

116. The total energy of the body executing S.H.M is E. The K.E when the displacement is half of the amplitude is:
(A) $\frac{E}{\sqrt{\alpha}}$ (B) $\frac{E}{4}$ (C) $\frac{3E}{4}$ (D) $\sqrt{\frac{3}{4}E}$

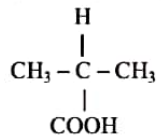
117. The rest mass of the deuteron ${}_1H^2$ is equivalent to energy of 1876 Mev, the rest mass of proton is equivalent to 939 Mev and that of neutron is 940 Mev. A deuteron may disintegrate to a proton and neutron if it.
(A) Captures an x-ray photon of energy 2 Mev
(B) Exists an x-ray photon of energy 2 Mev
(C) Exists an x-ray photon of energy 3 Mev
(D) Captures an x-ray photon of energy 3 Mev

118. A water sample contains 3.8×10^{-2} g of mercury per kilo gram of the sample. What is the concentration of mercury in parts per million?
(A) 3.8 ppm (B) 38 ppm (C) 0.38 ppm (D) 380 ppm

119. A stone thrown horizontally from the top of a tall building follows a path that is:
(A) Circular (B) Made of two straight line segments
(C) Hyperbolic (D) Parabolic

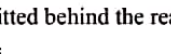
120. If the amplitude of wave at a distance r from a point source is A then amplitude at a distance 2r will be:
(A) 2A (B)A (C)A/2 (D) A/4

121. Choose the IUPAC name of the following:

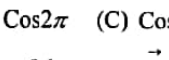


(A) 2-methylpropanoic acid
(B) 2-methylbutanoic acid
(C) 2-butanoic acid (D) 2-methylethanoic acid

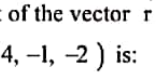
122. Arrange the following Alcohols in increase order of their boiling points.
(A) $CH_3\,CH_2\,CH_2\,CH_2\,OH$



(B) $CH_3\,CH_2\,CHOH$



(C) $CH_3 - C - OH$



(A) a< b< c (B) c< b< a (C) c< a< b (D) b< c< a

123. Which one of the following is carbolic acid?
(A) $10^{\%}$ solution of Acetic acid
(B) 5% solution of Benzoic acid
(C) 5% solution of phenol
(D) Concentrated solution of lactic acid

124. Choose the correct sentence;
(A) I am a Pakistani and so is she.
(B) I am a Pakistani and she is also.
(C) She and me are Pakistani.
(D) I am a Pakistani as is she.

125. If A and B are any two events defined in a sample space then $P(A-B) =$
(A) $P(A) - P(A \cap B)$ (B) $P(A) - P(A \cap B)$
(C) $P(A \cap B) - P(A)$ (D) $P(A \cap B)$

126. For a geometric series $a_1 + a_2 + a_3 + \cdots + a_n \cdots$ with common ratio $r \neq 1$, $S_n =$
(A) $\frac{r^n - 1}{r - 1}$ (B) $\frac{r - 1}{r^n - 1}$ (C) $\frac{a_1(r^n - 1)}{r - 1}$ (D) $\frac{a_2(r^n - 1)}{r - 1}$

127. Fire destroyed the top floor of the building. Select the correct passive voice
(A) The top floor of the building got destroyed by fire
(B) By tire was destroyed the top floor of the building
(C) Destroyed by fire was the top floor of the building
(D) The top floor of the building was destroyed by fire

128. $a^2 = b^2 + c^2 - 2bc\cos\alpha$ is called

(A) law of sines (B) law of cosine
(C) law of tangents (D) law of cotangents

129. In thee dimensional space two vectors are said to be collinear if they lie
(A) along the same line (B) along the different lines
(C) above the line (D) below the line

130. $\forall Z_1, Z_2 \in \mathbb{C}$, $\overline{Z_1 - Z_2} =$
(A) $\overline{Z_1} + \overline{Z_2}$ (B) $\overline{Z_1} - \overline{Z_2}$
(C) $Z^1.Z^2$ (D) $Z^2 - Z^1$

131. In a meter bridge experiment an unknown resistance "x" is compared with a known resistance "R" should
(A) much higher in value than R
(B) much lower in value than R
(C) In the same order as R
(D) on the right of R in the bridge circuit

132. In a conductor carrying an electron, we expect the electron drift speed to be:
(A) A much greater than the average electron speed.
(B) Much less than the average electron speed.
(C) About the same as the average electron speed.
(D) Less than the average electron speed at low temperature and greater at higher temperature.

133. A cylindrical copper rod has resistance R, it reform to twice the srcinal length with no change of volume. Its new resistance will be:
(A) 2 R (B) 4R (C) 8R (D) R/2

134. Theoretical yield is always:
(A) Less then practical yield.
(B) Greater than actual yield
(C) Both are equal
(D) None of the above

135. Which of the following rays are not electromagnetic radiations?
(A) X-rays (B) UV rays
(C) Cathode rays (D) Infrared rays

136. The energy level of an electron in a hydrogen atom are given by $E = \frac{13.6}{n^2}$ where n-1,2,3..... the energy required to excite an electron state is:
(A) 3.4ev (B) 4.5ev (C) 10.2ev (D) 13.6ev

137. How muny grams of Al_2O_3 will be obtained if 13.5g of aluminum completely reacts with oxygen as $4Al + 3O^2 \rightarrow 2Al^2O^3$ molar mass of Al=27g/mol.
(A) 25.5g (B) 27.54g (C) 54.27g (D) 14.27g

138. The resonance structure differs from one another only on the basis of:
(A) Position of atoms
(B) No of unpaired electrons
(C) Position of electrons. (D) Position of nuclei

139. Chiral carbon is the carbon which is attached to
(A) 4 identical atoms (B) 4 different atoms
(C) 3 similar atoms and 1 dissimilar atom.
(D) 2 similar atoms and 2 dissimilar atoms.

140. GET HOLD OF ONESELF implies:
(A) To start running (B) To catch a thief
(C) To become calm (D) to feel exhausted

141. $\frac{d}{dx} \text{Cos}^{-1}x =$
(A) $\frac{1}{\sqrt{1+x^2}}$ (B) $\frac{-1}{\sqrt{1-x^2}}$ (C) $\frac{-1}{\sqrt{1+x^2}}$ (D) $\frac{1}{\sqrt{1-x^2}}$

142. Equation of the normal at the point (x_1, y_1) to the parabola $y^2 = 4ax$, is:
(A) $yy_1 = 2a(x - x_1)$ (B) $yy_1 = \frac{-y_1}{2a}(x - x_1)$
(C) $yy_1 = \frac{-2a}{y_1}(x - x_1)$ (D) $yy_1 = 2a(x - x_1)$

143. The conic having eccentricity $e > 1$, is called:
(A) Hyperbola (B) Ellipse
(C) Parabola (D) Asymptotes

144. In a Compton scattering from stationary electrons the largest change in wave length occurs when the photon scattering through:
(A) 0^0 (B) 45^0 (C) 90^0 (D) 180^0

145. DAUNTED means:
(A) Intimidate (B) Speculate
(C) Emancipate (D) Evacuate

146. For any two vectors $\underline{a}$ and $\underline{b}$ making an angle θ between the, then $\underline{a}.\underline{b} = 0$ if and only if:
(A) $\underline{a} \perp \underline{b}$ (B) $\theta = \frac{\pi}{2}$
(C) Either $\underline{a} = \underline{0}$ or $\underline{b} = \underline{0}$ (D) All of the above.

147. If A, G, H are Arithmetic, Geometric and Harmonic Mean, between two positive numbers a, b then;
(A) $G > H$ (B) $G^2 = AH$
(C) $A > G$ (D) All of the above.

148. In the expansion $(a+b)^n$, ${}^nC_0 =$
(A) ${}^nC_1$ (B) ${}^nC_2$ (C) ${}^nC_{n-1}$ (D) ${}^nC_n$

149. When a mass is rotating in a plane about a fixed point, its angular momentum is directed along
(A) Radius (B) Tangent to the orbit
(C) A line perpendicular to the plane of rotation
(D) None of the above.

150. A simple pendulum is suspended on the roof of a lift when the lift is moving downward with an acceleration a (a<g), then its time period is given by $T = 2\pi\sqrt{\frac{l}{g}}$ where g is equal to
(A) g (B) g-a (C) (g+(a) (D) g^2

151. When a body of mass m is taken to the bottom of a deep mine, its

(A) Mass increases (B) Mass decreases
(C) Weight increases (D) Weight decreases

152. What is the oxidation state of copper in Cs_2CuF_6?

(A) 1+ (B) 2+ (C) 3+ (D) 4+

153. The conversion of dichromate to chromate is brought out by the addition of:
(A) Acid (B) Base (C) Salt (D) Both ((A) & ((C)

154. Ethyne is treated with HBr, the product formed is
(A) CH_3CH_2Br (B) CH_3CHBr_2
(C) $CH2BrCH_2Br$ (D) CH_3CBr_3

155. $\int a^{kx}dx =$

(A) $\frac{a^x}{k}+c$ (B) $\frac{a^{kx}}{klna}+c$ (C) $a^{kx}\ln a + c$ (D) $\frac{lna}{k}a^{kx}+c$

156. An example boson is a
(A) Photon (B) Electron (C) Neutrion (D) Neutron

157. If $h^2 < ab$, then the equation $ax^2+2hxy+by^2=0$ represents a pair of straight lines, which are:
(A) Real (B) Coincident (C) Imaginary (D) Perpendicular

158. Bernoulli's equation can be derived from the conservation of:

(A) Energy (B) Mass (C) Volume (D) Pressure

159. Which of he following element does not belong to p-block of the periodic table?
(A) Lead (P(b) (B) Helium (He)
(C) Phosphorus (P) (D) Aluminum (Al)

160. Compound nitrated with difficulty is
(A) Toulene (B) Phenol
(C) Nitro Benzene (D) Benzene

161. The critical temperature (T(c) of oxygen is
(A) -147.1^0C (B) -183^0C
(C) -239.9^0C (D) -118.8^0C

162. The police are looking___ the recent state of burglaries.
(A) into (B) to (C) at (D) for

163. If m_1 and m_2 are the slopes of two lines L_1 and L_2 respectively, then the angle from L_1 to L_2 is given by:

(A) $Tan\theta=\frac{m_2-m_1}{1+m_1m_2}$ (B) $Tan\theta=\frac{m_2+m_1}{1+m_1m_2}$

(C) $Tan\theta=\frac{m^2+m^1}{1-m_1m_2}$ (D) $Tan\theta=\frac{m^1-m^2}{1+m_1m_2}$

164. Alkyl halide in which carbon atom to which halogen is attached is in turn bonded to one carbon atom. The alkyl halide is :
(A) Primary alkyl halide (B) Secondary alkyl halide
(C) Tertiary alkyl halide (D) None of the above

165. A copper bearing material weighing 20g yielded 2.5g CuO. The percentage of copper (Atomic mass=63.55) in the sample is:
(A) $\frac{2.5\times100}{20}$ (B) $\frac{63.55\times2.5\times100}{79.55\times20}$
(C) $\frac{2.5\times79.55\times100}{40\times63.55}$ (D) $\frac{20\times79.55\times100}{2.5\times63.53}$

166. Which is NOT true in Bohr's Theory?

(A) Cannot explain the fine structure of the hydrogen atom.

(B) Cannot explain spectrum of atoms other than hydrogen

(C) Cannot explain the Zeeman effect

(D) Is in accordance with Heisenberg's uncertainty principle

167. She said to him, "where did you go yesterday" select the correct indirect speech.

(A) She asked him where he had gone the previous day.

(B) She told him where he had gone the previous day.

(C) She asked him where had he gone the previous day.

(D) She asked me where he had gone yesterday.

168. Generally $B-B^t$ is a:
(A) Symmetric matrix (B) Skew symmetric matrix
(C) Singular matrix (D) Additive inverse

169. If ${}^nC_2=36$, then:
(A) $n=9$ (B) $n=8$ (C) $n=7$ (D) $n=10$

170. The numbers which have $\sqrt{-1}$ as one factor are called:
(A) Real numbers (B) Complex number
(C) Irrational numbers (D) Imaginary numbers

171. In iso-thermal process there is no change in:
(A) Pressure (B) Work done
(C) Internal energy (D) Imaginary numbers

172. $C_p > C_v$ are because in the case of C_p:
(A) More heat is required to do the external work
(B) Heat is needed to do external work
(C) No heat is required to increase the internal energy
(D) Heat is required to do external work against external volume

173. Which of the following color have greater wavelength?

(A) Red (B) Blue (C) Green (D) Orange

174. Choose the correct sentence:
(A) One must not boast of his own success.
(B) One must not boast of her own success.
(C)One must not boast of one's own success.
(D) One must not boast of ones own success.

175. If v denotes the velocity, then
$\lim_{h\to0}\frac{v(t+h)-v(t)}{h}$ Defines:
(A) Velocity (B) Distance
(C) Acceleration (D) Average velocity

176. $m^n, a^{mx} (\log (a)^n$ is the n^{th} derivative of:
(A) ma^{mx} (B) a^{mx} (C) $m^n a^{nx}$ (D) $(ma^{mx})^n$

177. Anti derivative of zero is
(A) Zero (B) +1 (C) Any constant (D) – 1

178. The dimension of self inductance is;
(A) MLT^2 (B) $ML^2T^2A^{-2}$ (C) $M^2L^{-1}T^1$ (D) MT^2A^{-1}

179. When an iron core is inserted in to coil, its coefficient of self –induction;
(A) Increases (B) Decreases
(C) Remains the same (D) Become zero

180. The e.m.f that appears in Faradays law is;
(a) Around a conducting circuit
(b) Around the boundary of the surface used to compute the magnetic field
(c) Throughout the surface used to compute magnetic flux
(d) Perpendicular to the surface used to compute magnetic flux

181. Mass of 1molecule of oxygen is;
(A) 32g (B) 16g
(C) $32/6.023\times10^{23}$g (D) $32\times6.023\times10^{23}$g

182. Select the correct formula of chloropentaqua chromium (111) chloride;
(A) $[Cr(H_2O)_5CL]CL_3$ (B)$[Cr(H_2O)_5Cl]Cl_2$
(C) $[Cr(H_2O)_5Cl_2]$ (D) $[Cr(H_2O)_5Cl_3]Cl$

183. If a, b, c are the sides of a triangle and α, β, γ are the respective angles, then area of the triangle is;
(a) $\frac{1}{2}a^2\sin\alpha$ (b) $\frac{1}{2}b^2\sin\gamma$ (c) $\frac{1}{2}c^2\sin\beta$ (d) $\frac{1}{2}bc\sin\alpha$

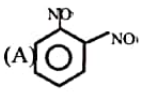
184. In a nuclear reaction $_{92}U^{238} \rightarrow {}^{A}_{Z}Th + {}^{4}_{2}He$ the value of A and Z are
(A) A= 234, Z=94 (B) A=238, Z=94
(C) A=234, Z=90 (D) A= 238, Z= 90

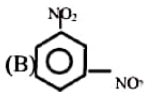
185. Possible units of entropy are;
(A) J (B) J/K (C) J^{-1} (D) Cal/K

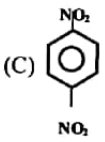
186. The specific heat at constant pressure of an ideal gas depend on;
(A) The temperature (B) The pressure
(C) Volume (D) None of the above

187. Choose the correct order of the rate of diffusion of the four gases;
(A) $CO>NO_2>CL_2> SO_2$ (B) $CO > SO_2> NO_2> CL_2$
(C) $CO>NO^2>SO^2>CL^2$ (D) $SO^2>CL^2>CO>NO^2$

188. Nitrobenzene reacts with fuming HNO_3 and H_2SO_4 keeping temperature 100°c. The product formed is;

(A) 

(B) 

(C) 

(D) All of the above

189. Anion of thioalcohol ($C_2H_5S^-$) generally undergoes substitution unlike $C_2H_5O^-$ that favours elimination reaction. This is because
(A) $C_2H_5O^-$ is more nucleophile than $C_2H_5S^-$
(B) $C_2H_5S^-$ is more nucleophile than $C_2H_5O^-$
(C) Both are equally good nucleophile but $C_2H_5S^-$ is more basic
(D) The factor is the steric hindrance

190. The poem "The school boy" is written" by;
(A) William Blake (B) William Blake
(C) John Keats (D) Tennyson

191. In purification of water the coagulant used is;
(A) $NiSO_4$ (B) $BaSO_4$
(C) $CuSO_4$ (D) Potash Alum

192. Which of the following is iso –electronic pair?
(A) Ne and Na (B) Ne and Mg^{2+}
(C) Al and C (D) Ar and Ca

193. The correct sentence is;
(A) I came across a friend of yours the other day
(B) I came across a friend of yours' the other day
(C) I came across a friend of your the other day
(D) I came across a friend of your's the other day

194. What will be the equation of parabola having focus at $F(0, -2)$ and directrix = 2 ?
(A) $x^2 = 2y$ (B) $y^2 = 2x$ (C) $x^2 = -8y$ (D) $y^2 = 8x$

195. If $f(x, y, z) = e^x(\sin y + z)$, then $\frac{\delta f}{\delta x} + \frac{\delta f}{\delta z}$ at the point $(0, 0, 0)$ is
(A) 0 (B) 1 (C) 3 (D) 5

196. For a homogenous function (z) of degree n if $x\frac{\delta z}{\delta x} + y\frac{\delta z}{\delta y} = nz$, then this rule is
(A) Mean value theorem (B) Euler theorem
(C) Taylor's theorem (D) Mclaurin's theorem

197. Stiff material is characterized by
(A) High ultimate strength (B) High proportional limit
(C) High young modulus (D) High breaking length

198. Two wires have the same diameter and length. One is made of copper the other is brass. The wires are connected to gather end to end when the free end are pulled in opposite direction then the two wires must have the same.
(A) Stress (B) Strain
(C) Elongation (D) Young's modulus

199. Choose the major product of the following reaction:
$CH_3CH_2CONH_2 \xrightarrow[ether]{LiAlH_4}$ Product
(A) $CH_3CH_2NH_2$ (B) $CH_3CH_2CH_2NH_2$
(C) $CH_3CH_2NH_4$ (D) $CH_3CH_2CH_2NH_4$

200. Artificial nails are usually made up of:
(a) Acrylic (b) Nitrocellouse (c) None of these (d) Erythrosine

MEDICAL PAPER 2014

1. A current of 20.0A flows through a battery with an emf of 6.20 V. If the internal resistance of the battery is 0.01■, what is the terminal voltage?
(A) 6.40V (B) 31.0V (C) 1.24V (D) 6.00V
2. Both DNA and RNA are synthesize by the process of:
(A) Transcription (B) Replication
(C) Polymerization (D) PCR
3. The cross between two dissimillar individuals is called:
(A) Test cross (B) Interbreeding
(C) Eplstasls (D) Hybridization
4. 'CHUCKLE' mean:
(A) Bouquet of flowers (B) displeasing manner
(C) suppressed laughter (D) religious movement
5. Cell-well of gram positive bacteria is composed of:
(A) Glycolipids (B) Glycoproteins
(C) Lipoproteins (D) Peptidoglycan
6. Shade loving plants are caleed:
(A) Hallophytes (B) Mesophytes
(C) Sciophytes (D) Xerophytes
7. Which of the following is a lewis acid?
(A) CH_3OH (B) $AlCl_3$ (C) NH_3 (D) CH_3OCH_3
8. Ethanol (CH_3CH_2OH) and dimethyl ether (CH_3OCH_3) are the best considered as:
(A) Structural isomers (B) Stereo isomers
(C) Enantiomers (D) Diasteromers
9. A tertiary carbon is bonded directly to:
(A) 2 Hydrogens (B) 2 Carbons
(C) 3 Carbons (D) 4 Carbons
10. Which derived unit below is equlvalent to the SI unit for magnetic field strength, the tesla, T?
(A) Nm/A (B) NA/m (C) N/Am (D) Am/N
11. A certain redionuclide decays by emitting an ■ particle. What is the difference between the atomic numbers of the parent and the daoughter nuclides?
(A) 1 (B) 2 (C) 4 (D) 6
12. A wire of resistance 3.0 ■ is stretched to twice its srcinal length. The resistance of new wire will be:
(A) 1.5 ■ (B) 3.0 Ω (C) 6.0 Ω (D) 32.0 Ω
13. Any DNA molecule having foreign DNA is called:
(A) Mutant (B) Recombinant
(C) Crossing over (D) All of the above
14. The theory of uniformitarianism was proposed by:
A) Hutton and tyell (B) lamarch
B) Jgeorge Cuvier (D) Darwin
15. 'Money Grubbing' impllies:
(A) Money saving (B) Money making
(C) Money hunting (D) Money spending
16. "Photo-phosph-rylation" is:
(A) ATP synthesis by food energy.
(B) ATP synthesis by solar energy.
(C) ATP synthesis by source of water.
(D) ATP synthesis by source of $NADH_2$
17. Light absorbing igments in photosystem first is:
(A) P 600 (B) P 680 (C) P 700 (D) P 760
18. When acetylene is passed through hot iron tube at 400 °C, it gives:
(A) Benzene (B) Toluene
(C) O-Xylene (D) Metaxylene
19. Which of the following compounds will react with methyl magnesium Iodide followed by acid hydrolysis to give ethyl alcohol?
(A) Ethylene (B) Acetone
(C) Acetaldehyde (D) Formaldehyde
20. Diethyl ether and Methyl propyl ether are:
(A) Conformational isomers (B) Meta mers
(C) Geometrical isomers (D) Enantiomers
21. Awire of resistance 4■ is bent into a circle. The resistance between the ends of a diameter of the circle is:
(A) 4Ω (B) 1 Ω (C) 1/4 Ω (D) 1/16 Ω
22. The state of thermal equllibrium between two systems is determined by equality of:
(A) Pressure (B) Volume
(C) Temperature (D) Mass
23. In the direction indicated by an electric field line:
(A) The potential must increase
(B) The potential must decrease
(C) The electric field strength must increase
(D) The electric field strength must decrease
24. The enlarged lining epithelium cells connected with groups of developing spermatozoa in testes is:
(A) Somatic cells (B) Serkoli cells
(C) Stem cells (D) Totipotent cells
25. The hormone released by the posterior pitultary. That stimulates the contraction of uterine and mammary gland muscles is called:
(A) Prolactin (B) IH (C) FSH (D) Oxytocin
26. 'Get into a soup' implles:
(A) Face a predicament (b) play a game of cards
(C) Swallow a fly in soup (d) go for hot spicy soup
27. A study of communities in relation to environment is called:
(A) Social ecology (B) Synecology
(C) Autoecology (D) Heteroecology
28. In Eukaryotes, DNA replication proceeds at the rate of:
(A) 50 base pairs per seconds
(B) 40 base pairs per seconds
(C) 20 base pairs per seconds
(D) 30 base pairs per seconds
29. Fatty acids are:
(A) Linsaturated dicorboxylic acid
(B) Long chain alkanoic acid
(C) Aromatic carboxylic acid

(D) Aromatic dicarboxylic acid

30. Saponification of a fat:
A) Always results in the formation of soaps.
B) Results in the formation of esters.
C) Results in the formation of waxes.
D) Results in the formation glycerol and soap.

31. Carbylamine test is given by:
(A) Primary amines (B) Secondary amines
(C) Tertiary amines (D) All of these

32. Of the following one particle belongs to lepton group:
(A) Neutrinos (B) Proions
(C) Neutrons (D) Mesons

33. Which of the following physical phenomena connot be described only be the wave theory of the electromagnetic radiation?
(A) Diffrations (B) Interference
(C) Photoelectric effect (D) Polarization

34. Which of the following is the same unit as the farad?
(A) Ωs (B) Ωs^{-1} (C) $\Omega^{-1} s$ (D) $\Omega^{-1} s^{-1}$

35. A complex form of learning that requires the manipulation of mental concepts to arrive at adaptive behavior is:
(A) Imprinting (B) Insight learning
(C) Latent learning (D) Trial & error learning

36. Which of the following is enzyme lacking disease?
(A) PKU (B) Alkaptunuria
(C) Anuria (D) Dluria

37. I eagerly look forward ____ seeing you again.
(A) at (B) to (C) on (D) by

38. Acetic acid reacts with methyl alcohol in the presence of acid catalyst to give:
(A) Ethyl formate (B) Ethyl acetate
(C) Methyl formate (D) Methyl acetate

39. The characteristic reaction of carboxylic acid is:
(A) Electrophillic substitutions
(B) Nucleophllic substitution
(C) Electrophillic addition
(D) Nucleophillic addition

40. Which of the following compounds does not give iodoform test on reaction with I_2 and NaOH?
(A) Propanone (B) Ehtanol
(C) Butanone (D) 2-Propanol

41. The gravitational field strength on the surface of the Earth is g. The gravitational field strength on the surface of a planet of twice the radius and the same density is:
(A) 4g (B) 2g (C) g (D) g / 4

42. Which experimental teachnique reduces the systematic error of the quantity being investigated?
(A) adusting an ammeter to remove its zero error before measufing a current
(B) Measuring several internodal distance on a standing wave to find the mean Internodal distance.
(c) Measuring the diameter 6f a wire repeatedly and calculating the average.
(d) Timing a large number of oscillations to find a period.

43. A basketball is thrown upward along a parabollic path. What is the ball's acceleratio0n at its highest point?
(A) 0 (B) 1/2g, horizontally
(C) g, upward (D) g, downward

44. Conversion of alternating current to direct current is called:
(A) amplification (B) rectification
(C) modulation (D) both B & C

45. Operational amplifiers can amplify:
(A) ac only (B) dc only
(C) both ac and dc (D) None of them

46. A medical lab has a 16g of sample of radioactive isotopes. After 6 hours it was found that 12g of a sample have decayed. The half life of the isotope is:
(A) 12 hours (B) 6 hours
(C) 2 hours (D) 3 hours

47. You will be the perfect in charge ____ this group.
(A) of (B) to (C) by (D) on

48. Which of the following substitutents is an Ortho and Para director and ring deactivating?
(A) –OH (B) $-NH_2$ (C) –Cl (D) $-OCH_3$

49. Which of the following compounds undergoes nitration most readlily?
(A) Benzene (B) Toluene
(C) Benzoic acid (D) Nitrobenzene

50. Which of the following is not ferromagnetic substance:
(A) iron (B) cobalt
(C) Nickel (D) Barium

51. The sound waves and light waves cannot be both:
(A) polarized (B) Refrected
(C) Reflected (D) Differacted

52. Diffraction is the name given to the:
(A) Addition of two coherent waves to produce a stationary wave pattern.
(B) Bending of waves round an obstacle
(C) Change of direction when waves cross the boundary between one medium and another.
(D) Splitting of white light into colours.

53. Two forces having magnitudes 3.5N and 5.5N are acting on a body. Which one of the following cannot be the resultant of their possible sum?
(A) 1.5 N (B) 2.5 N (C) 4.5 N (D) 6.5 N

54. Which of the following play role in Biorhythm?
(A) MSH (B) I.H (C) ADH (D) Melatonin

55. Hypothalamus is a part of:
(A) Diencephalon (B) Myelencephalon
(C) Metencephalon (D) Telencephalon

56. 'ARABLE' means:

(a) Not grown since long (b) Recently ploughed field
(c) watered the night before (d) Fit for cultivation

57. Blue green algae, besides chlorophyll also possess another pigment known as:
(A) phycocyanin (B) phycoerythrin
(C) phycobillirubin (D) Phycobilliprotein

58. Milk sugar is pasteurized by heating for 15 seconds at the temperature of:
(A) 60 °C (B) 71 °C (C) 50 °C
(D) 80 °C

59. Which one of the following is most ionic?
(A) NaCl (B) $MgCl_2$ (C) KCl (D) $AlCl_3$

60. The compound used in borax bead test for the detection of basic redicals to form colored bead is:
(A) H_2BO_2 (B) $(C_2H_5)_3BO_3$
(C) $Ca_2B_6O_{11}5H_2O$ (D) $Na_2B_4O_710H_2O$

61. Milk of magnesia is used for treatment of acidity in stomach, its formula is:
(A) $Mg(OH)_2$ (B) $MgSO_4$ (C) $Ca(OH)_2$ (D) $CaSO_4$

62. A battery is marked 9.0V. What does this mean?
(A) Each coulomb of charge from the battery supplies 9.0J of electrical energy to the whole circuit.
(B) The battery supplies 9.0J to an external circuit for each coulomb of charge.
(C) The potential difference across any component connected to the batttery will be 9.0V.
(D) There will always be 9.0V across the battery terminals

63. Using monochromatic light, interference fringes are produced on a secreen placed a distance D from a pair of slits of separation a. the separation of the fringes is x. both a and D are nouw doubled. What is the new fringe separation?
(A) 2x (B) x (C) 3x (D) 4x

64. Select the true statement about the amerphous solids:
(A) The amorphous substances have sharp melting point
(B) The amorphous substances do not have fixed melting point
(C) The amorphous substances have proper geometrical shapes.
(D) The particles in amorphous substances are arranged in an orderly manner.

65. Both $NaNO_3$ an $CaCO_3$ crystallize in Rhombohedral forms therefore they are:
(A) Allotropes (B) Polymorphous
(C) Isomorphous (D) None of these

66. Pure water freezes at 0 °C and boils at 100 °C at standard conditions. Calcium chloride was added to pure watr. What dou you expect about its freezing point and boiling point.
(a) No change in its freezing point and boiling point
(b) Freezing point increases and boiling point decreases.
(c) Freezing point increases and boiling point increases
(d) Freezing point decreases and boiling point increases

67. The internal energy of a fixed mass of an ideal gas depends on:
(A) Pressure but not volume or temperature.
(B) Temperature but not pressure or volume.
(C) volume but not pressure or temperature.
(D) Pressure and temperature but not volume.

68. A spring obeying Hook's law has an unstretched length of 50mm and a spring constant of 400 Nm^{-1}. What is the tension in the spring when its overall length is 70mm?
(A) 8.0N (B) 28N (C) 160N (D) 400N

69. Which thermodynamic temperature is equivalent to 501.85 °C?
(a) 775.00 K (b) 774.85 K (c) 228.85K (d) 228.70K

70. Which of the following ions play important role in the transport of carbon dioxide?
(A) Sodium (B) Potassium (C) Bicarbonate
(D) Chloride

71. Incomplete double circulation is found in:
(A) Aves (B) Fishes (C) Amphibians (D) Mammals

72. Choose the correct sentence.
(A) We bought some new clothing.
(B) We bought some new clothings.
(C) We bought some new piece of clothings
(D) We bought some new pieces of clothings.

73. If a hole is bored through the center of the earth and a pebble is dropped in it. Then it will:
(A) Execute SHM (B) Drop to the other side
(C) Stop at the center of the earth
(D) None of the above

74. Which of the following animal is included in protostom?
(a) Sea horse (b) Sea mouse(c) sea cucumber(d) Sea lion

75. How many waling legs are present in arachnids?
(A) 4 (B) 6 (C) 8 (D) 10

76. A _____ child, she was soon bored in class; she already knew more mathematics than her junior school teachers.
(A) Contemporary (B) Lethargic
(C) Obdurate (D) Precocious

77. Sea-fungi isrelated to:
(A) Zygomycota (B) Ascomycota
(C) Basidiomycota (D) Deutromycota

78. Blac bread mold is:
(A) Rhizopus (B) Penicillium (C) Mucor (D) Yeast

79. Which of the statements about paper chromatography is not correct:
(A) Paper chromatography is an example of partition chromatography.
(B) Paper chromatography greatest use is in the separation of biological active systems.

(C) Paper chromatography is also applicable for the separation of some inorganic cations.
(D) Paper chromatography is always used for quantitative analysis.

80. Equal vlume of different gases under same condition of temperature and pressure contain the same number of particles. The above statement is of:
(A) Avogadro's law (B) Graham's Law
(C) Dalton's law (D) hund's rule

81. Which is the correct statement?
(a) The average kinetic energy of the molecules depends on the volume in which the gas is enclosed
(b) The average kinetic energy of the molecules in the gaseous state is proportional to the pressure.
(c) The average kinetic energy of the molecules in the gaseous state is proportional to the temperature.
(d) All of the above

82. In a vibrating cord the point where the particles are stationary is called:
(A) Crest (B) Anti-node (C) Node (D) Trough

83. The minimum frequency of incident light required to emit photoelectrons from the metal surface is called:
(a) Critical frequency (b) Intermedicate frequency
(c) Work function (d) Threshold frequency

84. A racing car accelerates uniformly through theree gear changes with the following average speeds: 20ms^{-1} for 2.0s, 40ms^{-1} for 2.0s and 60ms^{-1} for 6.0s. What is the overall average speed of the car?
(A) 12ms^{-1} (B) 13.3ms^{-1} (C) 48ms^{-1} (D) 40ms^{-1}

85. In octopus, the foot is modified into:
(A) Disc (B) Arm (C) Foot (D) Siphon

86. Which of the following is include in deuterestome?
(A) Brittle star (B) Scorpion
(C) Chaelopterus (D) Unio

87. Choose the correct sentence:
(a) The lecture was long a bore and uninspired.
(b) The lecture was long a bore and uninspiring.
(c) The lecture was long boring and uninspiring
(d) The lecture awas a long a bore and an uninspiring

88. Murein cell-wall is composed of:
(A) Sugar and amino acids (B) Calcium pectate.
(C) Glycoprotein (D) Peptidoglycan

89. The genome of the most animals and higher plants is:
(A) DNA (B) RNA
(C) Both DNA and RNA (D) Either DNA or RNA

90. Which statement is wrong about the fourth state of matter known as plasma?
(a) The plasma contain equal amount of positive and negative charges and are almost neutral as a whole
(b) Plasma exists in the atmosphere of stars
(c) Plasma exists in the region around the sun
(d) There is less amount of matter in plasma state than the familiar, solid, liquid and gaseous states.

91. Hydrogen bonding do not exist in the molecule of:
(A) Hydrogen (B) Proteins
(C) Carbohydrates (D) Ammonia

92. Deficiency of which of the following causes diuresis?
(A) LH (B) ACTH (C) FSH (D) ADH

93. 'ACQUAINTANCE' means a person whome:
A) One loves but whome one cannot marry.
B) One knows but who is not a close friend.
C) One can depend on for help in hour of need.
D) One can hire for attempting a question paper.

94. In angiosperms the megaspore develops into:
(A) Embry-Sac (B) Embryo
(C) Seed (D) Male gametophyte

95. All of the following plants posses hermaphrodite flowers except:
(A) Lathyrusodoratus (B) Solanum-nigrum
(C) Zea-mays (D) Avena-sativa

96. Choose the correct relation about the percent yield. It is equal to:
(A) $\frac{Actualyield}{Theoreicayield} \times 100$ (B) $\frac{Theoreicayield}{Actualyield} \times 100$
(C) $\frac{Actualyield}{Theoreicayield} \times 10^6$ (D) $\frac{Actualyield}{Theoreicayield} \times 10^3$

97. Vapour pressure of a liquid can be measured by the Barometric method and Manometric:
(a) Barometric method is more accurate than Manometric method.
(b) Manometric method is more accurate than Barometric method.
(c) Both are equally accurate and applicable.
(d) Both methods are in use but are not reliable.

98. Which is incorrect about ionization energy?
(a) Ionization energy Depends upon the magnitude of nuclear charge.
(b) Ionization energy depends upon the atomic radius
(c) Ionization energy depends upon the shielding effect.
(d) Ionization energy does not depend upon the penetration effect of the inner orbital.

99. Several resistors are connected in parallel the resistance of their equivalent resistor will:
(A) Increase (B) Decrease
(C) Not change (D) None of these

100. Which of the following series lie in the visible region?
(A) Lyman (B) Paschen
(C) Balmer (D) Pfund

101. Kirchoff's fist law (KCL) is based upon the law of conservation of:
(A) Charge (B) Energy
(C) Mass (D) momentum

102. Accessory pigments are:

(A) Red-Yellwo-Green (B) Red-Orange-Blue
(C) Orange-Blue-Green (D) Red-Orange-Yellow

103. Chemiosmosis occurs in the:
(A) Grana (B) Stroma
(C) Thylakoids (D) InterGrana

104. Select the incorrect Statement:
A) Molecule may gain electron to form molecular anion.
B) Molecule may lose electron to form molecular cation
C) Molecular cations are less abundant than molecular anions
D) These molecular ions can be formed by passing high energy electron beam through a gas.

105. Choose the correct Statement:
A) The most direct and accurate method for determining atomic masses uses mass spectroscopy.
B) The indirect but accurate method for determining molecular masses uses mass spectroscopy.
C) Collision between the electrons and the atoms produces negative ions by absorption of electrons by atoms or moecules.
D) The first application of the mass spectroscopy was the demonstration to detect various isotopes of Argon.

106. The partition coefficient of Iodine distribution between two immiscible liquids, water and carbon (tetrachloride is give below:

$$K=\frac{[I_2 in water rasl_3]}{[I_2 in ccl_4]} = 1.17\times10^{-2}$$

Choose the correect Statement about the system:
A) Iodine is extracted from CCl_4 layer by water.
B) Iodine is extracted from aqueous layer by CCl^4.
C) Iodine is more soluble in water than CCl_4.
D) The value of K depends on the amount of Iodine added.

107. During the experiment one measured the mass of Mosquito and fount it 1.20×10^{-5} Kg. The numbers of significant figures in this case are:
(A) Five (B) One (C) Two (D) Three

108. The vectors A and B are such that $|A + B| = |A - B|$, Then the angle between the two vactors is:
(A) 0° (B) 90 ° (C) 60° (D) 180 °

109. If two interozygous tall plants are crossed together the proportion of Phenolypically tall plants will be:
(A) 50% (B) 25% (C) 75% (D) 100%

110. A spore of Fern plant develops into:
(A) Zygote (B) Sporophyte
(C) Gametophyte (D) Prothalus

111. Choose the correct Statement:
A) $_2Li^7 + {}_2He^4 \rightarrow {}_5B^{10} + {}_1n^0$ $_2Li^7 + {}_2He^4 \rightarrow {}_5B^9 +$
B) $_4Be^9 + {}_2He^4 \rightarrow {}_6C^{12} + {}_0n^1$ $_4Be^9 + {}_2He^4 \rightarrow {}_6C^{12} + {}_1p^1$

112. Select the correct relation between wave and particle nature of radiation?
(A) $E = \frac{hc}{\lambda}$ (B) $E = \frac{h\lambda}{c}$ (C) $E = \frac{\lambda c}{h}$ (D) $E=h\lambda c$

113. Change in concentration of a reactant is plotted against time and the slope $\frac{dx}{dt}$ determined. The value of $\frac{dx}{dt}$ are ploted against $(a - x)^2$ a straight line is obtained. It may be concluded that the reaction is:
(A) First order (B) Second ordger
(C) Third order (D) Zero order

114. Which statement correctly describes a nucleon?
(a) Any atomic nucleus (b) A radioactive atomic nucleus
(c) A neutron or a proton.
(d) A neutron proton or an electron.

115. An object travels at constant speed arround a circle of radius 1.0m in 1.0s. What is the magnitude of its acceleration?
(A) Zero (B) 1.0 ms^{-1} (C) 2[redacted] ms^{-1} (D) $4\pi^{-2}$ ms^{-21}

116. An alternating current'1/A' varies with time 't/s' according to the equation I = 5 sin(100[redacted] t). What is the mean power developed by the current in a resistive load of resistance 10[redacted]?
(A) 250W (B) 500W (C) 125W (D) 160W

117. The oxygen carrying capacity of haemoglobin in humans when the blood is 100% oxygenated is:
(a) 19.4 ml (b) 19.6 ml (c) 20 ml (d) 21 ml

118. Which of the following fish have 14 pairs of gill slits?
(a) Dog fish (b) Lamprey (c) Cat fish (d) Ray fish

119. Liquid crystelline substances are used to locate tumors in the body because:
A) These parts of the body are warmer than the surroundings
B) These parts of the body are cooler than the surroundings
C) These parts of the body are constantly increasing and decreasing with the temperature.
D) None of the above.

120. The potential difference between a pair of similar. Parallel conducting plates is known. What additional information is needed in order to find the electric field strength between the plates?
A) Separation of the plates.
B) Separation and dres of the plates.
C) Permitivity of the medium separation of the plates.
D) Permitivity of the medlum separation and area of the plates.

121. In an AC capacitive circuit current and voltage phase relation is:
(A) In-phase (B) curent leads voltage by 90°
(C) Voltage leads current by 90°
(D) Current leads voltage by 180°

122. A capacitor which has a capacitance of 1 farad will:
(a) E fully charged in 1 secon by a current of 1 apmere.
(b) Store 1 coulomb of charge at potential difference of 1 volt
(c) Gain 1 joule of energy when 1 coulomb of charge is stored on it.
(d) Discharge in 1 second when connected across a resistor of resistance 3 ohm.

123. In which of the following pharynx opens directly into intestine?

(A) Planaria (B) Earthworm
(C) Cockroach (D) Snail

124. Bile is released from the gall bladder by the action of:
(A) Gastrin (B) Chlecyslokinin
(C) Secretin (D) Renin

125. Choose the correct sentence:
(A) He will reach in two hours time.
(B) He will reach in two hour time.
(C) He will reach in two hour's time.
(D) He will reach in two hours' time.

126. To decrease the salt potentially the Guard cells absorb:
(A) Sodium Ions (B) Megnesium ions
(C) Potassium ions (D) Calcium ions

127. The porduct of light dependent reactions are:
(A) RUBP + ATP (B) RUBP + PGAL
(C) NADPH + ATP (D) PGAL + ATP

128. The committee dissented from the report's conclusions. The underlined word means:
(A) Differed (B) Joined
(C) Deliberated (D) Agreed

129. All of the following are gametophytes except:
(A) Club Mosses (B) Funaria
(C) Liver-Worts (D) Horn-Worts

130. All of the following are dioecious except:
(A) Ulva (B) Funaria
(C) Marchantia (D) Polytricum

131. The van der waals equation of state for no-ideal gases differs from the ideal gas law in that it accounts for:
I) The mass of each molecule of the gas.
II) The volume of each molecule of the gas.
III) The attractive forces between molecules of the gas
(A) I , II and III (B) I and II only
(C) I and III only (D) II and III only

132. The statement that heat cannot spontaneously flow from a colder to a hotter body is a result of:
(A) Henry's law
(B) The first law of thermodynamics
(C) The second law of thermodynamics
(D) The third law of thermodynamics.

133. Ruther ford';s scaltering experiment demonstrate:
(A) The existance of X-rays.
(B) The existance of ■particles.
(C) The mass to charge ratio of electron.
(D) The nuclear model of the atom.

134. What is the relationship between the intensity 'I' and the amplitude 'a' of a wave?
(A) I a = constant (B) I a^2 = constant
(C) I/a = constant (D) I/a^2 = constant

135. Which is a statement of the principle of conservation of momentum?
(a) Momentum is the product of mass and velocity.
(b) Momentum is conserved only in elastic collisions
(c) Momentum is conserved by all bodies in a collision
(d) Momentum is conserved providing no external forces act.

136. A projectile is launched at 45° to the horizontal with initial kinetic energy E. Assuming air resistance to be negligible, what will be the kinetic energy of the projectile when it reaches tits highest point?
(A) 0.50 E (B) 0.71 E (C) 0.87 E (D) E

137. Coelentrates have hydrostatic skeletion except:
(A) Coral (B) Sea anemone
(C) Hydra (D) jelly fish

138. Lungs are _____ in srcin.
(A) Ectodermal (B) Endodermal
(C) Mesodermal (D) Preformed

139. The particular array of chromosomes that an individual possessed is called its:
(A) Genotype (B) Phenotype
(C) Karyotype (D) Genome

140. 'APPRAISE' means:
A) Praise a man out of place
B) (B) Tell a story at bed time.
C) Evaluate the equality of
D) Do shopping in a bazar

141. An Ascus develops:
(A) 2-Ascospores (B) 4-Ascospores
(C) 6-Ascospores (D) 8-Ascospores

142. The cell wall of fungus like protista is composed of:
(A) Chitin (B) Cellulose
(C) Murein (D) Lignin

143. Which is incorrect statement?
(a) The ionic bonds are non directional in character.
(b) The crystals of covalent compounds are made up of molecules.
(c) The covalent bonds are regid and non directional.
(d) Ionic ompounds have high melting point and boiling point.

144. In which compound the bond angle is maximum?
(A) Methane (B) Beryllium chloride
(C) Ammonia (D) Boron trifluoride

145. Which is not used in calculating the lattice energy of crystalline solids?
(A) Haber process (B) Born Haber cycle
(C) Heskiw (D) Enthalpy changes

146. A mass accelerates uniformily when the resultant force acting on it:
(a) Is zero
(b) Is constant but not zero
(c) Increases uniformily with respect to time.
(d) Is proportional to the displacement of the mass from a fixed point.

147. The prefix 'pico' stands for:
(a) 10^{6} (b) 10^{9} (c) 10^{-12} (d) 10^{12}

148. The first artificial radioactive substance was made by bombarding aluminum $_{15}Al^{27}$, with ■particle. This produced an unstable isotope of phosphorus, $_{15}P^{30}$, What was the by product of this reaction?
(A) An α-particles (B) A β-particles
(C) A γ-ray (D) A neutron

149. Which species has no net chare?
(A) An α-particles (B) An electron
(C) A proton (D) A neutrino

150. If the coding sequence on the dna is AATIGCT, the sequence in the mRNA will be:
(A) AAUOCGT (B) UUAACGA
(C) TTAACGA (D) UUTTCGT

151. Gene and chromosomes show parallel behavior except:
(A) Number (B) Inheritance
(C) Heredity (D) Composition

152. 'Mortal stay' implies:
A) Life that a man will have after death.
B) Life spent in the company of friend.
C) Life passed in hostel without studying.
D) Life in this world which is short lived.

153. Chlorophyll is protected from intense light by:
(A) Phytochrome (B) Phytokinin
(C) Phytocyanin (D) Carotenoids

154. Replication of DNA occurs during:
(A) Interphase (B) Prophase
(C) Metaphase (D) Anaphase

155. Which of the following compound is assigned the octane number of 100?
(A) n-heptane (B) n-octane
(C) 2,3,3-trimethyl pentane (D) 2,2,4-trimethyl pentane

156. The major product of acid catalysed dehydration of 3-pentanol is:
(A) 1-pentane (B) 2-Pentene
(C) 2-Methyle butane (D) 3-Methyle butane

157. Which of the following compound will react most reacily with bromine in CCl_4?
(A) 1-pentane (B) 2-pentane
(C) 2-Methyle-1- butane (D) 3-Methyle-1- butane

158. The lalf life of 22 Na is 2.6 years. If X grams of this sodium isotope are initially present how much is left after 13 years.
(A) X/32 (B) X/13 (C) X/8 (D) X/5

159. Monochromatic light passes through two parallel slits in a secreen and falls on a place of film. The patteren produced is an example of:
(A) refraction and diffraction
(B) Interference and reflection.
(C) Interference diffraction
(D) Diffraction and polarization.

160. The senator is opposed _____ this new legistation.
(A) at (B) to (C) try (D) on

161. Sodium chloride crystal structure is:
(A) Hexagonal (B) Body centered cubic
(C) Face centered cubic (D) Tetragonal

162. An acid is a suhbstance which accepts:
(A) An electron pair (B) Proton
(C) An electron (D) Pair of proton

163. Carbon-14 is used in carbon dating. Which of the following species has both same number of neutrons and same number of electrons as in atom of c-14?
(A) $^{14}_{7}N^{+}$ (B) $^{16}_{8}N^{2}$ (C) $^{17}_{9}P^{+}$ (D) $^{18}_{14}SI$

164. A student connect a 6 volt battery and a 12 volt battery in series and then connects this combination across a 10■resistor. What is the current is the resistor?
(A) 0.8 A (B) 1.8 A (C) 0.9 A (D) 2.6 A

165. A step-up transformer is one that:
(A) Increase the power (B) Increase the current
(C) Increase the voltage (D) Increase the energy

166. The waves which do not require any medium for their propagation are called:
(a) Mechanical waves (b) Sound waves
(c) Tidal waves (d) electromagnetic waves

167. Add some milk and sugar _____ the afternoon tea.
(A) with (B) in (C) on (D) to

168. In vacuum all electromagnetic waves have the same:
(A) Speed (B) Energy
(C) Frequence (D) wavelength

169. Human arm is homologous with:
(A) Sea flipper (B) Octopus Tntade
(C) Bird wing (D) Both A and C

170. A specific nudeotide sequence on DNA molecule to which RNA polymerase attaches to initiate transcription of mRNA from a gene is called:
(A) Poly genes (B) Genome
(C) Promoter (D) Pletoropy

171. 'Break the ice' implies:
(A) Walk on ice-sheet (B) Swallow ice-cube
(C) Chisel an ice-block (D) to make beginning

172. All of the following belong to phylum Protista except:
(A) Protomycota (B) Gymnomycota
(C) Oomycota (D) Deutromycota

173. A special protein carriesr in plasma membrane is:
(A) Catalase (B) Lipase
(C) Permease (D) Arginase

174. Reduction of acetaldehyde with H_2/Ni gives:
(A) Ethanol (B) Ethanoic acid
(C) Ethane (D) Ethylene

175. Which of the following compounds will give a positive test with Fehling's solution?
(A) Acetone (B) Ethyl acetate
(C) Formaldehyde (D) Acetic acid

176. Choose the compound in whichh hydrogen bonding is not possible:
(A) H_2O (B) HCl
(C) CH_3COOH (D) CH_3OCH_3

177. A ball is dropped from the roof of a very tall building. What is its velocity after falling for 5.0s?
(A) 1.96 m/s (B) 9.80m/s (C) 49.0m/s (D) 98.0m/s

178. In liquid metal fast breeder reactor the moderator used is:
(A) Graphite (B) Heavy water
(C) Boron rods (D) Not required.

179. The de-Broglie wavelength of a rifle bullet of mass 0.02kg which is moving at a speed of $300ms^{-1}$ is (where $h = 6.63\times10^{-34}$ Js)
(A) 7.3×10^{-34} m (B) 1.1×10^{34} m
(C) 1.8×10^{-35} m (D) 9.9×10^{-34} m

180. The theory of new creation was compposed by:
(A) George Cuvier (B) James Hustion
(C) Lovis Agassix (D) Wallace

181. The bone dissolving cells are called:
(A) Osteoclast (B) Osteoblasts
(C) Osteocytes (D) Fibroblast

182. An 'elegy' is a poem written:
(A) In the memmory of little child
(B) On the death of someone dear.
(C) On the sighting of an old tutor
(D) In the love of dear sweetheart.

183. The temperature required for vernalization is approximately:
(A) 2 °C (B) 3 °C (C) 4 °C (D) 10 °C

184. The response of a plant related to the length of the day and night is called:
(A) Photo-receptor (B) Photo-taxis
(C) Photo-tropism (D) Photo-Periodism

185. Whihch of the following polymers contain nitrogen?
(A) PVC (B) Terylene
(C) Nylone (D) Teflon

186. Which one of the following does not exist?
(A) HBO_2 (B) HFO_2 (C) H_3PO_3 (D) $HBrO_2$

187. Select the strongest acid the Pka values are given:
(A) HI, Pka=10 (B) HCN, Pka=9.4
(C) H^2SO^4, Pka = 1.8 (D) HNO^3, Pka = 3.0

188. An electron in a hydrogen atom makes a transition from an energy level with energy E_1, to one with energy E_2 and simultaneously emits a photon. The wavelength of the emitted photon is:
(A) $hc/(E_1 - E_2)$ (B) $h/(E_1 - E_2)$
(C) $h/c(E_1 - E_2)$ (D) $(E_1 - E_2)/hc$

189. The electric field between the plates of an isolated air-spaced parallel- plate capacitor is E. What is the field between the plates after immersing the capacitor in a liquid of relative permitivity 10?
(A) $E\sqrt{10}$ (B) E/ $\sqrt{10}$
(C) 10E (D)

190. He was arrested and charged _____ murder
(A) with (B) into (C) over (D) about

191. Providing heat to the following reaction causes it shift to the right
$Co_{2(2)} + 2H_2O_{(g)}$ $CH_{4(g)} + 2O_{2(g)}$
The reaction can therefore be described as:
(A) Spontaneous (B) Adiabatic
(C) Endothermic (D) Exothermic

192. The major sources responsible for the presence of NO, N_2O, NO_2 in the atmosphere is / are:
(A) Fertilizers
(B) Biological decay of deadly organism
(C) Fossil fuel combustion (D) All of these

193. Polyhydroxy aldehydes or ketones are known as:
(A) Carbohydrates (B) Proteins
(C) Lipids (D) Vitamins

194. A shot is fired at an angle of 60° to the horizontal with kinetic energy E. if air resistance is ignored, the kinetic energy at the top of the trajectory is:
(A) Zero (B) E/8 (C) E/4 (D) E/2

195. The displacement 'x' of a particle at time 't' is given by x = 10 sin 4t. the particle oscillates with period.
(A) π/10s (B) π/5s (C) π/4s (D) π/2s

196. By how many times does doubling the diameter of a wire and making it 10 times longer increase its resistance?
(A) 2.5 times (B) 5 times
(C) 10 times (D) 30 times

197. _____ second thoughts 1 opted for a cold drink
(A) At (B) By (C) On (D) For

198. Sucrose is considered as:
(A) Monosccharides (B) Disaccharides
(C) Polysoccharides (D) None of these

199. High molecular mass compound was hydrolyzed the product was analyzed and found to be amino acid. The compound is:
A) Protein Carbohydrate
B) Lipid Vitamins

200. The enzymes functions are optimum at:
(A) Specific Temperature (B) Specific PH
(C) Specific co-enzyme (D) All the above

ENGINEERING PAPER 2014

1. The spectral line obtained when a electron jumps from n = 6 to n = 3 belongs to the:

   A) Balmer Series B) Lyman Series

   C) Paschen Series D) Plund Series

2. Which of the following ions water is colories?

   a) Fe^{3+} b) Zn^{2+} c) Cu^{2+} d) Co^{2+}

3. The rate of evaporation of gasoline is greater than that of ethanol at the rame temperature because:

   a) The gasoline molecules does not have hydrogen bonds.
   b) The gasoline molecules are comparatively of small size.
   c) The gasoline molecules are of linear shape.
   d) The gasoline molecules are optically active.

4. If A and B are two sets, Then $A \cap B' =$

   a) $(A \cap B)'$ b) $A \cup B'$

   c) $(A \cup B)'$ d) $(B \cap A)'$

5. $(Cosec\theta)(1 - Cos^2\theta) =$

   a) $\tan^2\theta$ b) $\cot^2\theta$ c) $\sec^2\theta$ d) $\sin^2\theta$

6. Modulus of comples number $4 - 3i$ is:

   a) –5 b) 7 c) 1 d) 5

7. Which of the following quantities is a vector?

   a) Density b) Mass

   c) Strain d) Weight

8. An athlete throws a javelin just as it hits the ground the javelin has a horizontal velocity component of 20 ms^{-1} and a vertical velocity component of 10ms^{-1}. The magnitude of the javelin's velocity as it hits the ground is:

   a) 10 ms^{-1} b) 15 ms^{-1} c) 22 ms^{-1} d) 30 ms^{-1}

9. How much electrical energy is required to move 4.00mC of charge through a potential difference of 35.0V?

   a) 111×10^{-4} J b) 0.144 J c) 144 J d) 9000 J

10. Absrcinal means:

    a) Alley b) Native c) Migrate d) Displaced

11. The wave nature of electron is illustrated by its:

    a) Photelectric effect b) Compton effect

    c) Penetrating effect d) Diffraction

12. Layers of carbon atoms in graphite are held together by:

    a) Vander Waals forces b) Covalent bonds

    c) Coordinate covalent bonds d) All

13. The broglie's relation between momentum and wavelength for an electron is given by:

    a) p = hv b) $\lambda = \frac{h}{p}$

    c) $p = \frac{\lambda}{h}$ d) E = hv

14. $\sin 40^\circ \cos 50^\circ + \cos 40^\circ \sin 50^\circ =$

    a) 1 b) –1 c) 0 d) ∞

15. The Concept of complex numbers as a + b was given in 1795 by: _____

    (a) Gauss (b) Archimedes

    (c) George Cantor (d) Rene Descartes

16. $(-1)^{\frac{-3i}{2}}$ is equal to:

    (a) $-i$ (b) i (c) 1 (d) -1

17. Which of the following statements about standing waves is true?

    (a) Particles immediately either side or a node are moving in opposite directions
    (b) Particles between adjacent nodes all have the same amplitude.
    (c) Particles undergo no disturbance at an antinode.
    (d) Particles between adjacent nodes zreout of phase with each other.

18. Electromagnetic ways are produced by oscilating charges. Sound waves are produced by oscillating tuning faris. How are these waves similar?

    (a) They are both longitudinal waves.
    (b) They are both transverse waves.
    (c) They both have the same frequency as their respective sources.
    (d) They both require a medium to travel through.

19. Which of the following is the same unit as the farao?

    (a) $\Omega^{-1}s$ (b) Ωs (c) Ωs^{-1} (d) $\Omega^{-1}s^{-1}$

20. 'Commencement' means:

    (a) the beginning (b) the conclusion

    (c) The impending (d) The interloping

21. The addition of a catalyst to achemical reaction changes:

    (a) the enthalpy (b) the entropy

    (c) The activation energy (d) The free energy

22. $TlCl_3$ is used as catalyst mainly for the:

    (a) Manufacture of ammonia

    (b) Manufacture of methanol

(c) Oxidation of ethanol to acetaldehyde

(d) Polymerization of ethene to polythene

23. When temperature of 30.0 cm^3 of nitrogen gas is change from 27 °C to 57 °C at constant pressure of 760 mm. the volume of gas becomes closest to which one of the following?

(a) 11.5 cm3 (b) 21.5 cm3

(c) 33.0 cm3 (d) 60.0 cm3

24. Which of the following is false?

(a) The cancellation laws hold in a group
(b) Each element in a group has a unique inverse.

(c) A group can be an empty group

(d) None of the above

25. If ■ and ■ ae the roots of the equation $5x^2 + 5x + 4 = 0$ than ■β =

(a) $\frac{4}{5}$ (b) $\frac{5}{4}$ (c) $\frac{2}{3}$ (d) −1

26. If $f(x) = \frac{2x}{2x+1}$ then $[f(2)]^{-1}$ =

(a) $\frac{4}{7}$ (b) $\frac{5}{4}$ (c) $\frac{-7}{4}$ (d) $\frac{-4}{7}$

27. A valid sec of units for specific heat car acity is:

(a) Kg $J^{-1}k$ (b) Kg $J^{-1}k^{-1}$

(c) Kg Jk^{-1} (d) Kg s $^{-1}k^{1}$

28. The gravitational field strength on the sufface of the Earth is g. the gravitational field strength on the surface of a planet of twice the radius and the same density is:

(a) 4g (b) 2g (c) g (d) g/4

29. A metal sphere of radius 's' is dropped into a tank of water. As it sinks at speed. It expriences a drag force'F' given by $F^2 = k\ r\ v$, where 'k' is a constant. What are the SI base units of k?

(a) kg m^2s^{-1} (b) kg m $^{-2}$ s^{-2}

(c) kg m^{-1} s^{-1} (d) kg ms $^{-2}$

30. 'Endowed' means:

(a) Checked or corrected (b) Betrayed or decived

(c) Alarmed or disturbed (d) Awarded or gifted

31. Electro negativity of aluminium is nearly equatto that of:

(a) Be (b) B (c) Mg (d) K

32. Gypsum has the chemical formula:

(a) $CaCO_3$ (b) CaSO $_4$ $2H_2O$

(c) Na_2CO_3 $10H_2O$ (d) $Na_2B_4O_2$ $10H_2O$

33. Select the ligand which is bidentate:

(a) EDTA (b) Water

(c) Ammonia (d) Ethylenediamine

34. For what value of k will equation $x^2 + kx - 5 = 0$ have the sum of roots equal to the product of roots?

(a) 3 (b) 5 (c) 2 (d) 5

35. 15° =

(a) $\frac{\pi}{6}$ radians (b) $\frac{\pi}{12}$ radians

(c) $\frac{\pi}{18}$ radians (d) $\frac{\pi}{24}$ radians

36. Which of the following is not a quadratic equation?

(a) $5x^2 - 3x = 0$ (b) $3x^2 - 37 = 0$

(c) $x + 3 = \frac{5}{x}$ (d) $3 - \frac{1}{x} = 5$

37. To trave a ..... constat speed a car engirie provides 24 kW or usefull power. The driving force on the car is 500 N. at what speed does it travel?

(a) 40 ms^{-1} (b) 2.5 ms $^{-1}$

(c) 4.0ms^{-1} (d) 25 ms $^{-1}$

38. For a given liquid at atmospheric pressure which process can occur at any temperature?

(a) Boiling (b) Evaporation

(c) Melting (d) Solidification

39. A wire is stretched by 8 mm. When a load of 60 N is applied. What will be the extension of a wire of the same material having four times the cross sectional area and twice the srcinal length when the same load is applied?

(a) 8 mm (b) 16 mm (c) 2 mm (d) 8 mm

40. 'Archive' means:

(a) A model of building behind museum.

(b) A sequential statement of inventions.

(c) A collection of record about the past.

(d) A chronological order of discoveries.

41. Select the correct formula of potassium hexacyanoferrate.....

(a) $K^3[Fe(CN)^6]$ (b) $K^4[Fe(CN)^6]$
(c) $K_2[Fe(CN)_6]$ (d) K $[Fe(CN)_6]$

42. Select an ionic complex of the following

(a) $[Ag(NH_3)_2Cl$ (b) $Ca_2[Fe(CN)_6]$

(c) $[Cu(NH_3)\ (H_2O)Br_2$ (d) $[Cr(NH\ _3)Cl_2$

43. HCl and not HNO_3 is used to prepare H_2S gas from FeS:

(a) HNO_3 is less reactive than HCl

(b) HNO_3 renders the FeS passive

(c) HNO_3 oxidizes H_2S to sulehur

(d) HNO_3 is expensive than HCl

44. The period of tan x is:

(a) 2π (b) -2π (c) π (d) $-\pi$

45. Tan 2 θ =

(a) $\frac{2tan\theta}{1-tan^2\theta}$ (b) $\frac{1-tan^1\theta}{2tan\theta}$ (c) $\frac{2tan\theta}{1+tan^1\theta}$ (d) $\frac{1+tan^1\theta}{2tan\theta}$

46. Distance of point of (4 ,– 3) from the line

$2x - 5y + 3 = 0$ is:

(a) $\frac{4}{5}$ (b) $\frac{26}{5}$ (c) $\frac{4}{\sqrt{7}}$ (d) $\frac{26}{\sqrt{29}}$

47. Two Progressive waves of frequency 300. Hz are superimosed to produce a stationary wave in which adjacent nodes are 1.5 m apart. What is the speed of the progressive waves?

(a) $100ms^{-1}$ (b) $200ms^{-1}$ (c) $450ms^{-1}$ (d) $300ms^{-1}$

48. The ratio of strain to stress is:

(a) Alastic modulus (b) Bulk modulus

(c) (Elastic modulus) $^{-1}$ (d) Young modulus

49. The unit of work the joule may be defined as the work done when the point of application of a force of 1 newton is moved a distance of 1 meter in the direction of the force Express the jole. In terms of the base units of mass, length and time the kg, m and s.

(a) kg m,,,, s^{-2} (b) kg m $^{2}s^{-2}$

(c) $kgm^2 s^{-1}$ (d) kg s $^{-2}$

50. 'Incipient' means

(a) In coma due to accidental injury

(b) Just starting to be or happening.

(c) The recipient of gallantry award.

(d) Paractitioner of domestic recipes.

51. Helium gas is used in filling balloons but not hydrogen, through hydrogen is lighter than helium. Why?

(a) Pure hydrogen is not easily available

(b) Helium is ractive than hydrogen

(c) Helium is chaper than hydrogen

(d) Hydrogen is inflammable.

52. Electrons are distributed among the orbittals in such a way to give maximum multiplicity (no of unpaired electrons) which is according to:

(a) Pauli exclusion principle (b) Hund's rule

(c) Aufbau Principle (d) Octat rule

53. What is the atomic number of an element that has four unpaired electrons in its ground state?

(a) 6 (b) 14 (c) 22 (d) 56

54. Which of the following sets has closure property with respect to multiplication?

(a) {–1} (b) {–1, 0} (c) {0 , 2} (d) {–1,0 , +1}

55. The sum of the squares of two numbers is 65 the sum of the numbers is 11 the numbers are

(a) 2,9 (b) 4,7 (c) 3,8 (d) 5,6

56. The reflecive property of equality of real numbers is that $\forall \alpha \in R$

(a) $\alpha = \alpha$ (b) $\alpha \neq \alpha$ (c) $\alpha < \alpha$ (d) $\alpha \geq \alpha$

57. Which experimental technique reduces the systematic error of the quantity eing investigated?

(a) Adjusting an ammeter to remove its zero error before measuring a current.

(b) Measuring several internodal distances on a standing wave to find the mean internodal distance.

(c) Measuring the diameter of a wire repeatedly and calculating the average.

(d) Timing a large number of osciliations to find a period.

58. The velocity 'V' of a particle at a dispacement 'x' from the srcin is give by

$V = ax^2 + bx + c$

Where a, b and c are constants which of the following statements must be correct for the equation to be homogeneous?

(a) a,b and c must have the same units.

(b) A x^2, bx and c must have the same units.

(c) A , b and c are constants and have no units.

(d) Ax^2 bx^2 must have units of ms^{-1} but c has not units.

59. A basketball is thrown upward along a parabolic path. What is the ball's accelcration at its highest point?

(a) 0 (b) 1/2 g, horizontal

(c) g, downward (d) g, upward

60. Mr. Ferozwould rop the dull and wayward students across the knuckles. The Italicized idiom means __

(a) Reprove (b) Scold

(c) admire (d) amuse

61. Which of the following is the strongest reducing agent?

(a) Ar (b) K^+ (c) Cl^+ (d) Ca^{2+}

62. Which of the following molecules have molecular shape like $AlCl_3$?

(a) NCl_3 (b) BCl_3 (c) PCl_6 (d) PH_3

63. $BeCl_2$ has the hybride orbital of the type:

(a) Sp (b) sp^2 (c) sp^3 (d) dsp^2

64. Identity matrix is always:

(a) rectangular (b) symmetric

(c) Singular (d) Non-singular

65. If set A has 3 and set B has 2 elements then how many ordered pairs are there in B × A?

(a) 9 (b) 6 (c) 5 (d) 34

66. If A = {c ,d} and B = {e ,f} then {(c,f), (d,e), (c,e), (d,f)} is

(a) Not a function

(b) an onto function from A into B

(c) An onto function from B into A

(d) On to one function.

67. Which of the following statements reisting to the Newton's third law is NOT correct?

(a) Action and reaction must be of the same type.
(b) Action and reaction are always in opposite direction.
(c) Action and reaction are at all times equal in magnitude.
(d) Action and reaction must act on the same body.

68. Which one of the following is not a unit of energy?

(a) kg m s^{-3} (b) kg m^2 s^{-3}

(c) N m (d) W s

69. A short .... At an angle of 60° to the horizontal with kinetic energy E. if air resistance is ignored the kinetic energy at the top of the trajectory is:

(a) Zero (b) E/8 (c) E/4 (d) E/2

70. The part of the newspaper in which letters to the aditor arepublished is generally called the agory column. The underlined word most nearly means:

(a) Hilarious jokes (b) gaggerated problems

(c) Intense excitement (d) acute pain

71. Which of the following is a lewis acid?

(a) H_2O (b) NH_3 (c) H^+ (d) Cl^-

72. Purification of common salt by passing by HCl as is based on:

(a) ..... (b) Common ion effect

(c) Ionization (d) None of these

73. The formula of Bauxile is:

(a) Al_2O_3 (b) Al $_2O_3$ $4H_2O$

(c) Al_2O_3 H_2O (d) Al_2O_3 $2H_2O$

74. Let * and o be the two binary operations in a non-empty sets S. The operation * is said to be left distributive over o if:

(a) a * (bo,c) = (a* b) o (a * c)

(b) (b o c) * a = (b * a) o (a * c)

(c) ao (b *c) = (ao b) * (a o c)

(d) (b * c) o a = (b o a) o (a o c)

75. The matrix $\begin{bmatrix} 0 & 1-2i \\ -1-2i & 0 \end{bmatrix}$ is :

(a) Hermitian Matrix

(b) Skew Hermitian Matrix

(c) Symmetric Matrix

(d) Skew Symmetric Matrix

76. Which of the following is not property of fourth roots of unity?

(a) Complex fourth roots of unity are conjugate of each other.
(b) Sum of the fourth roots of unity is 0.
(c) Product of fourt roots of unity is a.
(d) Real fourth roots of unity are addjtive inverse of each other.

77. A ball of mass 'm' is attached to a string of length 'r' and is swing in a horizontal circle with constant angular velocity 'ω'. What is the work one on the ball by the tension in the string?

(a) 2 ■ $m r \omega^2$ (b) $\pi m r^2 \omega^2$

(c) 2 L m r ω^2 (d) Zero

78. Two indental objects A and B move around separate circles of indentical diamention. The $\frac{\textit{centeripetal force acting on a}}{\textit{centripetal force action on F}}$ is

(a) 1/4 (b) 1/2 (c) 2 (d) 4

79. A satellite of weight w, on the surface of the earth of radius R, is projected into a circular orbit or radius 2R. the gravitational force acting on the satellite in orbit is:

(a) W/2 (b) W/4 (c) 4W (d) W

80. Some government officials have an irritating Habit of *throwing their weight aroun* everywhere. The italisized idiom means:

(a) To redress public grievances.
(b) To deliver satisfactory services.
(c) To use power and influence.
(d) To Avail facilities.

81. Lime water is saturated solution of:

(a) $Mg(OH)_2$ (b) $Ca(OH)_2$

(c) $Ba(OH)_2$ (d) KOH

82. Guldberg and Waage stated:

(a) Acid base equilibria (b) Periodic law

(c) Lao of mass action

(d) Rule maximum multiplcity

83. Silicones are:

(a) Synthetic polymers

(b) Natural polymers

(c) Non polymeric compound

(d) None of the above

84. Which of the following is a factor of:

$x^3 + 2x^2 - 5x - 6$

(a) $x -$ (b) $x - 2$

(c) $x + 2$ (d) $x - 3$

85. The quadratic equation having 3, –4 as its roots is:

(a) $x^2 + x - 12 = 0$ (b) $x^2 - x - 12 = 0$

(c) $x^2 + x + 12 = 0$ (d) $x^2 - x + 12 = 0$

86. Roots of $x^2 - x - 12 = 0$ are:

(a) unequal and complex (b) Equal and real

(c) unequal and irrational (d) Unequal and rational

87. Two objects of different masses falling freely from the same heights above the earth's surface will experience the same:

(a) Change in momentum per unit time.

(b) Change in velocity per unit time.

(c) Decrease in gravitational potention energy

(d) Increase in kinetic energy

88. Which one of the following hanges when an object moves with simple harmonic motion:

(a) Angular frequency (b) Total energy

(c) Acceleration (d) Amplitude

89. A particle oscillates with simple harmonic motion. The acceleration of the particle.

(a) Decreases as the potential energy decreases.

(b) Is always in the opposite sense to the velocity of the particle.

(c) Varies linearly with the frequency of oscillation.

(d) Has the smalles magnitude when the kinetic energy is the smallest.

90. The boys loved the zoo. They _____ wild:

(a) have never seen (b) never saw
(c) had neverseen (d) All are correct

91. Liquid crystals have a structure:

(a) Like liquids

(b) Like crystalline solids

(c) Like amorphous solids

(d) Between solids and liquids

92. With increase in 10°C temperature, the rate of reaction almost doubles. The increase is due to:

(a) Decrease in activation energy of reaction.

(b) Increase in activation energy of reaction.

(c) Decrease in the number of collision.

(d) Increase in the number of effective colision.

93. If the salt bridge is not employed between two half cel's in the Galvanic cell. Then the effect on the voltage would be:

(a) Decrease rapidly (b) Decrease slowly
(c) Drops to zero (d) Increase slowly

94. In the from of partial fractions the rational function $\frac{x}{(x-1)^2(x+1)}$ can be written as:

(a) $\frac{\lambda}{x+1} + \frac{B}{(x+1)^3}$ (b) $\frac{A}{(x-1)^2} + \frac{Bx+c}{x+1}$

(c) $\frac{A}{x-1} + \frac{B}{(x-1)^2} + \frac{c}{x+1}$ (d) $\frac{A}{x-1} + \frac{Bx+c}{(x-1)^2} + \frac{D}{x+1}$

95. If A and B are two matually exclusive events, then $P(A \cup B) =$

(a) P(A)P(B) (b) P(B) ∪ A

(c) P(A) + P(B) (d) P (A∩B)

96. Which of the following is true:

(a) AM > GM > HM (b) AM < GM < HM
(c) GM > AM > HM (d) AM > HM > GM

97. The displacement 'x' of a particle at time 't' is given by x = 10 sin 4t. the particle oscillates with period:

(a) $\frac{\pi}{10}S$ (b) $\frac{\pi}{5}S$ (c) $\frac{\pi}{4}S$ (d) $\frac{\pi}{2}S$

98. The internal energy of a system is:

(a) The total change in momentum of all the molecules in the system.

(b) The sum of kinetic energies and the potential energies of the system.

(c) The thermal energy required to raise the temperature of the system by 1K.

(d) The total potential energies of the system.

99. The energy of a wave pulse is proportional to its:

(a) Amplitude squared

(b) Amplitude

(c) Square root of the amplitude

(d) Velocity Squared.

100. Some one is walking behind us. I think:

(a) We are being followed

(b) We have been followed.

(c) We ae followed.

(d) We were being followed.

101. A solution of Glucose is 10%. What will be the volume of solution in which one gram mole of it is dissolved?

(a) 1.0 dm^3 (b) 1.8 dm^3

(c) 2.8dm^3 (d) 1.5 dm^3

102. The compounds have the same composition and have the same atoms linkages, but with difference orientation in space. The compounds are considered as:

(a) Stereo isomers (b) Structura isomers

(c) Position isomers (d) Identical

103. Hydrocarbons are composed of:

(a) Carbon, hydrogen and oxygen

(b) Carbon and hydrogn

(c) Carbon and nitrogen

(d) Carbon and oxygen

104. Sum of first 100 natural numbers =

(a) 50050 (b) 5005

(c) 5151 (d) 5050

105. G.M of 4 and 64 is:

(a) 34 (b) 16 (c) 8 (d) 2

106. If a, b, c are the lengths of the sides of a triangle and $\alpha, \beta,$ are its included angles then $\frac{b^2+c^2-a^2}{2bc}$

(a) sin ■ (b) cos ■ (c) cos ■ (d) cos ■

107. A wave front of a progressive wave is one. Where every point on it:

(a) Is vibrating with the same frequency.

(b) Is moving in the same direction.

(c) Is vibrating in phase with the other points.

(d) moves with the same speed.

108. In Young's double slit expriment the slits are 0.500 mm apart and placed at a distance of 1.50 m from a screen. When light of wavelength 600 nm passes through, the fringe spacing is:

(a) 2.0×10^{-7} mm (b) 1.8×10^{-6} mm

(c) 0.18 mm (d) 1.8 mm

109. Which one of the following is not characteristic of stationary waves?

(a) Energy of the stationary waves travels outwards

(b) Wavelength is twice the distance between the adjacent nodes.

(c) Amplitude is not the same

(d) Phase is the same between two adjacent node.

110. In Pakistan, the more electricity you use, ____ you bill will be:

(a) The more high (b) The more highly

(c) The highest (d) The higher

111. Which formula is of 2-methylpentane?

(a) C_5H_{12} (b) C_5H_{10} (c) C_6H_{10} (d) C_5H_{14}

112. Which halogenn does not appreciably react with methane in free radial substitution reaction?

(a) Florine (b) Chlorine

(c) Iodine (d) Bromine

113. Octane number is associated with:

(a) Gassoline (b) Kerosene oil

(c) Diesel oil (d) Tubricating oil

114. $\int cosec^2 kx dx =$

(a) $-\frac{coskx}{k} + C$ (b) $-\frac{sinkx}{k} + C$

(c) $-\frac{cotkx}{k} + C$ (d) $-\frac{tan\,kx}{k} + C$

115. $\int coshkx dx =$

(a) $\frac{sinhkx}{k} + C$ (b) $-\frac{coshkx}{k} + C$

(c) $-\frac{tanhkx}{k} + C$ (d) $-\frac{Sec\,h\,kx}{k} + C$

116. The radius of the circle passing through the point (6.2) and two of whose diameters are x + y = 6 and x + 2y = 4 is:

(a) 4 (b) 5 (c) 20 (d) $\sqrt{20}$

117. Sound waves of frequency 100 Hz are transmitted into a cylindrical tuve that is closed at one end. The stationary waves formed in the tube produced adjacent nodes that are 1.5 m apart. What is the speed of sound waves?

(a) 6.5 m s^{-1} (b) 160 m s^{-1}

(c) 320 m s^{-1} (d) 640 m s^{-1}

118. A positive charge of magnitude 4.0×10^{-6} C is placed at a point in an electric field where the potential is + 1.0 kV. What is its electric potential energy?

(a) 4.0×10^{-9} (b) 4.0×10^{-3}

(c) 4.0×10^{-6} (d) 2.5×10^{8}

119. When the separation 'r' between a positive test charge and a positive point charge is increased the electric force F acting on the test charge is:

(a) Directly proportional to 'r'

(b) Inversly proportional to 'r'

(c) Directly proportional to 'r^2'

(d) Directly proportional to '$1/r^2$'

120. If you ____ well for the entrance test, you would have scored a lot:

(a) studied (b) had studied

(c) would studied (d) will study

121. Which of the following hydrocarbons has acidic hydrogen?

(a) 1-Butyne (b) 2-Butyne

(c) 2-Butene (d) 1-Butene

122. Select the compount that is considered as causing more depletion of ozone layer in the upper stratosphere:

(a) CH_4 (b) CF_4 (c) CH_2Cl_2 (d) CCl_2F_2

123. Alkyl halides undergo:

(a) Electrophillic substitution reactions.
(b) Electrophillic addition reaction.
(c) Nucleophillic substitution reaction.
(d) Nucleophillic addition reaction.

124. If (0,0) and (0 ,– 3) are respectively the vertex and focus of a parabola then its equation is:

(a) $y^2 = 12x$ (b) $y^2 = -12x$

(c) $x^2 = 12y$ (d) $x^2 = -12y$

125. For the ellipse $16x^2 + 25y^2 = 400$ the eccentricity, e =

(a) $\frac{2}{5}$ (b) $\frac{3}{5}$ (c) $\frac{4}{5}$ (d) $\frac{1}{5}$

126. When e = 1 the conic is a/an

(a) Circle (b) Ellipse

(c) Hyperbola (d) Parabola

127. The force between two charged bodies is 'F'. If the charge on each body is doubled and the distance between them is haved, the force ading on each charged body is:

(a) 2F (b) 4F (c) 8F (d) 16F

128. Which one of the following represents the relationship between the resisance 'R' of a wire and its diameter 'd'?

(a) $R \alpha d$ (b) $R \alpha d^2$ (c) $R \alpha 1/d$ (d) $R \alpha 1/d$

129. By how many .... Does doubling the diameter of a wire and making it 10 times longer increase its reisistance?

(a) 2.5 times (b) 5 times (c) 10 times (d) 20 times

130. The flat be alright. If the people above us ____ not so noisy

(a) are (b) would be (c) were (d) will be

131. Which one of the following compounds would react most rapidly in an SN_2 reaction?

(a) $(CH_3)_3Cl$ (b) CH_3CH_2I

(c) CH_2CH (d) $(CH_3)_2CH$

132. Ketofnes react with Grignard reagent to form an addition product on Hdrolysis gives a:

(a) Primary alcohol (b) Secondary alcohol

(c) Tertiary alcohol (d) Acetone

133. Methanol is also known as:

(a) Wood spirit (b) Denatural alocohol

(c) Grain alcohol (d) Rectified spirit

134. If ${}^nC_6 = {}^nC_{12}$ then n =

(a) 18 (b) 12 (c) 0 (d) 4

135. $\int_1^2 x dx =$

(a) 3 (b) 2 (c) 2/3 (d) 3/2

136. Letus rectum of the parabola $3x^2 = 4y$ is:

(a) $x = \frac{1}{3}$ (b) $x = -\frac{4}{3}$ (c) $y = \frac{3}{4}$ (d) $y = -\frac{3}{4}$

137. Wire A has the same length and resistance as wire B. the diameter of A is three times that of E. what is the ratio of the resistivity of wire A to that of wire B ?

(a) 1 : 9 (b) 9 : 1 (c) 3 : 1 (d) 1 : 27

138. A 100 watt lamp is connected to a 240 V terminal. What is the number of electrons leaving the lamp every second?

(a) 2.5×10^{15} (b) 1.5×10^{19}

(c) 6.3×10^{20} (d) 1.5×10^{23}

139. Three resistors of resistances 2Ω, 4Ω and 6Ω are connected in parallel across a D.D supply. The ratio of the current through the 2Ω resister to the current through the 4Ω resistor is:

(a) 1 : 2 (b) 2 : 1 (c) 1 : 4 (d) 1 : 6

140. I shall see you tomorrow ____ I have to work late _____

(a) in case (b) unless (c) if (d) as

141. Which of the following will give yellow crystalline precipitate of iodoform with iodine and sodium hydroxide solution?

(a) 2-methyl-2-propanol (b) 2-Propanol

(c) 1-Butanol (d) 1-Propanol

142. Which of the following compounds will not be easily oxidized?

(a) Adehyde (b) Primary alcohol

(c) Secondary alcohol (d) Tertiary alcohol

143. Ethers are considered as:

(a) Lewis acids (b) Lewis bases

(c) Neutral (d) Amphoteric

144. Radius of a circle whose equation is $x^2 + y^2 - 6x + 8y + 21 = 0$ is:

(a) 79 (b) 2 (c) 4 (d) 5

145. A Vector which is used to represent the direction of a given vector is called:

(a) Position vector (b) Unit vector

(c) Null vector (d) Zero vector

146. The line y = mx + c be the tangent to the parabola $y^2 = 4ax$ if:

(a) $c = \frac{a}{m}$ (b) a = cm

(c) $m = \frac{a}{c}$ (d) All of these

147. ..... voltage law is based upon the law of conservation of:

(a) Momentum (b) Current
(c) Charge (d) Energy

148. When resistors are connected in parallel the combined or equalent resistance is always:

(a) Greater than the greatest individual resistance.
(b) Equal to the smallest individual resistance.
(c) Smaller than the smallest individual resistance.
(d) None of the above

149. A thermistor is a semiconductor device whose resistance:

(a) Increase as its temprature increases.

(b) Decreases as its temprature decreases.

(c) Decreases as its temprature increases.

(d) Increases as its temprature decreases.

150. Blot and smudges implies:

(a) Spot of ink and dirty marks

(b) Foul smelling polluted water

(c) Bracelet and bangles of gold

(d) Beautiful neat way of writing.

151. Which statement about the carbon,1 group is not true?

(a) The caronyl carbon is sp^2 hybridized.
(b) The bond angle among the three atoms attached to the carbonyl carbon are 120°.
(c) The three atoms attached to the carbonyl carbon from atom planar geometry.
(d) The carbonyl group torms resonating structures.

152. In the conversion of wine to vinegar:

(a) Ethanol is oxidized to acetic acid.
(b) Ethanol is reduce to acetic acid.

(c) Methanol is oxidized to acetic acid.

(d) Methanol is reduced to acetic acid.

153. Choose the amphoteric oxide:

(a) Rubldium oxide (b) Sulphure trioxide

(c) Barium oxide (d) Antimony oxide.

154. If n is even, then the middle term in the expansion $(a + b)^n$ is:

(a) $\left(\frac{n+1}{2}\right)th$ (b) $\left(\frac{n+2}{2}\right)th$

(c) $\left(\frac{n}{2}+1\right)th$ (d) Both B. and C

155. $\int e^{10x}dx =$

(a) $e^{10x} + C$ (b) $\frac{e^{10x}}{10} + C$

(c) $10e^{10x} + C$ (d) $(10e)^x + C$

156. $\frac{d}{dx}$

(a) $\frac{cos^{-1}x}{\sqrt{1-x^3}}, x \in (-1,1)$ (b) $\frac{1}{\sqrt{x^2+1}}, x \in R$

(c) $\frac{-1}{\sqrt{1-x^2}}, x \in (-1,1)$ (d) $\frac{-1}{\sqrt{x^2+1}}, x \in R$

157. A wire loop is placed in a magnetic field. The magneti flux passing through the loop is maximum when the angle between the field lines and the normal to the surface area of the wire is:

(a) 0° (b) 45° (c) 90 ° (d) 270 °

158. Conversion of alternating current to direct current is called:

(a) amplification (b) Rectification

(c) Both a. & B (d) None of them

159. The minimum energy necessary to remove an electron from the surface of the emitter material is called:

(a) Thershold frequency (b) Stopping potential

(c) Stopping energy (d) Work function

160. 'Get hold or oneself' implies:

(a) To feel exheusted (b) To start running

(c) To chach a chief (d) To become calm

161. Sodium reacts with water more vigorously than Li due to the reason that:

(a) $AlCl_2$ (b) HCl/ $ZnCl_2$
(c) $SOCl_2$ (d) HCl

162. Which is monosaccharide?

(a) It is more electropositive
(b) It is more electronegative
(c) It has higher atomic mass

(d) It is a metal

163. Which is monosaccharide?

(a) Maltose (b) Cellulose

(c) Sucrose (d) Fructose

164. Derivative of e^{-3x} =

(a) $-3e^{-3x}$ (b) e^{-3x}

(c) $-e^{-3x}$ (d) $3e^{-3x}$

165. If $y = (3x^2 - 6x + 4)^{-1}$, then $\frac{dy}{dx} =$

(a) $\frac{6(x-1)}{(3x^2-6x+4)^2}$ (b) $\frac{-6(x-1)}{(3x^2-6x+4)^2}$

(c) $\frac{-6(x-1)}{(3x^2-6x+4)^2}$ (d) $\frac{6(x-1)}{(3x^2-6x+4)}$

166. A vector is called zero vector if:

(a) It has magnitude and no arbitrary direction.

(b) It has no magnitude but has arbitrary direction.

(c) It has only magnitude and direction

(d) It has direction only.

167. The ionization energy for a particular atom is 30 eV. How much energy is required to move an electron from its ground state to an excited energy level of E = –18 eV?

(a) 12 eV (b) 18eV (c) 30 eV (d) 48 eV

168. These cells of 2 volts each are connected in series. The net voltage due to combination of cell is:

(a) 5 volts (b) 1/3 volts

(c) 6 volts (d) 1/5 volts

169. The region of pn-junction diode where p-type material annihilates n-type side electrons and n-type side electron annihilate p-type side holes is called:

(a) depletion region (b) Potential barrier

(c) Pn-junction (d) All of them

170. 'No Wonder' implies:

(a) Not surprising (b) Traffic mishap

(c) Nothing weird (d) Seeing strange

171. Coal-tar is considered as the main source of:

(a) Aliphatic compounds

(b) Aromatic compounds

(c) Deterocyclic compounds

(d) All of the above

172. Boric acid cannot be used:

(a) as antiseptic in medicine

(b) For enamels and glazes

(c) In soda bottle

(d) For washing eyes

173. When toluene is oxidized the product form is:

(a) Benzyl alcohol (b) Phenol

(c) Benzaldehyde (d) Benzoic acid

174. Let a and b be the position vectors of the point A and B. if C divides AB internally in the ratio p : q then the position vector c of C is given by:

(a) $C = \frac{qb+pa}{q+p}$ (b) $C = \frac{qb+pa}{q-p}$

(c) $C = \frac{qb-pa}{q+p}$ (d) $C = \frac{aq+bp}{q+p}$

175. If a. (b + c) = a.b + c.... then

(a) Scalar product is distributive over addition.

(b) Scalar product is distributive over multiplication.

(c) Vector product is distributive over multiplication.

(d) Vector product is associative over addition.

176. Gives the vectors $a = a_1i + a_2i + a_3k$ and $b = b_1i + b_2i + b_3k$, the vector product a × b can be written in determinant form as:

(a) $\begin{bmatrix} i & j & k \\ a_1 & b_1 & a_3 \\ a_2 & b_2 & a_3 \end{bmatrix}$ (b) $\begin{bmatrix} i & j & k \\ a_1 & b_1 & b_i \\ a_2 & b_i & b_3 \end{bmatrix}$

(c) $\begin{bmatrix} i & j & k \\ a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \end{bmatrix}$ (d) $\begin{bmatrix} i & j & k \\ b_1 & b_3 & b_2 \\ a_1 & b_3 & b_2 \end{bmatrix}$

177. The part of electromagnetic spectrum in which Paschen series lies is:

(a) Visible range (b) Infrared region

(c) Ultraviolet region (d) x – rays

178. Operational amplifiers can amplify:

(a) ac only (b) dc only

(c) both ac and dc (d) None of them

179. The resistance between +ve and – ve inputs of an ideal op-amp is:

(a) high (b) low (c) infinite (d) moderate

180. Select the correct sentence:

(a) Sfhe possesses some small charming silver ornaments.

(b) She possesses some charming smal silver ornaments.

(c) Some charming small silver ornaments she possesses.

(d) Some small silver charming ornaments the possesses.

181. Which of the following is used in the reaction of benzene with acctyl chloride to form acetopheone?

(a) V_2O_3 catalyst (b) $AlCl_3$ catalyst

(c) Platinum catalyst (d) Al_2O_3 catalyst

182. Which one of the following will undergo substitution. In the ortho and para position.

(a) Phenol (b) Nitrobinzene

(c) Benzoic acid (d) Benzaldehyde

183. Teflon is prepared by the polymerization of:

(a) Ethylene (b) Vinyl chloride

(c) Tetrafluroethylene (d) None of them

184. If $A(x_1, y_1, z_1)$ and $B(x_2, y_2, z_2)$ by any two points in spce then distance $|AB| =$

(a) $\sqrt{(x_1+x_2)^2+(y_1+y_2)^2+(z_1+z_2)^2}$

(b) $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2+(z_2-z_1)^2}$

(c) $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2+(z_1-z_1)^2}$

(d) $\sqrt{(x_2-x_1)^2-(y_2-y_1)^2-(z_1-z_1)^2}$

185. If $|a| = 3$, $|b| = 4$ and $\theta = 60^\circ$ than a.b =

(a) $\frac{1}{}$ (b) $\frac{\sqrt{3}}{}$ (c) 2 (d) 6

186. Equation of the normal at (x_1, y_1) to the circle $x^2 + y^2 + 2gy + 2fy + c = 0$

(a) $y_1 - y = \frac{y_1-f}{x_1-g}(x + x_1)$

(b) $y_1 + y = \frac{y_1+f}{x_1-g}(x - x_1)$

(c) $y + y_1 = \frac{y_1-f}{x_1-g}(x + x_1)$

(d) $y - y_1 = \frac{y_1+f}{x_1+g}(x - x_1)$

187. A medical lab has a 16g of sample of radioactive isotopes. After 6 hours it was found that 12g of sample have decayed the half life of the isotope is:

(a) 12 hours (b) 6 hours (c) 2 hours (d) 3 hours

188. The first artificial radioactive substance was made by bombarding aluminium $^{27}Al_{23}$ with ■particles. This produced an unstable isotope of phospherus, $^{30}P_{15}$. What was the by-product of this reaction?

(a) an α-particles (b) a β-particles

(c) a γ-ray (d) a neutron

189. The period of a simple pendulum can be increased by:

(a) Decreasing the length of the pendulum.
(b) Increasing the length of the pendulum.
(c) Increasing the mass of the bob.
(d) Decreasing the mass of the bob.

190. Select the correct sentence:

(a) Across the rooftop the thief silently crept.
(b) The rooftop across silentlycrept the thief.
(c) The thief crept silently across the rooftop.
(d) Silently the thief crept across the rooftop.

191. Adipic acid react with hexamethylenediainine to form:

(a) Nylon-6, 6 (b) Bakelite

(c) Nylone-6, 8 (d) Terylene

192. The C – C bond length in benzene is:

(a) Greater than the C – C bond length in ethene.
(b) Shorter than the C – C bond length in ethene.
(c) Shorter than the C – C bond length in ethylene.
(d) Shorter than the C – C bond length in acetylene.

193. Denatured spirit is mainly used:

(a) As a good fuel

(b) For drinking purposes
(c) For lubricating machines.

(d) As solvent in preparing varnishes.

194. If m_1 and m_2 are the slopes of two lines l_1 and l_2 respectively then the angle from l_1 to l_2 is given by:

(a) $\tan\theta = \frac{m_2+m_1}{1-m_2m_1}$ (b) $\cot\theta = \frac{m_2-m_1}{1+m_2m_1}$

(c) $\tan\theta = \frac{m_2-m_1}{1+m_2m_1}$ (d) $\cot\theta = \frac{m_2+m_1}{1-m_2m_1}$

195. The coordinates of the midpoint of the line segment whose end points are:

$P1(-10, 4)$, $P_2(7 - 5) =$

(a) $\left(4, \frac{-1}{2}\right)$ (b) $\left(\frac{-3}{2}, \frac{-1}{2}\right)$ (c) $\left(\frac{3}{2}, 2\right)$ (d) $\left(\frac{3}{2}, \frac{1}{2}\right)$

196. If (x , y) are the co-ordinates of a point 'P' then the 1st component of the order pair is called:

(a) Abscissa (b) Y-coordinate
(c) Ordinate (d) XY-coordinate

197. If the power produced by a circuit is tripped the energy used by the circuit in 1 seconded will be:

(a) Multiplied by 3 (b) Divided by 3
(c) multiplied by 9 (d) Divided by9

198. Which property is constant for a body in free fall?

(a) Acceleration (b) Displacement
(c) Velocity (d) Speed.

199. At what angle should a projectile be fired in order for its range to be at maximum?

(a) 30° (b) 45 ° (c) 90 ° (d) 60 °

200. Select the correct sentence:

(a) The best person cartainly she is for the job.
(b) Certainly she is the best person for the job.
(c) She is the best person for the job certainly.
(d) She is certainly the best person for the job.

MEDICAL PAPER 2013

1. Seaginella is the living member of:
(A) Psilopslda (B) Lycopsida
(C) Sphenopsida (D) Pterosida

2. Which of the following misnamed?
(A) Aniline (B) Methyl naphthalene
(C) Carboxyl benzene (D) Benzene sulphonic acid

3. On the gro und the gravitational force on a satellite is W. What is the gravitational force on the satellite when at a height R/SO, where R is the radius of the earth?
(A) 1.04W (B) 1.02W (C) 0.50W (D) 0.96W

4. Contraction can be sustained for a long period of time by:
(A) Skeletalmuscles (B) Smoothmuscles
(C) Cardiacmuscles (D) All of the above

5. Aromatic compounds generally burn with smoky llame because:
(A) Skeletal muscles (B) Smooth muscles
(C) Cardiac muscles (D) All of the above

6. If a wave can be polarized, it must be:
A) An electromagnetic wave
B) A stationary wave
C) Transverse wave
D) A longitudinal wave

7. Amount of DNA in bacterial cell is:
(A) 1% (B) 2% (C) 3% (D) 4%

8. The smaller the value of Pkg:
(a) The weaker the base (b) The stronger the base
(c) The stronger the acid (d) None of the above

9. In the nuclear reaction shown below what is the value of coefficient '■'?

$_{92}U^{235+}{}_{0}n^{1} \cdots {}_{56}Kr^{89+}\gamma_{o}n^{1} + 200MeV$

(A) 0 (B) 1 (C) 2 (D) 3

10. Have you got a computer? She said.
Select the correct indirect speech:
A) She wanted to find whether I have a computer.
B) She wanted to know whether I had a computer.
C) She wanted to know if I could use computer.
D) She was interested to know about my computer.

11. Keratinized Epithelium is found in the:
(A) Hair (B) Skin (C) Bone (D) Muscle

12. Why is the boiling point of n-Pentane about 28'C higher than that of its 2,2-Dimethylpropane isomer?
(a) The area of contact between 2,2-Dimethylpropane issmall which results in weak forces of attfaction.
(b) 2,2-dimehlprpane molecules repel esch other
(c) N-pentane molecules cannot come into closer contact with each other
(d) Shapes of molecules have not effect on boiling point

13. The vectors A and B are such that |A + B| = |A – B|, then the angle between the two vectors is:
(A) 0^0 (B) 60^0 (C) 90^0 (D) 180^0

14. Mushrooms belong to:
C) Zygomycota (B) Ascomcota
D) Basidiomycota (D) Deutetoinycota

15. Which one of the following 2will not undergo dehydrogenation?
(A) CH_3 (B) $(CH_3)_2CHOH$
(C) $(CH_3)_3COH$ (D) CH_3CH_2OH

16. Which one is a polymer substance?
(A) Glass (B) Iron (C) Plastic (D) copper

17. In chick development gives rise to:
A) Ectoderm & Endoderm
B) Ectoderm & Mesoderm
C) Mesoderm & Endoderm
D) Mesoderm only

18. The heat of combustion of hydrocarbon is very useful source of heat and power, Considering the combustion reaction given below.
$CH_4^{(g)} + O2_{(g)} \rightarrow CO_2^{(o)} + 2H_2O$
ΔH for the reaction is.
(A) ΔH = 213 kcal/mole (B) ΔH= 213 kcal/mole
(C) ΔH= 426 kcal/mole (D) ΔH= 312 kmal/mole

19. A zirconium nucleus,is a ß-emitter. The product nucleus is also a ß-emitter. What is the finalresulting nucleus of these two decays?
(A) $^{100}Sr_{38}$ (B) $^{100}Mo_{41}$ (C) $^{98}Zr_{40}$ (D) $^{102}Zr_{40}$

20. Add some milk and sugar ..... the tea.
(A) To (B) At (C) In (D) On

21. Rain water becomes acidic, when the pH-value of rain water becomes.
(A) Greater than 6 (B) Greater than 6.5
(C) Less than 5.6 (D) Less than 5

22. Dunking water should be odorless, tasteless and livefrom turbidity and its pH should range between:
(A) 6.0 to 7.0 (B) 7.0 to 8.5
(C) 4.5 to 6.0 (D) 8.5 to 9.0

23. A raring car accelerates uniformly through three gear changes with the following average speeds:
20 ms^{-1} for2.0s;40$ms^{-1}$for 2.0 s and 60 ms^{-1} for 6.0 sWhat is the ovrall average speed of the cat:
(A) 12 ms^{1} (B) 13.3 ms^{-1}
(C) 40 ms^{-1} (D) 48 ms^{1}

24. Changes in gene frequencies in small population by chanee is called:
(A) Gene pool (B) Genetic dolt
(C) Gene mutation (D) Gene flow

25. N2(g) 1 3H2 (g) 1 2NH3(g), ΔH= 46.1 kj/mole For the reaction above which statement is true about the equilibrium constant (Keg):
(a) Keg Increases with increase in temperature
(b) Keg decreases with Increase in temperature
(c) Keg decreases with Increase in pressure
(d) Keg increases with decrease in pressure

26. Which of the following lists contains scalar quantities only?
A) Mass, acceleration, temperature, kinetic energy
B) Mass, volume, electrical potential, kinetic energy
C) Acceleration, temperature, volume, electric charge
D) Momentum, electric intensity, density, magnetic flux.

27. Number of chromosomes in Tobacco is:
(A) 45 (B) 48 (C) 46 (D) 47

28. How many molecules are present in 0.20 g of Hydrogen gas?
(A) $\frac{0.20}{}$x 6.02x 10^{23} (B) 0.20x 2.016
(C) $\frac{}{}$x 6.02x 10^{23} (D) $\frac{}{}$x 6.02 x 10^{23}

29. A generator produces 100 kW of power at a potential difference of 10KV. The power is transmitted through cables of total resistance 5Q. How much power is dissipated in the cables?
(A) 50 W (B) 750 W (C) 500 W (D) 1000 W

30. I keep the butter in the fridge.
Select the correct passive voice:
A) In the fridge the butter is kept by me.
B) By me is the butter dept in the fridge.
C) The butter is kept by me in the fridge.
D) Dept in the fridge by me is the butter.

31. Appendix is vestigial in man but may play role in:
(A) Digestion (B) Excretion
(C) Immunity (D) Movement

32. In the nuclear reaction
(A) A neutron (B) A proton
(C) An electron (D) An alpha particle

33. A body of mass "m" moves at constant speed '✓'for a distance '✓'against a constant force 'H' what is the power required to sustain this motion?
(A) r_v (B) $\frac{1}{3}mv^2$ (C) $\frac{1}{3}Fs$ (D) Fs

34. A single molecule of haemoglobin is composed of:
(a) Three polypeptide chains (b) Four polypeptide chains
(c) Five polypeptide chains(d) Six polypeptide chains

35. Which of following functional groups are deactivating and not ortho, para directing?
(A) –R (B) –COR (C) $-NH_2$ (D) NR_2

36. In which of the following pairs are both substances normally crystalline?
(A) Copper and diamond (B) Copper and glass
(C) Copper and rubber (D) Diamond and glass

37. Urea formation occurs in:
(A) Kidney (B) Liver (C) Spleen (D) Lungs

38. Which one of the following is strongest ecid?
(A) CH^3OH (B) CH^3CH^2COOH
(C) $C^6H^5CC^2OOH$ (D) FCH^2COOH

39. Ultraviolet rays differ from the X-rays in that ultraviolet rays:
(A) Cannot be diffracted (B) Cannot be polarized
(C) Have a low frequency
(D) Do not affect a photographic plate

40. 'ALLUSION' means:
A) An idea haunting one's mind
B) A casual or indirect reference
C) Have a low frequency
D) Do not affect a photographic plate

41. Phagocytosis, pinocytosis and autophagy are the functions of:
(A) Golgi-Apparatus (B) Lysosomes
(C) Peroxisomes (D) Glyoxisomes

42. To distinguish among primary, secondary and tertiary alcohols which of the following tests is used?
(A) Benedicts reagent (B) Tollen'sreagent
(C) Lucas test (D) None of the above

43. A students measures a current as O.Sa. which of the following correctly expresses this result?
(A) 50 mA (B) 50 MA
(C) 500 mA (D) 500 MA

44. Spiders belong to class:
(A) Crustacean (B) Myriapoda
(C) Arychnida (D) Hexapoda

45. Which one of the following; compounds participates in hydrogen bonding?
(A) CH_3 (B) CH_3OCH_3
(C) CH_3NH_3 (D) $C_6H_5OCH_3$

46. If a body of mass 'm' is released in a vacuum just above the sun face of a planet of mass 'M' and
(A) $\frac{GMm}{R}$ (B) $\frac{GMm}{R^2}$ (C) $\frac{GM}{R^2}$ (D) $\frac{GM}{R^2}$

47. Polysaccharide cellulose is the building material of:
(A) Primary cell-wall (B) Secondary cell-wall
(C) Middle lamella (D) Plasma membrane

48. Which of the following structure has a bond formed by an overla of SP^2 hybrid orbital with that of SP hybrid orbital?
(A) HC = CH (B) $H_2C = CH_2$
(C) $H_2C = C = CH_2$ (D) $CH_2 = CHCH_3$

49. The first law of thermodynamics is a statement which implies that:
A) No heat enters or leaves the system
B) The temperature remains constant
C) All work is mechanical
D) Energy is conserved

50. GET HOLD OF ONESELF Implies:
(A) To start running (B) To catch a thief
(C) To become calm (D) To feel exhausted

51. Lobsters belong to class:
(A) Myriapoda (B) Arychnida
(C) Hexapoda (D) Crustacean

52. The bond angle between H - C – C bond in ethane is:
(A) 109.5 (B) 120 (C) 90 (D) 107.5

53. the function of a main transformer is to convert:
(a) one direct voltage to another direct voltage of different magnitude.
(b) one alternating voltage to another alternating voltage of different magnitude.
(c) a high value alternating voltage to low value direct voltage.

(d) A high value alternating current to low value direct voltage.

54. Pigeon odour is released from the water bloom of:
(A) Slime mold (B) Water mold
(C) Cyanobacteria (D) Cyanobacteria Algae ponds

55. What will be the product when PCT_5 reacts with acetic acid?
A) CH_3CI (B) CH_3COCI
(C) CH_3COCI_2 (D) CH_3CH_2COCI

56. When monochromatic light of wavelength $5.0X\ 10^{-7}$ m is incident normally on a plane diffraction grating, the second order diffraction lines are formed at angles of 30^0 to the normal to the grating. What is the number of lines per millimeter of the grating?
(A) 250 (B) 500 (C) 1000(D) 4000

57. Brunner's glands are found in:
(A) Stomach (B) Duodenum
(C) Ileum (D) Colon

58. Which type of isomerism is being exhibited by *FCH = CHF?*
(A) Chain isomerism (B) Structural isomerism
(C) Geometrical isomerism (D) Position isomerism

59. During the experiment one measured the mass of mosquito and found it $1.20x\ 10^{-5}$ kg. the number of significant figures in this case is:
(A) (B) (C) (D)

60. Select the correct sentence:
A) My feet seemed hardly to touch the earth.
B) My feet hardly seamed to touch the earth.
C) Hardly my feet seemed to touch the earth.
D) My feet seemed to touch the earth hardly.

61. An organism that adopts saprophytic mode of nutrition during part of its life is called:
(A) Facultative saprophyte (B) Facultative parasite
(C) Obligate saprophyte (D) Obligate parasite

62. Which is the correct product formed when monohydric alcohol reacts with sodium metal?
(A) Alkene (B) Sodum alkoxide
(C) Alkane (D) Ether

63. If a hole is bored through the center of the earth and a pebble is dropped in ti, then it will:
(a) Stop at the center of the earth
(b) Drop to the other side (c) Lxecute SHM
(d) None of the above.

64. Erepsin acts upon:
(A) Polypeptides (B) Carbohydrates
(C) Dipeptides (D) Fats

65. Coal, Natural gas and petroleum are generally called:
(A) Node (B) Anti-node
(C) Crest (D) Trough

66. in vibrating cord the point where the particles are stationary is called:
(a) node (b) anti-node (c) crest (d) trough

67. microsporum furfur causes:
(a) athlete's foot (b) ring wormergot
(c) dandruff

68. benzene reacts with acetyl chloride in the presence of lewis acid forming:
(A) Chlorobazcre (B) Acotophenone
(C) Benzolc acid (D) benzophenonc

69. the minimum frequency of incident light required to emit photoelectrons from the metal surface is called:
(A) critical frequency (B) threshold frequency
(C) work function (D) none of he above

70. in a composition writing exercise, 'PRECISE' means:
A) A synopsis for writing an essay in a degree level examination
B) A critique highlighting the weak point of a feature film story
C) A resume of the commercial achievements spread over a year
D) A short summary of the crucial ideas of a longer composition.

71. The gills are covered by operculum in
(A) Bony fishes (B) Cartllaginous fishes
(C) Lung fishes (D) Jawless fishes

72. When 2-Bromo-2-methyl propane undergoes unimolecular elimination reaction, the product obtained will be:
(A) 2-Methyl propane: (B) 2-Methyl propane:
(C) 2-Methyl-1 propanol: (D) 2-pentanol

73. When lead, $_{81}Pb^{214}$, emits a ß- particle, the resultant nutleus will be:
(A) $^{83}Bi^{214}$ (B) $^{84}Po^{214}$ (C) $^{82}Pb^{213}$ (D) $^{41}TI^{214}$

74. A sporophyle that depends on gametophytes is:
(A) Adlantum (B) Pinus
(C) Marchantia (D) Mustard-plant

75. Which is not correct about polyvinyl chloride?
A) It is used in large scale production of cable insulator
B) It is a copolymer
C) It is a homopolymer
D) It is used in the manufacturing of pipes

76. If two cars are moving with velocity 10 m/s and 5m/s in opposite direction to each other, then their relative velocity with respect to one another will be:
(A) 5m/s (B) 10m/s (C) -5m/s (D) 15m/s

77. Replication progresses at a rate of about 50 base pairs per second in:
(A) Bacteria (B) Virus
(C) Eukaryote (D) All of the above

78. Vinylaeetate monomer is prepared lby the reaction of acetaldehyde and acetic-anhydride. The catalyt employed is:
(A) $FcCI_3$ (B) AL_2O_3 (C) V_2O_5 (D) Cr_2O_3

79. When released from a height a ball falls 5m in 1s. in 4s after release it will fall.
(A) 40m (B) 80m (C) 20m (D) 100m

80. "I saw him yesterday" she said.
Select the correct indirect speech:
A) She told that she had seen him yesterday.

B) She said that she had seen him the day before.
C) She told that she could see him the previous day.
D) She said that she would see him the day before.

81. The pigments of chlorophyll a,b, and carotenoids are present in:
(A) Stroma (B) Grana
(C) Thalakoid membrane (D) Crista

82. Thermal processing of industrial waste material aims at:
A) Burning of waste material in pits
B) Converting the solid waste into useful products by thermal treatment.
C) Energy recovery from organic matter prior to its final disposal
D) Size reduction and compaction by thermal process

83. If the momentum of a body decreases by 20% the percentage decrease in K.E will be:
(A) 44% (B) 36% (C) 28% (D) 20%

84. Which one of the following animals is filter feeder?
(A) Teeth (B) Sycon
(C) Fresh water muscle (D) Jelly fish

85. Which one is not a nitrogenous fertillzer?
(A) Ammonium nitrate (B) Triple phosphate
(C) Urea (D) Nitro phosphate

86. The antimatter of election is:
(A) Photon (B) Roton
(C) Positron (D) Antineutrino

87. In chlorophyII-b, the porphyrine ring is attached to the:
(A) Methyl group (B) Carboxyl group
(C) Aldehyde group (D) Hydroxyle group

88. Which of the following titrants would most likely be used as ths' own indicator in acid medium?
(A) $K_2Cr_2O_3$ (B) Lodine
(C) $KMnO_4$ (D) H_2O_2

89. An organ pipe is open at both ends at its fundamental frequency. Neglecting any end effects, what wavelength is formed by this pipe in this mode of vibration, if the pipe is two meter long?
(A) 2m (B) 4m (C) 6m (D) 8m

90. Fire destroyed the top floor of the building:
A) The top floor of the building got destroyed by fire
B) By fire was destroyed the top floor of the building.
C) Destroyed by fire was the top floor of the building.
D) The top floor of the building was destroyed by fire.

91. Myoglobin is found in:
(A) Bone (B) Connective tissue
(C) Muscles (D) Cartilage

92. The atomic number of scandium is 21. What is its ground state electronic configuration?
A) $1s^2 2N^2 2p^6 3N^2 3p^6 3d^3$
B) $1s^2 2N^2 2p^6 3N^2 3p^6 3d^3 4s^1$
C) $1s^2 2N^2 2p^6 3N^2 3p^6 3d^3 4s^2$
D) $1s^2 2N^2 2p^6 3N^2 3p^6 3d^3 4p^1$

93. A body in equilibrium must not have:
(A) Kinetic energy (B) Velocity
(C) Momentum (D) Acceleration

94. The centre of porphrine ring of haemoglobin is occupied by:
(A) Magnesium (B) Sodium
(C) Iron (D) Potassium

95. The differences in energy between dchllerent states of bond vibrations in a molecule correspond to which electromagnetic region?
(A) Microwave (B) Inltared
(C) Visible (D) X-rays

96. Three equivalcnt resistors connected in parallel have equivalent resistance R/3. When they are connected in series then the equivalent resistance is:
(A) 3R (B) R/3 (C) R (D) 2R

97. Thalassaemia major is also known as:
(A) Sickle cell anemia (B) Cooley's anemia
(C) Mycocystic anemia (D) Nutritional anemia

98. 40.0 dm^3 of an ideal gas at 25^0C and 750 mm Hg is expanded to 50.0 dm^3. The pressure of the gas changed to 765 mm Hg. What is the temperature of the gas?
(A) $\frac{(2912)(750)(50)}{(40)(765)}$ (B) $\frac{(298)(750)(40)}{(50)(765)}$
(C) $\frac{(2912)(765)(50)}{(750)(40)}$ (D) $\frac{(750)(40)}{(298)(765)(50)}$

99. Ohm's law is valid only for:
(A) Thermistor (B) Bulb lilament
(C) Metals (D) Sernionductots

100. 'APPRAISE' means:
A) Tell a story at bed time
B) Evaluate the quality of
C) Do shopping in a bazaar
D) Praise a man out of place

101. Premature death of paints is caused by the deficiency of:
(A) Magnesium (B) Iron
(C) Phosphorus (D) potassium

102. Which of the given formulae would be used to calculate the wave length of an electron? Given its velocity(v), its mass (m) and constant *h*:
(A) (B) (C) (D)

103. The energy stored in a charged capacltor is given by:
(A) (B) (C) (D)

104. The birds excrete:
(A) Ammonia (B) Urea
(C) Uric acid (D) Acetic acid

105. Which electronic sub-shell do the Lanthanicies have incompletely filled?
(A) 3f (B) 4f (C) 5f (D) 6f

106. A write has a resilience 'it'. If its length is doubled and radius is reduced to half then its resistance will become:
(A) 2R (B) 4R (C) 8R (D) 16R

107. Bulliform cells are present in:
(A) Grasses (B) Under ground stems
(C) Fruit-nuts (D) Cabbage leaves

108. How many different values can m, assume in the electron sub-shell designated by quantum number n=5, 1=4?
(A) 4 (B) 5 (C) 6 (D) 9

109. The potential difference between a pair of similar and parallel conducting plates is known. What additional information is needed in order to find the electric field strength between the plates?
A) Separation of the plates.
B) Separation and area of the plates.
C) Permittivity of the medium; separation of the plates.
D) Permittivity of the medium; separation and area of the plates.

110. Please help someone the house is ....life.
(A) At (B) In (C) On (D) By

111. Bone is surrounded by a membrane called:
(A) Perichondrium (B) Prostomium
(C) Perlmyclum (D) Perlostium

112. Which of the following is Hypochlorous acid?
(A) HClO (B) $HClO_2$ (C) $HClO_3$ (D) $HClO_4$

113. A capacitor which has a capacitance of 1 farad will:
(a) Be fully charged in 1 second by a current of 1 ampere
(b) Store 1 coulomb of charge at a potential difference of 1 volt.
(c) Gain 1 joule of energy when 1 coulomb of charge is stored on it.
(d) Discharge in 1 second when connected aoross a resistor of resistance 1 ohm.

114. A hormone that prevents senescence in leaves, is:
(A) Auxin (B) Gibberellins
(C) Cytokinin (D) Abscisic acid

115. If 20.0 cm^3 of 0.5 M solution is dituted to 1.0 dm^3. What will be its new concentration?
(A) 0.00.1 M (B) 0.01 M (C) 1.0 M (D) 10.0 M

116. The internal energy of a fixed cass of an ideal gas depends on:
A) Pressure, but not volume or temperature.
B) Temperature, but not pressure or volume.
C) Volume, but not pressure or temperature.
D) Pressure and temperature, but not volume.

117. Messer's capsules are the receptors for:
(A) Temperature (B) Pain
(C) Pressure (D) Touch

118. Which one of the following oxides exhibit amphoteric properties?
(A) K_2O (B) MgO (C) ZnO (D) CaO

119. A spring obeying Book's law has an unstretched length of 50 mm and a spring contant of 400 Nm^{-01}. What is the tension in the spring when its overall lenlngth is 70mm?
(A) 8.0 N (B) 28 N (C) 160 N (D) 400 N

120. 'CRANKY SPOUSE' implies:
E) A carefully selected loving partner of life
F) Fussy and bad-tempered wife or husband
G) Money squandering younger second wife
H) A device fitted behind the rear seat of a car.

121. Flsrcen is produced by:
(A) Flowers (B) Flower-buds
(C) Leaves (D) Fruits

122. Which one of the following salts will produce an alkaline solution when dissolved in water?
(A) NH_1Cl (B) $NuNO_3$
(C) Na_2CO^3 (D) Nu $_2SO_4$

123. Which thermodynamic temperature is equivalent to 5@1.85^{0}C?
(A) 775.00 K (B) 774.85 K
(C) 228.85 K (D) 228.70 K

124. Who used puzzle boxes in experiment on animal learning?
(A) Pavlove (B) E.L. Thorndike
(C) Konrad Lorenz (D) Kohler

125. A neutral atom A has the electronic configuration: $1s^2$ $2s^2$ $2p^6$ $3s^2$ $3p^6$ $4s^1$. It will gain or lose electron/s to form most probably an lon of valence:
(A) -2 (B) -1 (C) +2 (D) +1

126. Which statement correctly describes a nucleon?
A) A neutron or a proton
B) A neutron, proton or an electron
C) Any atomic nucleus
D) A radioactive atomic nucleus

127. Ozone gas is:
A) Greenish, tasteless and light
B) Greenish blue, bitter in taste
C) Blue. Poisonous and explosive
D) Purple yellow, non poisonous, non explosive

128. Which one of the following is a lewis acid?
(A) $(CH_3)_3N$ (B) PH_3 (C) BF_3 (D) O $_2$

129. An object travels at constant speed around a circle of radius 1.0 m in 1.0 s. what is the magnitude of its acceleration?
(A) Zero (B) 1.0 ms^{-2} (C) 2n ms^1 (D) 4n ^{2} ms^{-2}

130. Select the correct sentence:
A) Farid and javed both are good swimmers.
B) Both farid and javed are good swimmers.
C) Good swimmers are Farid and faved both.
D) Swimmers are good both Farid and faved.

131. Which one of the following animals is viviparous?
(A) Rat (B) Kangaroo
(C) Duckbilled platypus (D) Spiny ant eater

132. According to molecular orbital theory which one of the following will indicate tow unpaired electrons?
(A) N_2 (B) O $_2$ (C) F_2 (D) Hc $_2^{+2}$

133. An alternating current '1/A' varies with time 't/s' according to the equation I = s sin (100n t). What is the meaq power developed by the current in a resistive load of resistance 100?
(A) 125 W (B) 160 W (C) 250 W (D) 500 W

134. Cristea of mitochondria re the sites of:
(a) Electron transport chains

(b) Photophosphorylation
(c) Krebs cycle (d) Glycolysis

135. Which one of the following compounds will show covalent bonding?
(A) CaF_2 (B) MgO (C) KCI (D) Sill $_1$

136. The rate of change of momentum of a body falling freely under gravity is equal to its:
(A) Impulse (B) Kinetic energy
(C) Power (D) weight

137. muscles develop from:
(A) ectoderm (B) mesoderm
(C) endoderm (D) all of the above

138. which one of the following has a covalent bonding by the overlap of sp hybralized orbital with p or bitaly
(A) BF_1 (B) H_2O (C) $HeCl_1$ (D) NH_3

139. Radioactive activity is affected by:
(A) Temperature (B) Pressure
(C) Humidity level (D) None of the above

140. An 'ELEGY' is a poem written:
E) In the memory of a little child
F) On the sighting of an old tutor
G) In the love of dear sweetheart
H) On the death of someone dear

141. Bacteria maintain their survival by the formation of:
(A) Hormogonia (B) Akinetes
(C) Endospores (D) Zygospores

142. The change in enthalpy at constant pressure, ΔH is equal to:
(A) H = q + P V (B) H = E- P V
(C) $\Delta H = \Delta E + R\Delta V$ (D) $\Delta H = q - P\Delta V$

143. Four gas molecules have the speed 8.0 ms^{-1}, 6.0 ms^{-1}, 6.0 ms^{-1} and $\sqrt{ß}$ ms^{-1}. What is their root-mean-square speed?
(A) 8.0 ms^{-1} (B) 6.0 ms^{-1}
(C) 5.0 ms^{-1} (D) 7.0 ms^{-1}

144. Avery, Macleod and McCarty repeated the Griffith experiment in the year:
(A) 1869 (B) 1928(C) 1944(D) 1952

145. Considering the standard reduction chart, the strong reducing agent value is:
A) Small negative values
B) Large negative values
C) Small positive values
D) Large positive values

146. An organ pipe of length T has one end closed but the other end open. What is the wavelength of the fundamental node emitted?
A) Slightly smaller than 41.
B) Slightly larger than 41.
C) Roughly equal to 3:/2.
D) Slightly larger than 21.

147. Microvillae are also called:
(A) Leaf veins (B) Cristae
(C) Capillaries (D) Leaf midribs

148. Which statement is correct while recbarging the automobile battery?
A) Pb is converted to PbO_2.
B) $PbSO_4$is converted t Ph.
C) Pb is converted to $PbSO_4$
D) None of the above

149. A vertical steel wire X of circular cross-section is used to suspend a load. A second wire Y, made of the same material but having twice the length and twice the diameter is used to suspend an equal load. What is the value of the ratio $\frac{extension\ of\ wire\ X}{extension\ of\ wire\ Y}$?
(A) 1/1 (B) 1 (C) 2 (D) 4

150. My children don't approve….. my smoking.
(A) I (B) Of (C) On (D) at

151. cell death due to tissue damage is called:
(A) Cancer (B) Apoptosis
(C) Necrosis (D) Metastasis

152. You are required to test the presence of NH^{4+} Ion in water. Which of the following reagent will solve your problem?
(A) Imethylglyoxime (B) Tollen's reagent
(C) Nessler's reagent (D) Magneson reagent

153. Drops X and Y, of the same oil, remained stationary in air in the same electric field. After the field was switched off, X fell more quickly than Y. which deduction can be made?
A) X had a greater charge than Y
B) Y ha a greater chrge than X
C) Parallel but opposite
D) Parallel, opposite and folded spirally.

154. The two chains of DNA occur side by side in a:
(a) Straight direction (b) Parallel but straight
(c) Parallel but opposite
(d) Parallel, opposite and folded spirally

155. Which of the following furnaces is used for the production of wrought iron?
(a) Open hearth furnace (b) Reverberatory furnace
(c) Bessemer converter (d) Blast furnace

156. A mass accelerates uniformly when the resultant force acting on it:
A) Is zero.
B) Is constant but not zero.
C) Increases uniformly with respect to time.
D) Is proportional to the displacement of the mass from a fixed point.

157. In which of the following the phenotypic and genotypic ratio is the same?
(a) Co-dominance (b) Over dominance
(c) Epitasis (d) Incomplete dominance

158. The variable oxidation states of transition elements is attubuted to the involvement of s as well as:

(a) Unpaired *Æ*lectrons (b) Unpaired *p* electrons
(c) Unpaired *f*lections (d) Paired up *d* electrons

159. A sample of carbon-12 has a mass of 3.0 g. which expression gives the number of atoms in the sample? (N_A is the symbol Ion the Avogadro costant
(A) $0.0030N_A$ (B) $0.25\ N_A$
(C) $3.0\ N_A$ (D) $4.0\ N_A$

160. 'BREAK THE ICE' Implies:
(A) Walk on ice-heet (B) Swallow ice-cubes
(C) Chisel an ice-block (D) To make a beginning.

161. A cell-wall that is composed of sugar and amino acids is called:
(A) Murein (B) Chitin (C) Lignin (D) Pectin

162. In contact process for the manufacture of sulphuric acid, sulphur trioxide is dissolved in sulphuric acid in form oleum. Oleum moleculr formula is:
(A) $H_2S_2O_3$ (B) $H_2S_2O_5$
(C) $H_2S_2O_6$ (D) $H_2S_2O_7$

163. Which of the following lists contains three regions of the electromagnetic spectrum in order of in ceasing frequency?
A) Gamma rays, ultraviolet rays, radio waves.
B) Gamma rays, visible radiation, ultraviolet rays.
C) Microwaves, ultraviolet rayst, X-rays.
D) Radio waves, visible radiation, infrared radiation.

164. A plant or animal modified by genetic engineering is called:
(A) Transgenic (B) Probe
(C) Recombinant (D) Plasmid

165. Ethylene diamine tetraacette ion (EDT(A) is a opolydentate ligand it bonds to central metal atom through:
(A) Two of its atoms (B) Three of its atoms
(C) Four of its aloms (D) Six of its atoms

166. A source contains initially N_0 nuclei of a radioactive nuclide. How many of these nuclei have decayed after a time interval of three half-lives?
(A) $N_o/8$ (B) $2N_o/3$ (C) $N_o/3$ (D) $7N_o/8$

167. When the entire body of a bacterium is covered by flagella, such a bacterium is called:
(A) Atrichous (B) Lopho-trichous
(C) Lampi trichous (D) Peri-trichaus

168. Phosphorus trihalides are readily hydrolysed as shown below:

$$PX_3 + 3H_2O \rightarrow H_3PO_3 + 3HX$$

Generally moving from fluorine to iodine rate of hydrolysis:
(A) Increases (B) Decreases
(C) Remalns unchanged
(D) First increases and then decreases

169. Two monochromatic radiations X and Y are incident normally on a diffraction grating. The second order intensity maximum for X coincides with the third order intensity maximum for Y. what is the ratio $\frac{wavelenth\ of\ x}{wavelegth\ of\ y}$?
(A) ½ (B) 2/3 (C) 3/2 (D) 2/1

170. Select the correct sentence:
A) Certainly she is the best person for the job.
B) She is the best person for the job certainly.
C) She is certainly the best person for the job.
D) The best person certainly she is for the job.

171. Nucleus was discovered by:
(A) Waldyne (B) T.H. Margan
(C) Robert Brawn (D) Kohler

172. Which of the following is not a nucleophile?
(A) NH_3 (B) HO (C) HC = CH (D) Br^2

173. A sound wave of frequency 400 Hz is travelling in a gas at a speed of 320 ms^{-1}. What is the phase difference between two points 0.2 m apart in the direction of the travel?
(A) $\frac{n}{1} rad$ (B) $\frac{n}{2} rad$ (C) $\frac{2n}{5} rad$ (D) $\frac{4n}{5} rad$

174. Stroma of chloroplasts carries the fixation of:
(A) N_2 (B) O_2 (C) CO_2 (D) NH_3

175. Half ell reaction standard reduction potential, E^o

$Fc^{2+}\ 2c^- \rightarrow Fe$	–0.41
$Cu^{2+}\ 2c^- \rightarrow Fe$	–0.41
$Ni^{2+}\ 2c^- \rightarrow Fe$	–0.41
$Zn^{2+}\ 2c^- \rightarrow Fe$	–0.41

Referring to the table above which metal could be used to prevent iron from crosion?
(A) Cu only (B) Zn only
(C) Cu & Ni only (D) Ni and Zn only

176. Which of the following is the unit of pressure?
(A) Kg m s^{-1} (B) Kg m $^{-1}$ s^{-2}
(C) Kg m^2 s^{-2} (D) Kg m $^{-2}$ s^{-1}

177. What will be the anti-coden of AUG?
(A) TAC (B) ATC (C) UAC (D) UTC

178. Lipids are naturally occurring substances which are chemically:
(A) Proteins (B) Arnino acids
(C) Carbohydrates (D) Esters

179. Satellites revolve around the earth in a circular orbit. What is the relationship between the raider f their orbits and their speeds?
(A) $V \propto r^2$ (B) $V \propto r$
(C) $V^1 \propto 1/r$ (D) $V \propto 1/r^2$

180. 'DENOUNCE' means:
(a) To reject straight away (b) To praise in a meeting
(c) To condemn publicly (d) To negoticate secretly

181. Potatoe plastids, which store starch, are known as:
(A) Paramylum (B) Amyloplasts
(C) Leucoplasts (D) glycoplasts

182. A salt AB tonizes as AB = A+ > B-. The solubility product for the salt AB is 4.0 × 10-4. The molar solubility of the salt is:
(A) 4.0×10^{-4} M (B) 2.0×10^{-2} M
(C) 8.0×10^{-4} M (D) 2.0×10^{-4} M

183. Of the following properties of a wave, the one that is independent of the others is its:
(A) Amplitude (B) Wavelength
(C) Speed (D) Frequency

184. The primers used in polymerase chain reaction has a sequence of bases:
(A) 8 (B) 12 (C) 16 (D) 20

185. Which has the lowest temperature?
(A) Troposphere (B) Stratosphere
(C) Mesosphere (D) Thermosphere

186. The prelix 'tera' stands for:
(A) 10^4 (B) 10^{-4} (C) 10^4 (D) 10^{12}

187. The phenomenon that a seed fails to germinate in spite of providing all conditions necessary for germination, is called:
(A) Photoperiodism (B) Vernalization
(C) Dormancy (D) phytochrome

188. Which one is least reactive towards a reaction with Na?
(A) CH_3OH (B) $CH_3 - CH_3$
(C) $CH_3 - O - CH_3$ (D) CH3 - COOH

189. The force 'F' on a charged partied 'q' moving with velocity 'v' parallel to magnetic held 'B' is given by:
(A) F u qvB (B) F u qE
(C) F u O (D)

190. The police arrested him for dangerous driving.
Select the correct passive voice:
A) He was arrested for dangerous driving by the police.
B) He was arrested by the police for dangerous driving.
C) For dangerous driving he was arrested by the police.
D) By the police was he arrested for dangerous driving.

191. Which one of the following is a sex-linked inheritance?
(A) Baidness (B) Albinism
(C) Eye colour (D) Myopia

192. The element which has the smallest atomic radius is:
(A) Fe (B) Co
(C) Ni (D) Cu

193. Which one of the following has negative temperature coefficient?
(A) Copper (B) Thermistor
(C) Soft iron (D) platinum

194. pulvinus tissues are present at:
(A) Leaf-tip (B) Leaf-margin
(C) Leaf-base (D) Middle-vein

195. Which isomers have difference in both their physical and chemical properties?
(a) Chain isomers (b) Position isomers
(c) Functional group isomers (d) Both 9(A) and (B)

196. When the light from two lamps falls on a screen, no interference pattern can be obtained. Why is this?
A) The lamps are not point sources
B) The lamps emit light of different amplitudes
C) The light from the lamps is not coherent
D) The light from the lamps is white.

197. The vaive between left ventricle is called:
(A) Semi lunar valve (B) Blcuspid valve
(C) Tricuspid valve (D) Pulmonary valve

198. Which of the following tests can be used to distinguish between aidehyces and ketones?
(A) Bacyer's test (B) Fehling's test
(C) Silver mirror test (D) Both (B) and (C)

199. One way of expressing the equation of state for an ideal gas is by the equation pV = NkT.
What do 'N' and 'K' represent respectively?
C) Avogadro constant; Boltzmnn constant
D) Avogadro constant; Molar gas constant
E) Total number of molecules; Boltzmann constant
F) Total number of molecules; Avogadro constant

200. "I have bee to Spain," he told me. *Select the correct indirect speech:*
A) He told me that he could visit Spain.
B) He told me that he has visited Spain.
C) He told me that he had been to Spain.
D) He told me that he has been to Spain.

ENGINEERING PAPER 2013

1. Do you like this shirt?" he said to his friends. Select the correct indirect speech:
   A) He asked his friends if they liked that shirt.
   B) He asked his friends if they did liked the shirt.
   C) He asked his friends if they likened the shirt.
   D) He asked his friends if they may like theshirt.

2. Forces of 3N, 4N and 5Nact at one point on anobject. The angles at which the forces act can vary. What is the value of the minimum resultant force of these forces?
   (A) 2N (B) Between 2N and 4N
   (C) 0 (D) Between 0 and 2N

3. The sum of the squares of two numbers is 100.One number is 2 more than the other. The numbers are:
   (A) 4, 6 (B) 6, 8 (C) 8, 10 (D) 10, 12

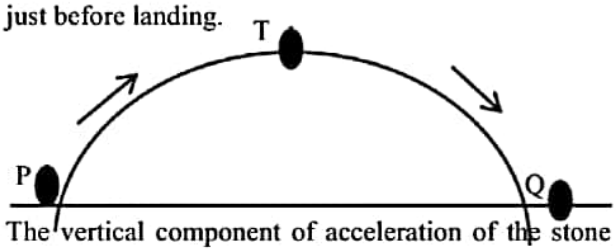
4. Select the correct product formed when xenonhexafluoride reacts with water:
   $XeF_6 + H_20$
   (A) $Xe0_2$+ HF (B) XeE_4+ HF + O_2
   (C) Xe + HF + O_2 (D) $Xe0F_4$+ 2HF

5. A source of e.m.f. of 9.0 mV has an internal resistance of 6.0 Ω. It is connected across a galvanometer of resistance 30 Ω. What will be the current in the galvanometer?
   (A) 250 μA (B) 300 μA
   (C) 1.5 mA (D) 2.5 mA

6. A groupoid (S, *) is called a semi group, if '*' is:
   (A) Commutative in S (B) Associative in S
   (C) Distributive in S (D) Transitive in S

7. Which of the following would you expect to bemore soluble in water?
   (A) $CH_3\overset{O}{\overset{\|}{C}}CH_3$ (B) $CH_3\overset{O}{\overset{\|}{C}}OCH_3$
   (C) CH_3CH_2OH (D) $CH_3CH_2CH_3$

8. In the absence of air resistance, a stone is thrown from P and follows a parabolic path in which the highest point reached is T. The stone reaches point Q just before landing.



The vertical component of acceleration of the stone is:
   A) Zero at T (B) Larger at T than at Q
   B) Larger at Q than at T
   C) The same at Q as at T

9. Sin 20° cos 70° + cos 20° sin 70° =
   (A) 1 (B) –1 (C) $-\frac{1}{\sqrt{3}}$ (D) $\frac{2}{\sqrt{3}}$

10. Isopropyl alcohol on oxidation with sodium dichromate in presence of sulphuric acid gives:
   (A) Acetaldehyde (B) Ethanoic acid
   (C) Acetone (D) Propanoic acid

11. ALL BYONESELF' implies:
   A) keeping aloof not joining anybody'scompany
   B) in company and all those present joininghands
   C) passing one's life singly like a chronicbachelor
   D) completely alone with no help fromsomeone else

12. For any natural number n,
   1 + 3 + 5 + ---+ (2n – 1) =
   (A) $\frac{n(n+1)}{2}$ (B) $\frac{n^2(n+1)^2}{4}$
   (C) $\frac{n(n+1)(n+2)}{2}$ (D) n^2

13. The de-Broglie wavelength of a rifle bullet of mass 0.02kg which is moving at a speed of 300 ms^{-1} is (where h= 6.63 x 10^{-34}J s):
   A) 7.3×10^{-34} m
   B) 1.1×10^{-34} m
   C) 1.8×10^{-34} m
   D) 9.9×10^{-34} m

14. Select proper IUPAC name of the following compound:
   H_3C CH_2CH_3
   C==C
   H_3C CH_3
   A) 2-methyl-3-ethyl-2-butene
   B) 3-ethyl-2-methyl-2-butene
   C) 2, 3-Dimethyl-2-pentene
   D) 2, isopropyl butene

15. The electric field between the plates of an isolated air-spaced parallel-plate capacitor is E. What Is the field between the plates after Immersing the capacitor in a liquid of relative permitivity 10?
   (A) 10E (B) E/10 (C) $\sqrt{10}E$ (D) $E/\sqrt{10}$

16. If C and D are two matrices, then $(C + (D)^t$
   (A) $C^t + D^t$ (B) C^tD^t (C) $D^t C^t$ (D) $(C(D)^t$

17. Which one of the following best represents the Haber process for the production of ammonia?
   A) $N_{2(g)} + 3H_{2(g)} \rightarrow 2NH_{3(g)}$
   B) $NH^+_{4(aq)} + OH \rightarrow NH_{3(aq)} + H_2O_{(l)}$
   C) $Mg_3N_2 + 6H_2O \rightarrow 3Mg_{(aq)} + 2NH_{3(g)}$
   D) $H_3N + NH_2O \rightarrow NH_2 + 1OH + NH_{3(g)}$

18. What is its mean angular speed?
   (A) 1.4 x 10^{-4} rad s^{-1} (B) 1.7 x 10^{-3} rad s^{-1}
   (C) 5.2 x 10^{-3} rad s^{-1} (D) 3.0 x 10^{-1} rad s^{-1}

19. If a, b, c are sides of a triangle and s= $\frac{a+b+c}{2}$ then area of the triangle is:
A) $\sqrt{2s(s-a)(s-b)(s-c)}$
B) $\sqrt{s(s+a)(s+b)(s+c)}$
C) $\sqrt{2s(s+a)(s+b)(s+c)}$
D) $\sqrt{s(s-a)(s-b)(s-c)}$

20. The oxidation number of Nitrpgen in Nitrite ion is:
(A) +1 (B) +2 (C) +3 (D) +4

21. Traffic constables direct traffic.
Select the correct passive voice:
A) Directed by traffic constables is traffic.
B) By traffic constables is directed traffic.
C) Traffic by traffic constables is directed.
D) Traffic is directed by traffic constables.

22. In the Hydrogen spectrum, Balmer series lies in the:
(A) ultra-violet region (B) visible region
(C) infra-red region (D) X-rays region

23. If a, b, c ∈ R a>b, b>c > a > c, then this property is called:
A) Multiplicative property of inequality
B) Additive property of inequality
C) Transitive property of inequality
D) Trichotomy property of inequality

24. CH_3
CH_3 $CH-CH$ CH_3Mg X Y
Br
In the above creation Compound Y will be an:
(A) Alkane (B) Alkene
(C) Alcohol (D) Alkyl halide

25. The phase change of 180° is equivalent to a path difference of:
(A) λ/2 (B) λ (C) 2 λ (D)

26. The domain of principal since function is:
(A) $\left[0,\frac{\pi}{2}\right]$ (B) $\left[-\frac{\pi}{2},\frac{\pi}{2}\right]$
(C) $\left[0,\frac{3\pi}{2}\right]$ (D) $[0,2\pi]$

27. What will happen if a block of copper metal is dropped into a beaker containing a solution of 1M $FeSO_4$?
$Cu^{2+} + 2e \rightarrow Cu$ 0.34 V
$Fe^{2+} + 2e \rightarrow Fe$ -0.44 V
A) The copper will dissolve with no other change
B) The copper will dissolve and Fe will be precipitated out
C) The copper will dissolve with the evolution of H_2 gas
D) No reaction will occur

28. What are the base St units of force?
(A) Kg m s^0 (B) Kg m s^{-1}
(C) Kg m s^2 (D) Kg m s

29. Tan $\frac{0}{2}$ =
(A) $\pm\frac{\sqrt{1+\cos\ \theta}}{1-\cos\ \theta}$ (B) $\pm\frac{\sqrt{1-\cos\ \theta}}{1+\cos\ \theta}$
(C) $\frac{1-\cos\ \theta}{1+\cos\ \theta}$ (D) $\frac{1+\cos\ \theta}{1-\cos\ \theta}$

30. Thebest known fuel cell and the most highly developed is the hydrogen/oxygen fuel cell known as the:
A) Proton ceramic cell
B) Molten carbonate fuel cell
C) Bacon cell
D) Direct methanol fuel cell

31. 'INNUMERABLE' means:
(A) In equal numbers (B) Numerically scant
(C) Not in a formation (D) Too many to count

32. A body of mass m, moving at velocity v, collides with a stationary body of the same mass and sticks to it. Which row describes the momentum and kinetic energy of the two bodies after the collision?

	Momentum	Kinetic energy
(A)	mv	$\frac{1}{4}mv^2$
(B)	mv	$\frac{1}{8}mv^2$
(C)	2mv	$\frac{1}{2}mv^2$
(D)	2mv	mv^2

33. If a system of linear equations has no solution, it is called:
(A) Invertible (B) Indeterminate
(C) Consistent (D) Inconsistent

34. An organic compound having molecular formula C_2H_60 can exhibit functional group isomerism. Select the correct isomers:
A) Methanol and methoxy methane
B) Ethanol and ethoxy ethane
C) Ethanol and methoxy methane
D) Methanol and ethoxy ethane

35. Which of the following pairs contains one vector and one scalar quantity?
A) Displacement :acceleration
B) Force : kinetic energy
C) Momentum :velocity
D) Power :speed

36. The period of sin x is:
(A) 2π (B) −2π (C) π (D) −π

37. Those substances which are attracted in a magnetic field are called:
A) Ferrimagnetic substances
B) Diamagnetic substance
C) Antiferromagnetic substances
D) Paramagnetic substances

38. If a force of 10N makes an angle of 60° with y-axis, its x-component is:
(A) 0.776N (B) 8.66N (C) 7.76N (D) 5.0N

39. If A and B are any two events defined in a sample space, then P(A – (B) =
(A) P((A) – P(A ∪B) (B) P(A ∪ (B) – P((A)
(C) P((A) – P(A∩B) (D) P(A ∩ (B)

40. Which type of hybridization carbon atom can undergo in the formation of ethyne molecule?
(A) Sp^2 (B) Sp^3 (C) Sp^2 (D) Dsp

41. Select the correct sentence:
A) Last night we watched a barbaric movie.
B) Last night we watched a turmeric movie.
C) Last night we watched a agnostic movie.
D) Last night we watched a fantastic movie.

42. Which statement is not valid?
A) Current is the speed of the charged particles that carry it
B) Electromotive force (e.m.f.) is the energy converted to electrical energy from other forms, per unit charge
C) The potential difference (p.d.) between two points is the work done in moving unit charge from one point to the other
D) The resistance between two points is the p.d. between the two points, per unit current

43. ${}^{n}P_{r}$ =
(A) $\frac{n(n-1)\downarrow}{n-r}$ (B) $\frac{n(n+1)\downarrow}{n+r}$
(C) $\frac{n\downarrow}{(n-r)\downarrow}$ (D) $\frac{n\downarrow(n-r)\downarrow}{n-r}$

44. Mehtanol reacts with sodium. The product formed is sodium methoxide and hydrogen gas.
$2CH_3OH + 2Na \rightarrow CH_3O\ Na + Na + H_2\ (g)$
In this re action methanol acts as:
(A) Weak base (B) Weak acid
(C) Strong base (D) Weak oxidizing agent

45. In the direction indicated by an electric field line:
A) The potential must decrease
B) The electric field strength must increase
C) The electric field strength must decrease
D) The potential must increase

46. In the form of partial fractions the rational function $\frac{x^2}{(x-1)^3(x+1)}$ can be written as:
A) $\frac{A}{x+1} + \frac{B}{(x-1)^3}$
B) $\frac{A}{(x+1)^2} + \frac{Bx+c}{x+1}$
C) $\frac{A}{x-1} + \frac{B}{(x-1)^2} + \frac{B}{(x-1)^3} + \frac{Dx+E}{x+1}$
D) $\frac{A}{x-1} + \frac{B}{(x-1)^2} + \frac{B}{(x-1)^3} + \frac{D}{x+1}$

47. $CH_3COCI + 2NH_3 \rightarrow$
Considering the above reaction which one is the true product?
(A) $CH_3COO\ NH_4$ (B) $CH_3\ CO\ NH_2$
(C) $H_2N\ COO\ NH_4$ (D) CH_3CI

48. In a photoemission experiment, the wavelength of the light incident on the target material is increased. What is the effect of this change of wavelength on the kinetic energy of the photoelectrons produced?
A) The average kinetic energy increases
B) The maximum kinetic energy increase
C) The average kinetic energy decreases
D) The minimum kinetic energy increases

49. A circle passing through the vertices of any triangle is called:
(A) Semi circle (B) Circumcircle
(C) Inctrcle (D) Escribed circle

50. The impurities in water are expressed by unit, parts per million (PPm) which is equal to:
A) $\frac{wt\ or\ volume\ of\ solute}{wt\ or\ volume\ of\ solution} \times 10^6$
B) $\frac{wt\ or\ volume\ of\ solution}{wt\ or\ volume\ of\ solute} \times 10^6$
C) $\frac{wt\ or\ volume\ of\ solute}{wt\ or\ volume\ of\ solvent} \times 10^6$
D) $\frac{wt\ or\ volume\ of\ solvent}{wt\ or\ volume\ of\ solute} \times 10^6$

51. Marvin was arrested and charged... murder.
(A) Into (B) Over (C) With (D) Near

52. What is the internal energy of an object?
A) It is the energy associated with the object's movement through space
B) It is the energy associated with the random movement of the molecules in the object
C) It is the energy due to the attractions between the molecules in the object
D) It is the sum of all the microscopic potential and kinetic energies of the molecules in the object

53. If A and B are two sets, then $A' \cup B' =$
(A) $(A \cup (B)'$ (B) (A $\cap (B)'$
(C) A' ∪ B' (D) (B $\cup (A)'$

54. The reduction of 2-butyne to n-butane in laboratory involves:
A) The use of an oxidizing agent such as $Cr_2O_7^{-2}$ in the presence of acids.
B) The use of strong base such as KOH along with $NaNH^2$
C) The use of hydrogen gas in the presence of Nickel as catalyst
D) The use of Al_2O_3 as catalyst and water in the form of steam

55. Which of the following physical phenomena cannot be described only by the wave theory of the electromagnetic radiation?
(A) Diffraction (B) Interference

(C) Polarization (D) Photoelectric effect

56. If A is a non-singular matrix, then A^{-1}

(A) $\frac{1}{|A|}$ adj A (B) A^{-1} adj A

(C) $\frac{1}{A^{-1}}$ adj A (D) $\frac{|A|}{adj\ A}$

57. Acetic acid reacts with thionyl chloride. The product obtained is:

A) $CH_3COCI + SO_2 + HCI$

B) $CH_3CI + CH_3COCI + SO_2$

O

C) $CH^3CO\ CH^3 + SO^2$

D) None of the above

58. Which statement about nuclel is correct?

A) Different isotopic nuclei have different proton numbers

B) Bucleon numbers of nuclel are unchanged by the emission of β particles

C) For some nuclel, the nucleon number can be less than the proton number

D) In some nuclear processes, mass-energy is not conserved

59. Let Z be the set of all integers and "°" is defined as a $a°b = 3a - b\square$ a, b ∈ Z, then '°' is not:

(A) Commutative (B) Associative

(C) Distrubutive (D) All of the above

60. Which of the following is not an electrophile?

(A) H_3O^+ (B) AICI $_3$

(C) CN (D) BF_3

61. 'CHUCKLE' means:

(A) Bouquet of flowers (B) Displeasing manner

(C) Suppressed laughter (D) Religious movement

62. A wire of resistance 3.0Ω is stretched to twice its srcinal length. The resistance of new wire will be:

(A) 1.5Ω (B) 3.0 Ω

(C) 6.0Ω (D) 12.0 Ω

63. The distance d from the point $P(x_1, y_1)$ to the line ax + by + c = 0 is given by d =

(A) $\frac{|ax-by+c|}{\sqrt{a^2-b^2}}$ (B) $\frac{|ax_1+by_1+c|}{\sqrt{a^2-b^2}}$

(C) $\frac{|ax+by+c|}{\sqrt{a^2-b^2}}$ (D) $\frac{|ax_1+by_1+c|}{\sqrt{a^2-b^2}}$

64. Which mixture can be separated by filtration?

(A) Sand and water (B) Petrol and water

(C) Salt and sugar (D) NaCl and water

65. In vacuum all electromagnetic waves have the same:

(A) *speed* (B) *energy*

(C) Frequency (D)wavelength

66. $\int \sec^2 10x dx =$

(A) $\frac{cosec^2 10c}{10} + C$ (B) $\frac{\tan\ 10c}{10} + C$

(C) $\frac{\sec\ 10c}{10} + C$ (D) $\frac{\cos\ 10crpse\ 10x}{10} + C$

67. The hydrolysis of urea into ammonia and CO2 takes place in the presence of a catalyst Urease as shown below

A) Homogenous catalysis

B) Heterogeneous catalysis

C) Enzyme catalysis

D) None of the above

68. The density of d steel ball was determined by measuring its mass and diameter. The mass was measured within 1% and the diameter within 3%. The error in the calculated density of the

(A) 2% (B) 4% (C) 8% (D) 10%

69. In quadratic equation axe + bx + c = 0,, product of the roots is:

(A) $\frac{b}{a}$ (B) $\frac{-c}{a}$ (C) $\frac{c}{a}$ (D) $\frac{-b}{a}$

70. Concentrated sulphuric acid is added to a mixture of potassium dichromate and metal chloride in solid state. On heating brown fumes of chromyl chloride are formed. Its formula is:

(A) $CrOCI_2$ (B) CrO $_2CI_2$

(C) CrO_2CI (D) $CrOCI_3$

71. Select the correct sentence:

A) She possesses some small charming silver ornaments.

B) Some charming small silver ornaments she possesses.

C) Some small silver charming ornaments she possesses.

D) She possesses some charming small silver ornaments.

72. The minimum number of equal forces that keep the body in equilibrium are:

(A) Two (B) Three (C) Four (D) Five

73. If ${}^nC_6 = {}^nC_{12}$, then n =

(A) 6 (B) 18 (C) 12 (D) 4

74. Fewer the number of carbon atoms in an alkane the lower will be the boiling point and will be:

(A) Basic (B) Non volatile

(C) Volatile (D) Acidic

75. Two parallel plates, a distance 25 mm apart, have a potential difference between them of 12 kV. What is the force on an electron when it is in the uniform electric field between the plates?

(A) 40.8×10^{-30}N (B) 7.7×10^{-20} N

(C) 4.8×10^{-17}N (D) 7.7×10^{-14} N

76. In the quadratic equation axe + bx + c 0 if a= 0, then it:

A) Becomes a linear equation

B) Becomes a polynomial

C) Becomes an exponential equation

D) Remains Quadratic equation

77. Formaldehyde is used in the manufacture of:

(A) Pararosaniline (B) Acetic anhydride

(C) 1,3-Butadien (D) Smokeless powder

78. A body in equilibrium must not have:

(A) Kinetic energy (B) Velocity

(C) Momentum (D) Acceleration

79. (sec B — 1) (sec 0 + 1) =
(A) $Cot^2\theta$ (B) Sec $^2\theta$
(C) $Tan^2\theta$ (D) Cosec $^2\theta$

80. Which of the following is not true for enzymes?
A) They are complex protein molecules
B) Their efficiency is independent of temperature
C) They work under specific rang of pH
D) Their action is specific

81. "You really took good care of your sister," I said. Select the correct indirect speech:
A) I said that he had really taken good care of his sister.
B) I said that he had really cared good for his' sister.
C) I said that he really had taken good care of his sister.
D) I said that he had really good care taken of his sister.

82. The magnitude of horizontal component of a force 10N is 6N. The magnitude of its vertical component is:
(A) 10N (B) 8N (C) 4N (D) 12N

83. The numbers which have $\sqrt{-1}$as one factor are called:
(A) Real numbers (B) Complex numbers
(C) Irrational numbers (D) Imaginary numbers

84. During the electrolysis of CuCl2 solution which reaction is possible at the anode?
A) $Cu_{(5)} \rightarrow Cu^{+2}_{(aq)} + 2e$
B) $2H^+ + 2e \rightarrow H_{2(g)}$
C) $2H_2O_{(l)} \rightarrow O_{2\,(g)} + 4H^+_{(aq)} + 4e$
D) $Cu^{+2\,(aq)} + 2e \rightarrow Cu^{(s)}$

85. Forces of 4N and 6N act at a point. Which one of the following could not be the magnitude of their resultant?
(A) 10N (B) 6N (C) 4N (D) 1N

86. If A is a square matrix of order 3x3, then AA^1 is:
(A) Symmetric (B) Skew-symmetric
(C) Triangular (D) None of the above

87. Polyamides are class of condensation polymers by a chemical reaction between:
A) Monocarboxylic acid and diamines
B) Dicarboxylic acids and diamines
C) Dicarboxylic acids and simple amines
D) All of the above

88. The magnitude of the resultant of two forces is F. The magnitude of each force is F. the angle between the forces must be:
(A) 30° (B) 60 ° (C) 120° (D) 45°

89. $\text{Sin}\left(a + \frac{\pi}{2}\right) =$
(A) Sin a (B) –sin a (C) Cos a (D) – cos a

90. Propene is unsymmetric molecule the addition of HI will result in the formation of:
(A) $H_3C - CH - CH_3$ (B) CH3 CH $_2$ I
(C) CH_3 CH $CH_3 + CH_3$ CH_2I
(D) $CH_2 - CH - CH_3 + H_2$

91. 'PRECISE' is a short summary of the essential ideas of:
(a) A mixture of passages (b) The underlying theme
(c) The overview practice (d) A longer composition

92. An electron in a hydrogen atom makes a transition from an energy level with energy El, to one with energy E2 and simultaneously emits a photon. The wavelength of the emitted photon
A_) h/E_1, E_2) (B) ho/E_2, E_2)
A) h/c ($E_1 - E_2$) (D) ($E_1 - E_2$)/hc

93. For a geometric series $a^1 + a^2 + a^3 + \ldots + a^n$ with common ratio r + 1, s_n –
(A) $\frac{r^n-1}{r-1}$ (B) $\frac{r-1}{r^n-1}$ (C) $\frac{a_1(r^n-1)}{r-1}$ (D) $\frac{a_1(r^n+1)}{r+1}$

94. Styrene is polymerized at high temperature of about 600°C In the presence of a catalyst:
(A) Iron oxide (B) Platinum gauze
(C) ailadium (D) Nickel

95. Which one of the following has the largest energy content?
A) 10^2 photons of wavelength 1 pm (y-ray)
B) 10^5 photons of wavelength 2 pm (y-ray)
C) 10^6 photons of wavelength 5 μm (infra-red rays)
D) 10^8 photons of wavelength 600 nm (yellow light)

96. The roots of the equation 25x2 — 30x + 9 = 0 are:
(A) imaginary (B) Rational and equal
(C) Rational and unequal (D) Irrational and equal

97. Which X — H bond angle is greatest in the following compounds? Where X=C,N,O,S
(A) CH_4 (B) NH_3 (C) H_2O (D) H_2S

98. What is represented by the gradient of a graph of force (vertical axis) against extension (horizontal axis)?
(A) Elastic limit (B) Spring constant
(C) Stress (D) Young modulus

99. If $f(x) = \frac{x}{x+1}$ then $[f(2)]^{-1} =$
(A) $\frac{1}{2}$ (B) $\frac{-2}{3}$ (C) $\frac{2}{3}$ (D) $\frac{3}{2}$

100. Which statement given below is not true for the reaction?
$Fe^{3+} + e \rightarrow Fe^{2+}$
A) Fe3+ is being reduced
B) The oxidation state of Fe has changed
C) Fe3+ could be referred to as a reducing agent in this reaction
D) Both Fe^{3+} and Fe^{2+} are called cations

101. COME OF AGE' implies:
A) To get married off
B) To become very old
C) To reach maturity
D) To fall ll and expire

102. If a stationary electron is subjected to a uniform magnetic field it will be:

A) Unaffected
B) Accelerated in the direction of field
C) Caused to move in a circular path
D) Caused to oscillate about a fixed point

103. If a, b, c are the sides of a triangle and a, β, γ are the respective angles, then area of the triangle is:
(A) $\frac{1}{2}a^2 \sin\beta$ (B) $\frac{1}{2}b^2 \sin y$
(C) $\frac{1}{2}c^2 \sin a$ (D) $\frac{1}{2}bc \sin a$

104. Which one of the following will be more acidic?
(A) 1-Pentene (B) 1-Pentyne
(C) 3-Hexyne (D) 2-Pentyne

105. The gate which inverts the output of an OR gate is:
(A) NOR (B) AND (C) XOR (D) NAND

106. π radians =
(A) 60° (B) 90 ° (C) 360° (D) 180°

107. Choose the correct product of the following reaction:
$CH_3CH_2OH + PCI_5 \rightarrow$
A) $CH_3CI + POCI_3 + H_2O$
B) $CH_3CH_2CI + POCI_3 + H_2O$
C) $CH_3CH_2CI + CI + POCI_3 + HCI$
D) $C_2H_5CI + H_3PO_3$

108. When atoms in the gaseous state are excited to emit radiations, the spectrum obtained is:
(A) Band spectrum (B) Line spectrum
(C) Continuous spectrum (D) None of the above

109. For what value of k will equation $x^2 - kx + 4 = 0$ have the sum of roots equal to the product of roots?
(A) 3 (B) –2 (C) –4 (D) 4

110. Which one of the following is not a state function?
(A) Enbthalpy (B) Free energy
(C) Work (D) energy

111. "I shall be in Geneva on Monday, "he said. Select the correct indirect speech:
A) He said that he would be in Geneva on Monday.
B) He said that he shall be in Geneva on Monday.
C) He told that he would be in Geneva on Monday.
D) He hoped that he could be in Geneva on Monday.

112. Which one of the following particles belongs to Hadron group?
(A) Neutrino (B) Proton
(C) Electron (D) Antineutrino

113. The product of the fourth roots of unity is:
(A) Zero (B) 1 (C) -1 (D) $-i$

114. In lower atmosphere, ozone has adverse effects due to its role in the formation of:
(A) CO_2 (b) NO $_2$
(C) Fog (d) Photochemical smoog

115. In an AC capacitive circuit, current and voltage phase relation is:
A) In-phase
B) Current leads voltage by 90°
C) Voltage leads voltage by 90°
D) Current leads voltage by 180°

116. $\int x^n dx =$
(a) $\frac{x^{n+1}}{n+1} + C, n \neq -1$ (b) $nx^{n+1} + C, n \neq -1$
(c) $\frac{nx^{n-1}}{n-1} + C, n \neq -1$ (d) $\frac{x^{n-1}}{n-1} + C, n \neq -1$

117. Identify the name of coordination compound $K_4[Fe(CN)_6]$:
A) Potassium hexa cyanoferrate
B) Potassium hexa cyanoferrate (II)
C) Potassium hexa cyanoferrate (III)
D) Potassium (I) hexa cyanoferrate (IV)

118. Keeping magnetic field B and velocity of the particles same, which particle will show the most deflection when passes through the magnetic field:
(A) Neutrons (B) A-particles
A) β-particles (D) Y-rays

119. Which of the following sets has closure property with respect to multiplication?
(A) {-1, +1} (B) {-1}
(C) {-1, 0} (D) {0, 2}

120. $PbSO_{4(8)} + 2e \quad Pb_{(8)} + SO_4^{-2} \quad -0.36v$
$PbO_{2(8)} + 4H^+ + SO4_{2-} + 3e \rightarrow PbSO_{4(8)} + 1.69v$
Thetwo halfcell reactions above are involved in the discharge of a lead storage battery. The potential of a single cell lead storage is:
(A) 1.33 volts (B) 4.10 volts
(C) 2.66 volts (D) 2.06 volts

121. The might promote Javed next year.
Select the correct passive voice:
A) Javed might be promoted by them next year.
B) Promoted by them Javed might be next year.
C) By them Javed might be promoted nextyear.
D) Next year Javed might be promoted bythem.

122. Particles giving rise to dense, straight and continuous tracks in a cloud chamber due to lionization produced by them are:
(A) Beta particles (B) Alpha particles
(C) Gamma rays (D) Photo electrons

123. The coordinates of the midpoint of the line segment whose end points are $P_1(-10,4)$, $P_2(7, -5)$ are:
(A) $\left(4, \frac{-1}{2}\right)$ (B) $\left(\frac{2}{2}, 2\right)$ (C) $\left(\frac{2}{2}, \frac{1}{2}\right)$ (D) $\left(\frac{-3}{2}, \frac{-1}{2}\right)$

124. The electronic configuration of gallium, atonic number 31, is:
(A) $[Ar]\ 4S^2\ 3d^8\ 4P^3$ (B) $[Kr]\ 4S^{\ 2}\ 3d^{10}\ 4S^1$
(C) $[Ar]\ 4S^2\ 3d^{10}\ 4P^1$ (D) $[Ar]\ 3S^{\ 2}\ 3d^{10}\ 4P^1$

125. A ball is dropped from the roof of a very tall building. What is its velocity after falling for 5.00 seconds?
(A) 1.96 m/s (B) 9.80 m/s
(C) 49.0 m/s (D) 98.0 m/s

126. The inverse relation of y = sin x is defined by the equation:
(A) $Y = sin^{-1} x$ (B) $X = sin^{-1} y$
(C) $Y = cos x$ (D) $X = cos^{-1} y$

127. All of the following tests are used to identify aldehyde except:
(A) Tollen's test (B) Fehling test
(C) Benedict test (D) Baeyer's test

128. A wire of resistance 4Ω is bent into a circle. The resistance between the ends of a diameter of the circle is:
(A) 1Ω (B) ¼ Ω (C) 1/16 Ω (D) 4 Ω

129. Parallel sides of a trapezium are x and y. the distance between these two sides is z. Area of the trapezium =
(A) $(x + y)\frac{z}{2}$ (B) $(x - y)\frac{2}{z}$ (C) 2z (x + y) (D) $\frac{2z}{x+y}$

130. Which of the following is the strongest oxyacid?
(A) $HClO_4$ (B) $HClO_3$ (C) $HClO_2$ (D) HClO

131. Leagerly-look forward... seeing her again.
(A) At (B) To (C) On (D) by

132. Nuclear forces are inside the nucleus. These forces are:
(A) Long range (B) Short range
(C) Medium range (D) Not range dependent

133. If $f(x) = x2 + x - 1$, then the images of 2, 3, are:
(A) 7, 13, 31 (B) 5, 12, 26
(C) 5, 11, 29 (D) 3, 8, 24

134. Arrange electromagnetic spectrum in terms of wavelength in correct order:
A) i.f.>u,v.> visible> microwave> radio frequency
B) u.v.> visible> i.r.> microwave> radio frequency
C) visible > i.r.> u.v.> microwave> radio frequency
D) Radio frequency> microwave> Lr.> visible > u.v.

135. 'Reaction in which two or more light nuclei use together to form a single nuclide is categorized as:
(A) Nuclear fission (B) Chemical reaction
(C) Nuclear fusion (D) None of the above

136. Sin/ is
(A) $\frac{1}{2}(e^{-x} + e^{-x})$ (B) $\frac{1}{2}(e^{x} + e^{-x})$
(C) $\frac{1}{2}(e^{-x} - e^{-x})$ (D) $\frac{1}{2}(e^{x} + e^{-x})$

137. The log of rate constant of a reaction is:
A) Directly proportional to temperature
B) Inversely proportional to temperature
C) Not affected by temperature
D) Not dependent on the activation energy

138. The derivative of $-8x^5$ is:
(A) A-rays (B) β-particles
C) Y-rays (D) neutrons

139. The amount of ionization produced in a gas is the most due to:
(A) -8 (B) -40x (C) $-40x^5$ (D) $-40x^4$

140. What energy (in joules) would a photon of light with a wave length 3×10^{-4} cm ($h=6.6\times10^{-34}$ Jse(c) have
(A) 2.2×10^{-44} (B) 3.3×10^{-21}
(C) 6.6×10^{-20} (D) 6.6×10^{-48}

141. Select the correct sentence:
A) But brightly polished were the old shoes
B) Old were the shoes but brightly polished
C) The shoes were old but polished brightly
D) The shoes were old but brightly polished

142. The state of thermal equilibrium between two systems is determined by equality of:
(A) Pressure (B) Volume (C) Temperature (D) mass

143. $\int_1^2 x dx =$
(A) 3 (B) $\frac{3}{2}$ (C) 2 (D) $\frac{2}{3}$

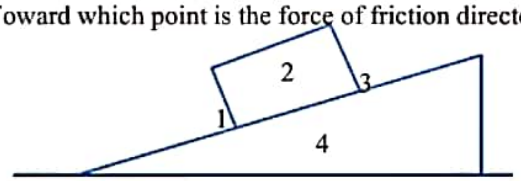
144. Which of the following is not a polymer?
(A) Urea (B) Starch
(C) Polythene (D) Natural rubber

145. In liquid metal fast breeder reactor the moderator used is:
(A) Graphite (B) Heavy water
(C) Boron rods (D) Not required

146. If the point P_1 and P_2 have the coordinates $x_1 = 7$, $x_2 = -9$, then $[P_1P_2]$
(A) –2 (B) 16 (C) 2 (D) –16

147. Which of the following reagents may not be used for the oxidation of aldehydes and ketones to carboxylic acids?
(A) Li AlH_4 (B) $KMnO_4$ (C) $K_2Cr_2O_7$ (D) $Na_2Cr_2O_2$

148. In the diagram, a box slides down an incline plane. Toward which point is the force of friction directed?



(A) 1 (B) 2 (C) 3 (D) 4

149. Two lines with slope m_1 and m_2 respectively are parallel if:
(A) $m_1 + m_2 = 0$ (B) $m_1 - m_2 = 0$
(C) m_1, m_2 (D) $m_1 = m_2$

150. The coordination number of cobalt in the complex $[Co(H_2N CH_2 CH_2 NH_2)_3]^{+3}$ is:
(A) 3 (B) 4 (C) 5 (D) 6

151. The senator is opposed ..... this new legislation.
(A) To (B) At (C) By (D) on

152. The half-life of $^{22}Na_{11}$ is 2.6 years. If X grams of this sodium isotope are initially present, how much is left after 13 years?
(A) X/32 (B) X/13 (C) X/8 (D) X/5

153. Length of the latus rectum of $3x^2 = 4y$ is:
(A) 4 (B) –4 (C) $\frac{4}{3}$ (D) $\frac{3}{4}$

154. What is the bond order in F_2 according to the molecular orbital theory?
(A) 2 (B) 3 (C) 1 (D) 4

155. The centripetal acceleration of a car traveling at constant speed around a frictionless circular racetrack:

A) Is zero
B) Has constant magnitude but varying direction
C) Has constant direction but varying magnitude
D) Has varying magnitude and direction

156. The distance of a point (–2, 8) from a line 4x + 3y – 11 0 is:
(A) –6 (B) 1 (C) 3 (D) 5

157. Nitrogen dioxide is a brown coloured gas which exists in equilibrium with:
(A) HNO_3 (B) N_2O_4 (C) NO + NO_3 (D) N_2 + O^2

158. A diver is swimming 10 meters below the surface of the water in a reservoir. There is no current, the air has a pressure of 1 atmosphere, and the density of the water is 1000 kilograms per cubic meter. What is the pressure experienced by the diver?
(A) 1.1 atm (B) 11 atm
(C) 1.99 × 10^{5}a (D) 1.01 × 10 ^{5} Pa

159. The set of all first elements of the ordered pairs in a relation R is called:
(A) Domain of R (B) Range of R
(C) Co-domain of R (D) Subset of R

160. The complex compound [Ni(CN)4]2- is square planar in shape. What is the type of hybridization involved?
(A) Sp^3 (B) S^3d (C) Dsp^3 (D) Dsp^2

161. 'ENTOURAGE' means:
(a) Group of companions (b) Embark on long tons
(c) Place one visits daily (d) Albums of folk singer

162. Which species has no net charge?
(A) An a-particle (B) A neutrino
(C) An electron (D) A proton

163. $\frac{d}{dx}(cosec\, x) =$
(A) Tan x. cosec x (B) –cot x. sec x
(C) –tan x. sec x (D) –cot x, cosec x

164. Which one of the following compounds is insoluble in water?
(A) $CuCl_2$ (B) $NiCl_2$ (C) Hg_2Cl_2 (D) KCI

165. What is the optimum difference in phase for maximum destructive interference between two waves of the same frequency?
(A) 180° (B) 90 ° (C) 270 ° (D) 360°

166. $\frac{}{dx}$
(A) $\frac{cos@c^{1}}{\sqrt{1+x^2}}$ (B) $\frac{1}{\sqrt{1-x^2}}$ (C) $\frac{-1}{\sqrt{1+x^2}}$ (D) $\frac{-1}{\sqrt{1-x^2}}$

167. Which one of the following has the smallest lonic radius:
(A) Mg^{2+} (B) Be^{2+} (C) Ca^{2+} (D) Si^{2+}

168. Which derived unit below is equivalent to the SI unit for magnetic field strength, the tesla, T?
(A) Nm/A (B) NA/m (C) N/Am (D) Am/N

169. If m_1 and m_2 are the slopes of two lines l_1 and l_2 respectively, then the angle from l_1 to l_2 is given by:
(A) Tan $\theta = \frac{m_2 - m_1}{1 + m_2 m_1}$ (B) Tan $\theta = \frac{m_2 + m_1}{1 - m_2 m_1}$
(C) Cot $\theta = \frac{m_2 - m_1}{1 + m_2 m_1}$ (D) Cot $\theta = \frac{m_2 + m_1}{1 - m_2 m_1}$

170. Ethyl alocohol was added to water to form a clear solution. What do you expect to be the vapour pressure?
A) It will be equal to V.P of water
B) It will be more than V.P of water
C) It will be less than V.P of water
D) It will be equal to V.P of ethyl alcohol

171. Your essay impressed the lecturer.
Select the correct passive voice:
A) The lecturer got impressed by your essay.
B) The lecturer felt impressed by your essay.
C) By your essay the lecturer was impressed
D) The lecturer was impressed by your essay

172. A car with a mass oh 800 kg is stalled on a road. A truck with a mass of 1200 kg comes around the curve at 20 m/s and hits the car. The two vehicles remain locked together after the collision. What is their combined velocity after the impact?
(A) 3 ms^{-1} (B) 6 ms^{-1} (C) 12 ms^{-1} (D) 24 ms^{-1}

173. $A_1x + b_1y + c_1 = 0$, $a_2x + b_2y + c_2 = 0$ and $a_3x + b_3y + c_3 = 0$ are three non-parallel lines.
These lines are concurrent if $\begin{bmatrix} a_3^2 & b_3^2 & c_3^2 \end{bmatrix} =$
(A) –1 (B) 1 (C) 0 (D) –2

174. Which of the following would you consider to be comparatively more reactive?
(A) C_2H_6 (B) C_2H_4 (C) C_2H_2 (D) C_3H_8

175. Current in an ionized gas sample depends on:
(A) Cations only (B) Anions only
(C) Free electrons only
(D) Cations, anions, and free electrons

176. If a. (b + (c) = a.b + a. c, then:
A) Vector product is distributive over multiplication
B) Scalar product is distributive over multiplication
C) Vector product is associative over addition
D) Scalar product is distributive over addition

177. 18.0 grams of glucose, $C_6H_{12}O_6$ was dissolved in 70.0 grams of water. The relative lowering of vapour pressure would be:
(A) 4.1 (B) $\frac{1}{41}$ (C) 4.0 (D) $\frac{1}{40}$

178. Monochromatic light passes through two parallel slits in a screen and falls on a piece of film, The pattern produced is an example of:
A) Interference and reflection
B) Interference and diffraction

C) Refraction and diffraction
D) Diffraction and polarization

179. If $x^2 + y^2 + 2gx + 2fy + c = 0$ is the general form of the equation of circle, then radius =
(A) $\sqrt{g^2 + f^2 - c}$ (B) $g^2 + f^2 - c$
(C) $\sqrt{g^2 + f^2 + c}$ (D) $g^2 + f^2 + c$

180. Which is not a raw material for the production of cement?
(A) $CoCO_3$ (B) $CaCO_3$
(C) $CaSO_4\,2H_2O$ (D) Clay

181. In grammatical context, 'ARTICLES' allude to:
(A) A, an and the (B) For and since
(C) Lexical verbs (D) Word classes

182. What is the acceleration of a falling stone whose velocity increases from 80 m/s to 100 m/s in 2 seconds?
(A) 0.10 m/s^2 (B) 10 m/s^2 (C) 100 m/s^2 (D) 90 m/s^2

183. The equation of the circle whose centre is the srcin and radius is 3 units is:
(A) $x^2 + y^2$ (B) $x^2 - y^2 - 3$
(C) $x^2 + y^2 -$ (D) $x^2 - y^2 = 9$

184. Aluminum from scrap metal is extracted by solvent extraction technique by using the liquid:
(A) Dichloro diethyl ether (B) Ethanol
A) Phenol (D) Mercury

185. A certain radionuclide decays by emitting an a-particle. What is the difference between the atomic numbers of the parent and the daughter
(A) 1 (B) 2 (C) 4 (D) 6

186. Equation of the ellipse is:
(A) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ (B) $\frac{a^2}{x^2} + \frac{y^2}{b^2} = 1$
(C) $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ (D) $\frac{x^2}{a^2} + \frac{b^2}{y^2} = 1$

187. The best technique for detecting narcotics in blood is:
(A) Solvent extraction (B) Distillation
(C) Chromatography (D) All of the above

188. If the mass of a moving body is doubled, the inertia of the body will be:
A) Half as great as its srcinal value
B) Four times s great as its srcinal value
C) Unchanged from its srcinal value
D) Twice as great as its srcinal value

189. Equation of the normal at the point (x^1, y^1) to the parabola $y^2 = 4ax$ is:
(A) $Yy_1 = 2a(x + x_1)$ (B) $Y - y_1 = \frac{y_1}{2s}(x - x_1)$
(C) $Y + y_1 = \frac{-y_1}{2s}(x + x_1)$ (D) $Yy_1 = 2a(x - x_1)$

190. Which one of the following compounds has the shortest carbon-halogen bond?
(A) CH_3F (B) CH_3CI (C) CH_3Br (D) CH_3I

191. 'HAVE CLEAN HANDS' implies:
(A) Wash one's hands (B) Go for corruption
(C) Not being guilty (D) Prepare for prayers

192. If the speed at which a car is traveling is tripled, by what factor does its kinetic energy increase?
(A) ½ (B) 3 (C) 6 (D) 9

193. The conic having eccentricity e > 1, is called:
(A) Hyperbola (B) Ellipse
(C) Parabola (D) Asymptotes

194. Which one of the following does not form covalent crystals?
(A) Diamond (B) Allcon
(C) Graphite (D) Water

195. Two electrically neutral material are rubbed together. One acquires a net positive charge. The other must have:
(A) Lost electrons (B) Gained electrons
(C) Lost protons (D) Gained protons

196. If a and b are parallel vectors but opposite in direction and 9 = 180°, then a. b =
(A) 1 (B) –1 (C) – ab (D) ab

197. Which gas occupies the largest volume at STP?
(A) 16g of CH_4 (B) 32g of O_2
(C) 28g of N_2 (D) 4g of H_2

198. A current of 20.0 A flows through a battery with an emf of 6.20 V. If the internal resistance of the battery is 0.010, what is the terminal voltage?
(A) 1.24V (B) 6.00V (C) 6.40V (D) 31.0V

199. If |a| = 3, |b| = 4 and θ = 60°, then a, b =
(A) $\frac{1}{2}$ (B) $\frac{\sqrt{3}}{2}$ (C) 6 (D) 2

200. Which one is the oxidizing agent in the following reaction?
(A) Cu^{2+} (B) Zn (C) Zn^{2+} (D) Cu

MEDICAL PAPER 2012

1) The sum of mole fractions of solute and solvent is always equal to:

(A) 0.1 (B) 10.0 (C) 1.0 (D) Zero

2) Two forces of magnitude 20 N and 10 N act at a point then which one of the following cannot be their possible sum?

(A) 30 N (B) 10 N (C) 35 N (D) 15 N

3) Glycolysis completes with the net gain of:

(A) 2 ATP (B) 3 ATP (C) 4 ATP (D) 32 ATP

4) An Azeotropic mixture of two miscible liquids boils at lower temperature than its components when:

(A) The system shows negative deviation from Raoult's law.

(B) The system shows positive deviation from Raoult's law

(C) The system perfectly obeys Raoult's law

(D) Both (A) and (B)

5) When a force is applied to a body, several effects are possible. Which one of the following effects could not occur?

(A) The body speeds up (B) The body rotates

(C) The body changes direction

(D) Mass of body decreases

6) When you go to Karachi, please

(A) Collect a good watch for me.

(B) Acquire a good watch for me.

(C) Bring a good watch for me.

(D) Arrange a good watch for me.

7) Restriction enzymes are of great use in genetic engineering because:

(A) They cut DNA at a specific base level

(B) They cut D.N.A at several specific levels

(C) They help in binding the pieces of D.N.A

(D) They are nuclease

8) Optical fibers guides:

(A) Current (B) Light (C) Sound (D) Voltage

9) Methanoic acid HCOOH has one carbon-oxygen bond of length 123 PM and another of 136 PM. The C = O and C — O bond lengths respectively would be:

(A) 136 PM, 123 PM (B) 123 PM and 136 PM

(C) 136 PM, 136 PM (D) 123 PM and 123PM

10) Abcissic acid (AB(A) promotes:

(A) Triple response

(B) Sex expression

(C) Flower initiation

(D) Leaf, flower and fruit fall

11) Choose the compound in which hydrogen bonding is not possible?

(A) CH_3OCH_3 (B) H $_2$O

(C) CH^3CH^2OH (D) CH^3COOH

12) The ratio of output voltage V_0 to the voltage difference V_{in} between the positive (+) input and negative (-) input of opamp is (where $V_{in}=V_+ - V_-$:

(A) Current gain (B) Voltage gain

(C) Open-loop gain (D) Close-4oop gain

13) Why have you broken this jug?

Passive form of the sentence is:

(A) Why has this jug been broken by you?

(B) Why have this jug been broken by you?

(C) Why this jug has been broken by you?

(D) Why had that jug been broken by you?

14) Surplus amino acid in the body are broken down to form urea in:

(A) Spleen (B) Kidneys (C) Liver (D) Pancreas

15) Lipids are chemically:

(A) Acids (B) Alcohols (C) Ethers (D) Esters

16) The resistance of light dependant resistance LDR:

(A) Increases with light

(B) Decreases with light

(C) Decreases with darkness

(D) None of the above

17) "Remember to brush your teeth after dinner," she said.

Indirect form of the sentence is.

(A) She told him to remember to brush his teeth after dinner.

(B) She reminded him to brush his teeth after dinner.

(C) She advised him to remember to brush his teeth after dinner.

(D) She said to him to remember to brush his teeth after dinner.

18) Which of the following represent the bile salts?

(A) Bilirubin (B) Biliverdin

(C) Haemoglobin (D) Both (A) and (B)

19) Benzene undergoes substitution reactions more easily than addition reactions because:

(A) of its cyclic nature

(B) of having three double bonds

(C) of aromatic character

(D) of delocalization of electrons

20) The maximum kinetic energy of an electron ejected from a metal by photon depends on:

(A) The photon's frequency only

(B) The metal work function

(C) The intensity of incident light

(D) None of the above

21) A spring system executes simple harmonic motion. If a load is added to it then the time period of spring–mass system will be:

(A) increased (B) decreased

(C) the same (D) halved

22) Conversion of excess glucose into fat is known as:

(A) Glycolysis (B) Lipogenesis

(C) Ketogenosis (D) Glycogenesis

23) Ring test is shown by compounds having:

(A) Sulphate radical (B) Chloride radical

(C) Nitrate radical (D) None of the above

24) The diode that converts electrical energy into light energy is called:

(A) Solar cell (B) Photodiode

(C) Vacuum diode (D) Light emitting diode

25) Choose the correct sentence out of the following:-

(A) The country was hard hit by the war.

(B) The country was hardly hit by the war.

(C) The country was severely hit by the war.

(D) The country was more hardly hit by the war.

26) Fatigue free musscles are:

(A) Striped (B) Unstriped

(C) Cardiac (D) Triceps

27) Excretion of bile pigments in blood indicates:

(A) Anaemia (B) Diabetes

(C) Rickets (D) Jaundice

28) Which arrangement of the Photon is in their decreasing energy?

(A) x rays > i.r. > u.v. > visible

(B) x rays > u.v. > visible > i.r.

(C) u.v. > x rays > visible> i.r.

(D) i.r. > visible > x rays> u.v.

29) The colours in the soap bubble are due to:

(A) Interference (B) Dispersion of light

(C) Scattering of light (D) Refraction of light

30) You did not kill a lion in the forest.

Passive form of the sentence as:

(A) A lion is not killed by you In the forest

(B) A lion was not killed by you in the forest.

(C) A lion is killed not by you in the forest.

(D) A lion has not killed by you in the forest.

31) An individual with contrasting alleles is called:

(A) Homozygous (B) Monoecious

(C) Heterozygous (D) Dioecious

32) Which is the strongest acid?

(A) CH_3COOH (B) $Cl_2CH\ COOH$

(C) $Cl\ CH_2COOH$ (D) $Cl_3C\ COOH$

33) An object in a satellite orbiting around the earth is weightless because:

(A) $g = 0$ (B)No force acts on it

(C) Its motion is free fall(D) It is far away from earth

34) The expression for binding energy is:

(A) $E_B = fh$

(B) $E_B = [(ZM_P + N M_n\} - {}_ZM^A]C^2$

(C) $E_B = ZM_PC^2 + N M_n {}_ZM^A C^2$

(D) $E_B = ZM_P + N M_n - M C^2$

35) Mathematics .... difficult but is fascinating.

(A) seems (B) is seeming

(C) seemed (D) seem

36) The colour of bone marrow is:

(A) Red (B) Yellow

(C) Orange (D) Both (A) and (B)

37) Enzymes are basically:

(A) Proteins (B) Carbohydrates

(C) Hydrocarbons (D) None of the above

38) Half life of given sample is 44 years. The sample will reduce to 50% of the srcinal value after:

(A) 22 years (B) 88 years

(C) 11 years (D) None of the above

39) Please come to the point; don't beat __ the bush.

(A) across (B) about

(C) along (D) around

40) Ozone is:

(A) Greenish, tastless, light gas

(B) Blue green, and bitter in taste

(C) Blue, poisonous and explosive gas

(D) Purple yellow, poisonous and non explosive gas

41) Rectified spirit is:

(A) 100% ethanol (B) 95% ethanol

(C) 90 % ethanol (D) 35% ethanol

42) The time rate of change of magnetic flux has the same dimensions as that of:

(A) Current (B) Resistance

(C) Magnetic induction (D) Potential difference

43) A non-connective tissue is:

(A) Areolar tissue (B) Tendon

(C) Neuron (D) Ligament

44) Lucas Test is used to detect the presence of:

(A) Alcohols (B) Phenols

(C) Amino acids (D) Carboxylic acids

45) The transverse nature of light is verified with the phenomenon of:

(A) Interference (B) Polarization

(C) Diffraction (D) Dispersion

46) She has complained_____ me to the Principal.

(A) about (B) from

(C) against (D) over

47) Speech and language area are located in:

(A) Thalamus (B) Medulla oblongata

(C) Right cerebral hemisphere (D) Left cerebral hemisphere

48) Choose the correct statement:

(A) The aliphatic polyamides are generally known as Nylons

(B) The aliphatic polyamides are generally known as Polyester

(C) The aliphatic polyamides are generally known as Epoxy Resins

(D) None of the above

49) $Na_2B_4O_7$ 10 H_20 is the formula of:

(A) Bauxite (B) Borax

(C) Carborundum (D) Colemanite

50) I said to him, 'Can you read this letter?'

Indirect form of the sentence is:

(A) I said to him whether he read that letter.

(B) I asked him if could he read this letter.

(C) I told him that he could read that letter.

(D) 1 asked him if he could read that letter.

51) Phytochromes are involved in:

(A) Photorespiration (B)Photophosphorylation

(C) Photoperiodism (D)Phototropism

52) 1 amu is equal to 1.661×10^{-24}g, then 1.0 g will be equal to:

(A) 6.022×10^{23}amu (B)6.022×10^{-23}amu

(C) 6.022×10^{-24}amu (D)6.022×10^{24}amu

53) If a soap bubble is charged:

(A) Its size decreases (B) Its size increases

(C) No change (D) None of them

54) How many genotype will be produced by crossing of two alleles "A" and "a"?

(A) One (B) Two (C) Three (D) Four

55) An electric current of 1 A is passing through a cross section of the coil in 1 second. How many electrons are involved in providing a current of 1A? The charge on 1 electron is 1.602×10^{-19} C.

(A) 3.21×10^{18} (B) 2.2×10^{16}

(C) 1.602×10^{19} (D) 6.42×10^{18}

56) A botanist who proposed the cell-theory was:

(A) Schlelden (B) Schwann

(C) Robert Hook (D) Robert Brown

57) For a certain chemical reaction the slope of the plot was determined and plotted against the concentration (a — x)2 and a straight line was obtained. It indicates that the reaction is of:

(A) First order (B) Second order

(C) Third order (D) Zero order

58) One mole is the amount of substance which contains as many elementary entities as contained in:

(A) 0.12 kg of $_6C^{12}$ (B)1.2 kg of $_6C^{12}$ atom

(C) 0.012 kg of $_6C^{12}$ atom (D) 0.12 kg of $_8O^{16}$

59) Smooth endoplasmic reticulum makes:

(A) Enzymes (B) Protein

(C) Sugar (D) Lipids

60) Select the chemical method used for the determination of reaction rate:

(A) Conductometry (B) Polarimetry

(C) pH metry (D) Volumetric analysis

61) The uncertainty recorded in the radius of a sphere is 1.6%. The uncertainty in the area of that sphere is:

(A) 4.8% (B) 3.2% (C) 1.6% (D) 0.8%

62) How many atoms of oxygen in R.N.A are greater than D.N.A?

(A) One (B) Two (C) Three (D) Four

63) Bakelite is obtained from:

(A) Adipic acid and hexamethylenediamine

(B) Dimethyl terephalate and ethyl glycol

(C) Neoprene

(D) Phenol and formaldehyde

64) Consider the following endothermic reaction: $N_{2(g)} + O_{2(g)}$ $2NO_{(g)}$ What will happen to the equilibrium if the temperature of the system is raised?

(A) The equilibrium will shift in the backward

(B) The equilibrium position will suffer no change

(C) The equilibrium will shift in the forward direction

(D) All of the above

65) A hunter aiming a bird in a tree should aim:

(A) A little above the bird (B)A little below the bird

(C) Exactly at the bird (D)Very high

66) Abacterium that converts NO_2 to NO_3 is:

(A) Rhizobium (B) Bacillus

(C) Nitrosomanas (D) Nitrobecter

67) Why it is so that if aromatic compounds, burned In air, produce a very smoky flame?

(A) Aromatic compound cannot be completely converted into CO_2 and other products during burning

(B) The available amount of oxygen present in air is not sufficient to completely burn available compound

(C) Aromatic compound produces compounds on burning that are of black colour

(D) None of the above

68) Acetic acid reacts with methanol in the presence of an acid catalyst to give:

(A) Methyl formate (B) Ethyl formate

(C) Methyl acetate (D) Ethyl acetate

69) An ideal transformer steps up or steps down:

(A) Energy (B) AC voltage

(C) DC voltage (D) Power

70) Growth promoting substance in plant is:

(A) F.A.D (B) Chlorophyll a

(C) I.A.A (D) ABA

71) Select the strongest reducing agent:

(A) Cl^{-1} (B) Ne (C) Na^{+} (D) Ca^{+2}

72) Three equal resistors connected in parallel have equivalent resistance R/3. When they are connected in series then the equivalent resistance is:

(A) R/3 (B) R (C) 2R (D) 3R

73) Choose the correct sentence out of the following:

(A) The sun has been shining since two hours.

(B) The sun has been shining for about two hours.

(C) The sun has been shining from two hours.

(D) The sun has been shining by two hours.

74) Steroid hormones are produces by:

(A) Testes and ovaries(B)Adrenal glands and gonads

(C) Adrenal cortex and gonads(D)Gonads and thyroids

75) Which one of the following is not a vector quantity?

(A) Electric field intensity

(B) Gravitational field intensity

(C) Magnetic induction

(D) Electromotive force

76) B.C.G vaccines are usually given to:

(A) Children (B) Adults

(C) Special persons (D) All of the above

77) Proteins, carbohydrates and fats form three great classes of foodstuffs commonly called:

(A) Trivirates (B) Triumvirates

(C) Trisvirates (D) All of the above

78) The velocity of projectile at its maximum height is:

(A) Zero (B) Minimum

(C) Maximum(D)In between maximum and minimum

79) If you want to play cricket,.....

(A) you ought to join our club.

(B) you ought to join with our club.

(C) you ought joined our club.

(D) you ought to join in our club.

80) Replication of D.N.A occurs in:

(A) Inter phase (B) Prophase

(C) Metaphase (D) Anaphase

81) Allah, the Almighty, has blessed him___ a son.

(A) by (B) along (C) from (D) with

82) Regeneration of cartilage is carried on by:

(A) Collagenous fibers (B) Blood vessels

(C) Perichondrium (D) Matrix

83) CH_4 on complete oxidation in the presence of cu as catalyst under200 atm yield:

(A) Methanol (B) Formaldehyde

(C) Formic acid (D) Carbondioxide gas

84) The solids in which the molecules or ions are arranged in a regular repetitive manner are called:

(A) Amorphous solids (B) Glassy solids

(C) Polymers (D) Crystals

85) Nuclear mitosis occurs in the kingdom of:

(A) Monera (B) Protista (C) Plantae (D) Fungi

86) Compared to benzene, nitration of toluene takes place at:

(A) slower rate (B) faster rate

(C) same rate (D) depends on the conditions

87) Lenz's law is a particular form of law of conservation of:

(A) Charge (B) Current

(C) Energy (D) Magnetic field

88) The sense of hearing is concerned with:

(A) Cerebrum (B) Cerebellum

(C) Medulla (D) Hypothalamus

89) Sodium hydroxide acts on Aluminum oxide to form:

(A) $NaAlO_3$ (B) $Na_3A1_2O_6$

(C) $NaAlO_2$ (D) $NaAl_2O_3$

90) The number of significant figures in the measurement x = 10.00300 are:

(A) 7 (B) 8 (C) 5 (D) 3

91) You need to go to the hospital _____ possible. An erratic heart-beat can be very dangerous.

(A) as good as (B) as long as

(C) as much as (D) as soon as

92) Largest lymphatic duct is the:

(A) Abdominal duct (B) Thorasic duct

(C) Femoral duct (D) Subclavian duct

93) The σ bond formed between carbon and oxygen atoms in aldehyde and ketone is due to the overlap of:

(A) sp^2—sp (B) sp^2—sp^2

(C) sp^3—sp^2 (D) sp—sp

94) Two equal, anti parallel and non concurrent forces that produce only angular acceleration are:

(A) Couple (B) Couple arm

(C) Collinear forces (D) Torque

95) Redox action takes place during the process of:

(A) Respiration (B) Photosynthesis

(C) Growth (D) Both A and B

96) Paper is biodegradable material. It produces gas whose emission is environmentally objectionable. Which is that gas?

(A) CO_2 (B) SO_2 (C) CH_4 (D) NO_2

97) The minimum number of forces that keep the body in equilibrium are:

(A) Two (B) Three (C) Four (D) Five

98) A ball of mass 5 kg is dropped from a height of 78.4 m. The time taken by the ball to hit the ground is:

(A) 2s (B) 4s (C) 8s (D) 16s

99) How many sigma bonds are there in $CH_2 = CH–CH = CH_2$:

(A) 6 (B) 9 (C) 11 (D) 4

100) In electromagnetic waves the electric and magnetic vectors are:

(A) Parallel (B)Anti parallel

(C)Perpendicular (D) None of the above

101) The negative gradient of electric potential is also called:

(A) Potential energy (B)Electric field intensity

(C) Electric potential difference (D)Electro volt

102) In human being, the number of cranial nerves are:

(A) 8 pairs (B) 10 pairs

(C) 12 pairs (D) 3l pairs

103) Ethene and Ethyne can be distinguished by employing the test:

(A) Br_2 in organic solvent (B)Baeyer's reagent

(C) Phenyl Hydrazine (D)Tollen's reagent

104) The ionization potential of Hydrogen atom is:

(A) 13.6 V (B) 1.36 V

(C) 10.2 V (D) 4.3 V

105) Live attenuated vaccines are used to treat all of the following diseases except:

(A) Typhoid and plague (B)Polio and measles

(C) Cholera and rabies (D)Mumps and influenza

106) Cracking problem of fuel combustion can be avoided by:

(A) reforming (B)improving octane number

(C) adding TEL (D)All of the above

107) The shortest wavelength of radiation in Paschen series is:

(A) $R^H/9$ (B) $9/R^H$

(C) $9\ R_H$ (D) $9 + R_H$

108) All of the following are polysaccharides except:

(A) Lactose (B) Cellulose

(C) Starch (D) Glucose

109) Select the compound that will give Positive Iodoform test:

(A) Benzaldehyde (B) 2-Pentanone

(C) 3-Hexanone (D) 3-Pentanone

110) The part of electromagnetic spectrum in which Lyman series lies is:

(A) Visible region (B) Infrared region

(C) Ultra violet region (D) X-rays

111) A single ovum of human being contains:

(A) X —chromosomes (B)XX — chromosomes

(C) YY—chromosomes (D)XY — chromosomes

112) Choose the correct statement:

(A) Ionic solids exist in the form of molecules

(B) Ionic solids have high volatility

(C) Ionic solids exist in the form of liquids and

(D) Ionic solids have high melting points and boiling points

113) The centripetal force acting on a body rotating in a circle of radius 'r' is 'F'. If the body moves in a circle of radius half of the initial value keeping other quantities constant, then the percentage change in the centripetal force is:

(A) 300% (B) 100% (C) 400% (D) 200%

114) In a dihybrid cross, how many homozygous offsprings can be produced?

(A) 4 (B) 3 (C) 2 (D) 9

115) Which is true about London forces?

(A) London forces are present in non-polar molecules

(B) London forces are present in polar molecules

(C) London forces are created between instantaneous dipole and induced dipole

(D) All of the above.

116) Which one of the following properties of electromagnetic waves do not change in vacuum?

(A) Speed (B) Wavelength

(C) Frequency (D) All of the above

117) In human being, the carrier of colour blind is:

(A) Male (B) Female

(C) Both male and female (D) None of them

118) The correct electronic configuration of Nickel (28) is:

(A) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^8\ 4s^2$

(B) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^7\ 4s^2\ 4p^1$

(C) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^6\ 4s^2\ 4p^2$

(D) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^6\ 4s^1\ 4p^3$

119) Hook's law correlates the:

(A) Force and displacement (B)Force and extension

(C) Force and compression(D)Stress and strain

120) Ghani Khan is_____ of Pashto.

(A) John Keats (B) a John Keats

(C) the John Keats (D) like John Keats

121) The number of ATP formed directly by a single krebs cycle is:

(A) One ATP (B) Two ATP

(C) 32 ATP (D) 36 ATP

122) Select the correct equilibrium constant expression, Kc for the following reversible reaction.

$Ce^{4+}_{(aq)} + Fe^{2+}_{(aq)} \quad Ce^{3+}_{(aq)} + Fe^{3+}_{(aq)}$

(A) $\frac{[Ce^{3+}_{(aq)}][Fe^{3+}_{(aq)}]^2}{[Ce^{4+}_{(aq)}][Fe^{2+}_{(aq)}]}$ (B) $\frac{[Ce^{3+}_{(aq)}][Fe^{3+}_{(aq)}]}{[Ce^{4+}_{(aq)}][Fe^{2+}_{(aq)}]}$

(C) $\frac{[Ce^{3+}_{(aq)}]^2[Fe^{3+}_{(aq)}]}{[Ce^{4+}_{(aq)}][Fe^{2+}_{(aq)}]}$ (D) $\frac{[Ce^{3+}_{(aq)}][Fe^{3+}_{(aq)}]}{[Ce^{4+}_{(aq)}]^2[Fe^{2+}_{(aq)}]}$

123) MRI works on the principle of:

(A) Beats (B) Interference

(C) Resonance (D) Standing waves

124) Myoglobin combines with:

(A)Four oxygen molecules

(B) Three oxygen molecules

(C) Two oxygen molecules

(D) One oxygen molecule

125) Sunken stomata are present in:

(A)Hydrophytes (B) Xerophytes

(C) Mesophytes (D) All of the above

126) Bohr predicted the radius of the orbit of the electron in hydrogen atom to be:

$$r = \frac{n^2 \epsilon^0 h^2}{e^2 \pi m}$$

If electron moves from n = 1 to n = 2, by how much times the radius of the orbit will increase?

(A) 2 times (B) 3 times (C) 4 times (D) 5 times

127) The waveform of sinusoidal voltage, its frequency and phase can be found by:

(A) CRO (B) Diode (C) Transistor (D) Radio

128) Which blood group transfusion can be made without risk?

(A) Group A to group B (B) Group AB to group O
(C) Group A to group O (D) Group B to group AB

129) The first law of thermodynamics has a statement which implies that:

(A) No heat enters or leaves the system

(B) The temperature remains constant

(C) All work is mechanical

(D) Energy is conserved

130) Haemophilia affects males more than females because of:

(A) Dominant autosomes (B) Dominant X- linked

(C) Recessive X- linked (D) y- chromosome linked

131) The volume occupied by 3.2 g of oxygen at STP is:

(A) 22.4 dm^3 (B) 2.24 dm^3

(C) 11.2 dm^3 (D) 16.0 dm^3

132) When a neutral body is rubbed and it becomes positively charged, it must have:

(A) Lost electrons (B) Lost protons

(C) Gained protons (D) Gained electrons

133) Penicillin is obtained from:

(A) Algae (B) Yeast

(C) Mushroom (D) Mold

134) Which of the following elements with a given electronic configuration has the highest ionization potential value?

(A) $1s^2\ 2s^2\ 2p^3$ (B) $1s^2\ 2s^2\ 2p^4$

(C) $1s^2\ 2s^2\ 2p^6\ 3s^1$ (D) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$

135) When a charged particle enters a uniform magnetic field, there is a change in:

(A) Kinetic energy (B)Magnitude of velocity

(C) Direction of velocity (D)All of these

136) Insuline is produced by:

(A) Alpha-cells (B) Beta-cells

(C) Delta-cells (D) Gamma-cells

137) Which one is not responsible for the formation of acid rain?

(A) CO_2 (B) SO_2 (C) CO (D) NO_2

138) Which of the following hybridization can explain the shape of $BeCl_2$?

(A) sp^2 hybridization (B) sp hybridization

(C) sp^3 hybridization (D) dsp^2 hybridization

139) According to Millikan's oil drop experiment the charge on an oil droplet is:

(A) Quantized (B) Integral multiple of 'e'

(C) Not less than 'e' (D) All of them

140) Did he buy a car yesterday?
Passive form of the sentence is:

(A) Was a car bought by him yesterday?

(B) Has a car been bought by him yesterday?

(C) Is a car bought by him the other day?

(D) Had a car been bought by him yesterday?

141) The enthalpy of the elements at 1 atm: pressure and 298 K is arbitrary given the value of:

(A) 0.1 (B) 1.0 (C) 29.8 (D) Zero

142) If two forces P and Q are such that $|P + Q| = |P — Q|$,then the angle between P and Q is:

(A) 0^0 (B) 30^0 (C) 90^0 (D) 180^0

143) Chlorophyll a and b chiefly absorb:

(A) Violet blue light (B) Orange light

(C) Blue —red light (D) Red, orange light

144) Select the correct statement about lattice energy:

(A) The energy absorbed when 1 mole of ionic crystal Lattice is formed from its constituent ions in the gaseous state.

(B) The energy liberated when 1 mole of an ionic crystal Lattice is formed from its constituent ions in the gaseous state

(C) The energy liberated when 1 mole of an ionic crystal Lattice is splitted into its constituent ions in the gaseous state

(D) None of the above

145) Two blocks of masses 1.0 kg and 3.0 kg placed in contact are acted upon by a force of 40 N. The acceleration of 1.0 kg mass will be:

(A) 40 $m\ s^{-2}$ (B) 10 $m\ s^{-2}$ (C) 30 $m\ s^{-2}$ (D) 50 $m\ s^{-2}$

146) Choose the correct sentence out of the following:

(A) Each of them deserves praise.

(B) Each one of them deserves praise.

(C) Each one of them deserve praise.

(D) Every one of them deserves praise.

147) Following nasal passages are composed of cartilage except:

(A) Trachea (B) Bronchus

(C) Broncheoles (D) Tracheoles

148) A set of xylem tissues are:

(A) Vessels, tracheids, parenchyma

(B) Sieve tubes, companion cell, fibers

(C) Parenchyma, sieve tube, vessels

(D) Fibers, companion cells, tracheids

149) Which of the following compounds on treatment with NaHCO3 will liberate C02?

(A) CH_3COOH (B) $C_2H_5NH_2$

(C) $CH_3\ CO\ CH_3$ (D) $CH_3\ CH_2\ OH$

150) A body in equilibrium must not have:

(A) Kinetic energy (B) Velocity

(C) Momentum (D) Acceleration

151) Choose the correct sentence out of the following;

(A) The meeting does not approve in your scheme.

(B) The meeting do not approves of your scheme.

(C) The meeting does not approve of your scheme.

(D) The meeting does not approve about your scheme.

152) The interval of pace maker signals from S.A.N to AV.N is:

(A) 01 second (B) 0.1 second

(C) 02 seconds (D) 0.2 second

153) Commonly used coagulant used for the purification of water is:

(A) $Ca(NO_3)_2$ (B) $MgCl_2$

(C) $Al_2(SO_4)_3$ (D) $Ca(OH)_2$

154) Forces controlling the reactions are proportional to the product of the active masses (concentration) of chemicals.

The above statement is of:

(A) Raoult's Law (B)Le Chatlier's principle

(C) The law of conservation of energy

(D) The law of mass action

155) Sound waves cannot be:

(A) Polarized (B) Reflected

(C) Refracted (D) Diffracted

156) He said to me, "May you succeed in life!" *Indirect form of the sentence is:*

(A) He said to me that may you succeed in life.

(B) He prayed that I might succeed in life.

(C) He prayed that he might succeed in life.

(D) He prayed that you may succeed in life.

157) A Test cross is:

(A) Tt × Tt (B) Tt × tt (C) TT × Tt (D) TT × TT

158) Which compound is formed when Ammonium hydroxide is added to silver chloride?

(A) $[Ag(NH_3)]$ Cl (B) $[Ag(NH_3)]Cl$

(C) $[Ag(NH_3)_4)$ Cl (D) $[Ag(NH_3)_6]$ Cl

159) The spring constant of a spring is k. If the spring is cut into two halves then the spring constant of one of the half is:

(A) k + 2 (B) k/2 (C) 2k (D) k

160) Carotenoid contains:

(A) Caroteres (B) Xanthophyils

(C) Chlorouhyil –C (D)Both (A) and (B)

161) Which one is spontaneous chemical reaction?

(A) $Zn + Cu^{2+} \rightarrow Zn^{+2} + Cu$

(B) $Zn^{2+} + Cu \rightarrow Cu^{2+} + Zn$

(C) $2\ Fe(OH)_3 \rightarrow 2\ Fe + \frac{3}{2} O_2 + 3\ H_20$

(D) $2NaCl \rightarrow 2Na + Cl_2$

162) A force of 6 N acts horizontally on a stationary mass of 2 kg for 4 s. The kinetic energy in Joule is:

(A) 12 (B) 144 (C) 72 (D) 48

163) If it did not rain in time, there ___ a horrible famine.

(A) would have been (B) will be

(C) would be (D) will have been

164) A person travels a distance $x = 20\ t + 2At^2$, where A is a constant. The acceleration of the person is:

(A) $A/4ms^{-2}$ (B) $4/A\ ms^{-2}$ (C) $4ms^{-2}$ (D) $4Ams^{-2}$

165) Attraction of water molecules to the xylem vessels is called:

(A) Adhesion (B) Cohesion

(C) Collision (D) Corrosion

166) In which of the following compounds hydrogen bonding is possible?

(A) PH_3 (B) CH_4 (C) NH_3 (D) SiH_4

167) Which of the following are Ohmic materials?

(A) Semiconductors (B)Tungsten filament

(C) Thermistor (D)Metals

168) Tobacco is a:

(A) Long day plant (B)Short day plant

(C) Day neutral plant (D)Intermediate plant

169) Ripening of fruits can be promoted by:

(A) Gibberellic acid (B)Indole acetic acid

(C) Flsrcen (D)Ethylene gas

170) Sucrose sugar is considered as:

(A) Monosaccharide (B) Oligosacchides

(C) Polysaccharides (D) All of the above

171) In the nuclear reaction

$_{11}Na^{24} \rightarrow {}_{12}Mg^{24} + X$, the particle X is;

(A) Electron (B) Positron (C) Proton (D) Neutron

172) The least toxic excretory product is:

(A) Ammonia (B) Urea

(C) Uric acid (D) Fatty acid

173) Which one of the following will give an ionic product?

(A) $CH_3\ CH_2\ OH + PCl_5 \rightarrow$ (B) $CH_3\ CH_2\ OH + Na \rightarrow$

(C) $CH_3\ CH_2\ OH + PCl_3 \rightarrow$ (D) $CH_3\ CH_2\ OH + 5oCl_2 \rightarrow$

174) The angular displacement made by the minute hand of a watch after 5.0 minutes is:

(A) 30^0 (B) 120^0 (C) 180^0 (D) 360^0

175) The intensity of a wave is:

(A) Directly proportional to amplitude

(B) Directly proportional to $(amplitude)^2$

(C) Inversely proportional to amplitude

(D) Inversely proportional to $(amplitude)^2$

176) The diameter of human capillary is:

(A) 5 microns (B) 6 microns

(C) 7 microns (D) 8 microns

177) Organisms phenotypically similar but genotypically different are said to be:

(A) Monozygous (B) Homozygous

(C) Heterozygous (D) Multizygous

178) Which of the following can function as Lewis acid?

(A) CN (B) NH_3

(C) $CH_3–O–CH_3$ (D) I^+

179) Conversion of alternating current into direct current is called:

(A) Rectification (B) Amplification

(C) Oscillation (D) Regeneration

180) Gibberellin was isolated from:

(A) An algae (B) A fungus

(C) A bacterium (D) A virus

181) All amino acids found in proteins are:

(A) α-amino acids (B)β-amino acids

(C) Both α and β (D)None of the above

182) Which of the following pairs have the same units and dimensions?

(A) Resistance and resistivity

(B) Conductivity and resistivity

(C) Electromotive force and potential difference

(D) Resistivity and temperature coefficient of resistivity

183) Process of bone formation is called:

(A) Calcification (B) Chondrification

(C) Decaleification (D) Ossification

184) Which is a trimer of ethyne?

(A) PVC (B) Benzene

(C) Toluene (D) Teflon

185) The activity of the radioactive material can be expressed in the units of:

(A) Curie (B) Becquerel

(C) Tesla (D) Both (A) and (B)

186) Bicep muscle is attached to the humerus by:

(A) Tendon (B) Ligaments

(C) Elastic fibers (D) Areolar

187) Which is NOT true about amino acids?

(A) They have two functional groups

(B) They show both acidic and basic characteristics

(C) They are the basic units of proteins

(D) They do not exist in solid state

188) The work function of a metal is 6.63 eV. The threshold frequency of the metal is:

(A) 1.6×10^{15} Hz (B) 1.6×10^{12} Hz

(C) 6.63×10^{-34} Hz (D) 1.6×10^{-19} Hz

189) Concentration of water molecules is inversely proportional to the:

(A) Water potential (B) Pressure potential

(C) Solute potential (D) Osmotic potential

190) Which is the least polar molecule?

(A) HF (B) HI (C) HCI (D) HBr

191) The birds sitting on an overhead transmission line suffer no harmful effects because:

(A) Their bodies have high resistance

(B) Their feet are good insulators

(C) There is negligible potential difference between their feet

(D) Wires are insulated

192) They arrived at about mid night

(A) because their flight was detained.

(B) because their flight was delayed.

(C) because their flight was derailed.

(D) because their flight was diverted.

193) The target organ for vasopressin is:

(A) Heart (B) Liver (C) Stomach (D) Kidneys

194) Ketones are prepared by the oxidation with $Na_2Cr_2O_7$ and H_2S0_4 of:

(A) Primary alcohol (B)Secondary alcohol

(C) Tertiary alcohol (D)All of the above

195) The sinusoidal AC current in a circuit is I = 50 sin (20 t). The peak value of current is:

(A) 100 A (B) 25 A (C) 50 A (D) 20 A

196) Thirst is controlled by:

(A) Pituitary gland (B) Adrenal gland

(C) Parathyroid (D) Thyroid

197) Which of the following is a condensation polymer?

(A) Nylon 6,6 (B) Teflon

(C) Polypropylene (D) Orlon

198) Current in the semiconductors is caused by the movement of:

A) Protons B) Electrons only

C) Holes only D) Both electrons and holes

199) Auxins inhibit the growth of:

A) Apical buds B) Lateral buds

C) Parthenocarpy D) Root growth

200) Which of the following statement is NOT true?

A) Natural rubber is hydrocarbon

B) Natural rubber is isoprene

C) Natural rubber is polymer of 1, 3 Butadiene

D) Natural rubber can be volcanized

ENGINEERING PAPER 2012

1. According to Gay-Lusac's variation of the volume of a sample of gas, at constant pressure a straight line was obtained where slope was found to be equal to:

(a) $\frac{v_1}{273}$ (b) $\frac{v_0}{273}$ (c) $\frac{P_1}{273}$ (d) $\frac{P_0}{273}$

2. If x be the height of a person and t be the time taken for x then $\frac{dx}{dt}$ is_____

(a)velocity (b)acceleration (c)Growth (d)None

3. The binding energy for nucleus 'A' is 7.7MeV an that for nucleus 'D' is 7.8 MeV. Which nucleus has the larger mass?

(a) Nucleus A (b) Nucleus B

(c) More information is need (d) None

4. Which one will show ionic bonding?

(a) NaH (b) $PbCl_4$(c)HCl (gas) (d)PCl_3

5. The probability of either less than 1 or greater than 6 in rolling die is :_____

(a) zero (b) 1 (c) $\frac{1}{3}$ (d) $\frac{1}{4}$

6. What is the magnitude of the linear momentum of a particle if its De Broglie's wavelength is 0.02 mm?
(a) 0.5 h (b) 50 h (c) 5×10^{7} h (d) 5×10^{18} h

7. $\lim_{x\to\infty}\left(1+\frac{1}{x}\right)^{x}=$_____

(a) x (b) $\frac{1}{x}$ (c) e (d) ∞

8. Choose the correct electronic configuration for Scandium (Z=21) :

(a) $2s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^1\ 4s^1$

(b) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^1\ 4s^2$

(c) $1s^2\ 2s^2\ 2p^5\ 3s^2\ 3p^6\ 3d^1\ 4s^8$

(d) $1s^2\ 2s^2\ 2p^5\ 3s^2\ 3p^6\ 4s^2\ 4p^1$

9. An alternating current is represented by the equation $I = I^0 \sin\omega t$. Which one of the following equations represent an alternating current that has half the amplitude an double the frequency?

(a) $I = 2I_0 \sin\omega t$ (b) $2I = I_0 \sin\frac{1}{2}\omega t$

(c) $t = \frac{1}{2}$to $\sin 2\omega t$ (d) $2I = I_0 \sin\omega t$

10. As you have not prepared your work ___

(a) you may not fail in the examination

(b) you could prepare harder next time

(c) you would do better in the examination

(d) you are not likely to do well this time.

11. Which one of following electronic sub-shells the lanthanides have in the process of filling?

(a) 4f (b) 5f (c) 4d (d) 5d

12. If your body mass is 66.26 kg and you are running at the speed of $10ms^{-1}$, what will be the De Broglie wave length associated with you?

($h = 6.626\times10^{34}$js)

(a)10.0×10^{-34}m (b)10.0×10^{34}m

(c)5.0×10^{34}m (d)2.0×10^{33}m

13. If X = {a,b,c,d} Y = {1,2,3,4}. Then which of the following is a bijective function from x to y?

(a) {(a,1), (b,4), (c,2), (d,1)} (b) {(c,1), (d,4), (b,1), (a,3)}

(c) {(d,3), (b,4), (a,2), (c,1)} (d) {(b,2), (c,2), (a,3), (d,4)}

14. Nuclear fission occurs when a:

(a) light nucleus is split by neutrons

(b) light nucleus is split by alpha particles

(c) heavy nucleus is split by alpha heavy particle

(d) heavy nucleus is split by neutrons

15. $\frac{d}{dx}\sec hx =$_____

(a) tan h x sech x (b) – tanh x sech x

(c) coshx (d) – cosh x

16. Becquerel is the unit of:

(a) activity (b) decay constant

(c) half life (d) mean life

17. The atoms A and B have the electronic configuration:

$A = 1s^2\ 2s^2\ 2p^6\ 3s^2$ $B = 1s^2\ 2s^2\ 2p^4$

(a)AB (b) A_2B (c)AB_2 (d) A_2B_2

18. $\frac{d}{dx}\sinh^{-1}x =$

(a) $\frac{1}{\sqrt{1+x^2}}, \forall x\varepsilon R$ (b) $\frac{1}{\sqrt{x^2-1}}\ \forall x\varepsilon R$

(c) $\frac{1}{1-x^2}$ (d) $\frac{1}{1-x^2}$

19. A photon is:

(a)a charged particle (b) an electron-positron pair

(c) a quantum of electromagnetic radiation

(d) neutron

20. There are _____ fish in this pond.

(a)much (b) any (c) more (d) many

21. Choose the correct statement:

(a)crystalline solids are usually anisotropic but liquid crystals are isotropic.

(b) crystalline solids are usually isotropic but liquid crystals are anisotropic.

(c) liquid crystals have both isotropic and 25anisotropic properties

(d) liquid crystals are devoid of isotropic and anisotropic properties.

22. Straight lines represented by $ax^2+2hxy + by^2 = 0$ are perpendicular if:

(a) $h^2= ab$ (b) $ab < h^2$ (c) $h^2<ab$ (d) $a + b = 0$

23. For a non inverting amplifier the gain is given by

(a) $G=1+\frac{R_2}{R_1}$ (b) $G=\frac{1+R_1}{R_2}$

(c) $G=-\frac{R_1}{R_2}$ (d) $G=-\left(\frac{R_1}{R_2}+1\right)$

24. Which is not used as desiccant?

(a) Silica gel (b) $CaCl_2$ (c) P_2O_5 (d) NaCl

25. Two or more vectors are said to be collinear if they are:

(a) intersecting the same line

(b) parallel to the same line

(c) perpendicular to the same line

(d) both a. and c.

26. The total energy of a Hydrogen atom in its ground state is:

(a) zero (b) positive (c) negative (d) None

27. Atomicity is considered as the:

(a) number of atoms present in 1g of a substance.

(b) number of atoms present in a molecule

(c) number of neutrons present in an atom

(d) number of sub-atomic particle present in an atom.

28. $\int e^{10x}dx =$

(a) $\frac{e^{-10x}}{-10}+c$ (b) e^{-10x} (c) $\frac{e^{10x}}{10}+c$ (d) $\frac{e^{-10x}}{10}+c$

29. Kirchoff's first law is based upon law of conservation of:

(a) charge (b) energy (c) mass (d) momentum

30. She does not wash clothes on Friday:

Passive form of the sentence is:

(a) clohers are not being washed by her on Fridays.

(b) clothes are not washed by her on Fridays.

(c) Clothes were not wasfhed by her on Fridays.

(d) clothes were not being washed by her on Fridays.

31. In the periodic table period represents:

(a) The number of electron in the outer most shell

(b) The metallic and non metallic characters of the elements

(c) The chemical properties of an element

(d) The number of the shells in an element

32. The asymptotes of the hyperbola $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$ are

(a) $x=\pm\frac{b}{a}y$ (b) $y=\pm\frac{a}{b}x$

(c) $y=\pm\frac{b}{a}x$ (d) $x=\pm\frac{a}{b}y$

33. Which of the following rays has the longest wavelength ?

(a) infrared rays (b) ultraviolet rays

(c) Gamma rays (d) x-rays

34. Which one is considered as fool's gold?

(a) copper metal (b) iron pyrites FeS_2

(c) Copper glance Cu_2s (d) None

35. $\tan^{-1}\left(\frac{5}{6}\right)+\tan^{-1}\left(\frac{1}{11}\right)=$

(a) $\frac{\pi}{2}$ (b) $\frac{\pi}{4}$ (c) $\frac{3\pi}{2}$ (d) $\frac{\pi}{3}$

36. The wavelength of a wave traveling with speed 'v' and having frequency 'f' is

(a) $\lambda = fiv$ (b) $\lambda = vf$

(c) $\lambda = v/f$ (d) $\lambda = fv$

37. Common salt is purified by common ion effect by passing HCl Gas through saturated solution of NaCl in water. Why ordinary crystallization process from saturated solution is not recommended?

(a) common salt solubility remains constant with increase in temperature (b) common salt is less soluble

(c) common salt solubility in water increases with increase in temperature.

(d) common salt solubility decreases with increase in temperature.

38. The line $y = mx + c$, becomes tangent to the circle $x^2 + y^2 = a^2$, If _____

(a) $c=\frac{a}{m}$ (b) $c=\frac{m}{a}$

(c) $c=\pm\sqrt{a(1+m^2)}$ (d) $c=\pm\sqrt{1-m^2}$

39. Radioactive activity is affected by:
(a) temperature (b) pressure
(c) humidity level (d) None

40. Do you go shopping often? Yes, ____
(a) I go shopping on Mondays
(b) I go shopping once a week
(c) I go shopping every days
(d) I go shopping at Super Market.

41. In an A.P if $a_1=4$, $a_{10}=22$ Then $a_{15}=?$
(a) 30 (b) 32 (c) 33 (d) 56

42. Which one of the following is scalar quantity
(a) Mass (b) acceleration
(c) Momentum (d) electric intensity

43. Out of the following which treatment is mostly used to kill the disease causing bacteria and other pathogens in water?
(a) ozonation (b) UV irradiation
(c) chlorination (d) boiling

44. Which of the following is correct
(a) sum of the cube roots of unity is 0
(b) product of the cube roots of unity is 1
(c) each complex cube root of unity is reciprocal of the other (d) All of the above

45. A car of mass 1000 kg first travels forwards at $25m/s^2$ and then backwards at $5m/s^{-1}$. what is the change in the kinetic energy of the car?
(a) 200kj (b) 300kj (c) 325kj (d) 450 kj

46. Choose the correct sentence of the following :
(a) I am much thankful to you.
(b) I am quite thankful to you
(c) I am just thankful to you
(d) I am very thankful to you

47. Which of the following reagent will convert acetic acid into acetyl chloride?
(a) NaCl (b) $HCl/ZnCl_2$ (c) $SOCl_2$ (d) Hg

48. The concept of complex numbers as a + ib was given by
(a) Gauss (b) Newton (c) Archimedes (d) Leibniz

49. Teflon is prepared by the polymerization of
(a) butadiene (b) vinyl cynide
(c) propylene (d) tetra fluoroethene

50. Which one is the correct formula for finding the speed v of ocean waves in terms of the density ρ of seawater, the acceleration of free fall g, the depth h of the ocean and the wavelength λ ?

(a) $v=\sqrt{g\lambda}$ (b) $v=\sqrt{\frac{g}{h}}$

(c) $v=\sqrt{\rho gh}$ (d) $v=\sqrt{\frac{g}{\rho}}$

51. The power loss P in resistor is calculated using the formula $P = V^2/R$. The uncertainty in the potential difference V is 3% and the uncertainty in the resistance R is 2% what is the uncertainty in P?
(a) 4% (b) 7% (c) 8% (d) 11%

52. $\begin{pmatrix} -1 \\ x \end{pmatrix}^{-1} =$ ____

(a) $\frac{1}{x}$ (b) x (c) $-\frac{1}{x}$ (d) $-x$

53. Aspirin is produced by heating salicylic acid with:
(a) Phenol in the presence of Sulphuric acid.
(b) Dentoic anhydride in the presence of phosphoric acid
(c) Methyl alcohol in the presence of sulphuric acid.
(d) Acetic anhydride in the presence of sulphuric acid

54. For a given matrix A , If $|A| \neq 0$, Then $(A^{-1})^t =$
(a) $(A^t)^{-1}$ (b) (A^{-1}) (c) $(A^{-1})^{-1}$ (d) $(A^t)^{-t}$

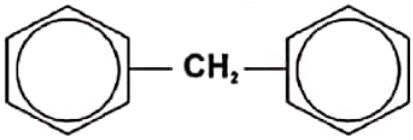
55. The measurement of physical quantity may be subject to random errors and to systematic errors. Which statement is correct?
(a) Random errors are always caused by the person taking the measurement.
(b) A systematic error cannot be reduced
(c) Random errors can be reduced by taking the average of several measurements
(d) A systematic error results in a different reading each time the measurement is taken.

56. Molecular orbitals are generally considered as:
(a) localized (b) de-localized (c) normalized(d) None

57. A narrow beam of monochromatic light is incident normally on a diffraction grating. Third order diffracted beams are formed at angles of 45°to the srcinal direction. What is the highest order of diffracted beam produced by this grating?
(a) 3^{rd} (b) 4^{th} (c) 5^{th} (d) 6^{th}

58. 'Hue and cry' means a:
(a) colorful cooking (b) shouting at the people
(c) Noisy public protest (d) Loud confused talking

59. Select the correct name of the compound



(a) Naphthelene (b) Diphenyl

(c) Phenanthrene (d) Diphenyl methane

60. What will be the remainder when $x^4 + 2x^3 - 2x - 3$, is divided by $(x + 2)$?

(a) 7 (b) -23 (c) -1 (d) None

61. Will you give me your bicycle? Passive form of the sentence is:

(a) Will your bicycle be given to me by you?

(b) Shall you be given to me by your bicycle?

(c) I shall be given your bicycle by you?

(d) Your bicycle will be given to me by you?

62. Why does an ideal gas exert pressure on its container?

(a) The molecules of the gas collide continually with each other.

(b) The molecules of the gas collide in elastically with the walls of the container.

(c) The molecules of the gas collide continually with the walls of the container.

(d) The weight of the molecules exerts a force on the walls of the container.

63. The most reactive compound among the following is:

(a) Nitrobenzene (b) Toluene

(c) Benzoic acid (d) Benzene

64. $|Z_1 + Z_2|$ is: _____

(a) $= |Z_1| + |Z_2|$ (b) $\geq |Z_1| + |Z_2|$

(c) $= |Z_1||Z_2|$ (d) $\leq |Z_1| + |Z_2|$

65. On a particular railway track a train driver applies the brakes of the train at a yellow signal, a distance of 1 km from red signal, where it stops. The maximum deceleration of the train is $0.2 ms^2$ Assuming uniform deceleration what is the maximum safe speed of the train at the yellow signal?

(a) 20 ms^{-1} (b) 40 ms^{-1} (c) 200 ms^{-1} (d) 400 ms^{-1}

66. Considering the addition of hydrogen acids to alkenes, what is the correct order of reactivity?

(a) HCl > HBr > HI (b) HI > HBr > HCl

(c) HBr > HI > HCl (d) HCl > HI > HBr

67. Consider the solubility of the following sparingly soluble salt in water.

$$AgCl_{(S)} \rightleftharpoons Ag^+_{(aq)} Cl^-_{(aq)}$$

$K_{SP} = K_C [AgCl] = [Ag^+] [Cl^-]$ The precipitation of AgCl will occur if the product of ionic concentration is:

(a) equal to KSP (b) less than KSP

(c) More than KSP (d) Both a. & b.

68. Equation of the parabola with vertex at (0,0) and directrix $y + 2 = 0$ is:

(a) $y^2 = 8x + 8y$ (b) $x^2 = -8y$

(c) $y^2 = 8x$ (d) $x^2 = 8y$

69. In a stationary wave, the distance between a consecutive node and an antinodes in equal to:

(a) $\frac{\lambda}{2}$ (b) $\frac{3\lambda}{4}$ (c) $\wedge$ (d) $\frac{\lambda}{4}$

70. He said to me, "Why have you come late" Indirect form of the sentence is:

(a) He asked me why I came late.

(b) He asked me why I had come late.

(c) He asked me why I have come late.

(d) He told me as to why I had come late.

71. Select the oxide which will be acidic in nature:

(a) P_2O_5 (b) CaO (c) K_2O (d) BaO

72. If (x_1,y_1), (x_2,y_2), (x_3,y_3) be the vertices of a triangle ABC then the area of the triangular region is____

(a) $x_1(y_2 - y_3) + x_2(y_2 - y_1) + x_3(y_1 - y_2)$

(b) $\frac{1}{2}[x_1 (y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$

(c) $\frac{1}{2}[x_1 (y_2 + y_3) + x_1(y_2 + y_1) + x_3(y_1 + y_3)]$

(d) $2 [x_1 (y_2 - y_3) + x_1(y_2 - y_1) + x_3(y_1 - y_3)]$

73. An alternating current of r.m.s. value 20mA passes through a 4 K■ resistor. What is the average power dissipated?

(a) 0.8 W (b) 1.6 W (c) 8×10^8 W (d) 1.6×10^8 W

74. The solution formation of two miscible liquids perfectly obey the Raoult's law if they satisfy the conditions:

(a) $\Delta H = 0$, $\Delta V = 1$ (b) $\Delta H = 1$, $\Delta V = 0$

(c) $\Delta H = 1$, $\Delta V = 1$ (d) $\Delta H = 0$, $\Delta V = 0$

75. The eccentricity and foci of the ellipse $16x^2 + 25y^2 = 400$ are:

(a) $\frac{3}{5}, (0, \pm 3)$ (b) $\frac{4}{5}, (0, \pm 4)$

(c) $\frac{3}{5}, (\pm 3, 0)$ (d) $\frac{4}{5}, (\pm 4, 0)$

76. Which of the following statement is false about the acetic acid?

(a) Acetic acid is stronger acid than monochloro-acetic acid

(b) Acetic acid is weaker acid than trichloro-acetic acid

(c) acetic acid is weaker acid than formic acid

(d) Acetic acid is weaker acid than hydrochloric acid.

77. The x + iy form of $(1-3i)^{-1}$ is:

(a) $\frac{1}{10}+\frac{3i}{10}$ (b) $-\frac{1}{10}-\frac{3i}{10}$

(c) $\frac{1}{3}+\frac{3i}{5}$ (d) $\frac{3}{10}-\frac{3i}{10}$

78. What is the ratio 1Gm/1μm?

(a) 10^{-3} (b) 10^{-7} (c) 10^{-18} (d) 10^{15}

79. Which metal's presence in fish was responsible for the Minimata disease in Japan?

(a) Lead (b) Copper (c) Mercury (d) Cadmium

80. $\{1 . w. w^2\}$ is a group under:

(a) Division (÷) (b) Multiplication (×)

(c) Subtraction (–) (d) Addition (+)

81. Which physical quantity would result from a calculation in which a potential difference is multiplied by an electric charge?

(a) electric current (b) electric field strength

(c) electric power (d) electric energy

82. Metaformaldehyde is a trimer of:

(a) ethanol (b) ethanal (c) Methanal (d) methanol

83. Order of a matrix A is p × q , order of matrix B = q × r, Then the order of matrix C = A×B will be____

(a) p × r (b) p × q (c) q × r (d) r × p

84. In the expressions below 'a' is acceleration 'F' is force 'm' is mass, 't' is time and 'v' is velocity. Which expression represents energy?

(a) Ft (b) Fvt (c) 2mv (d) $at^2/2$

85. Choose the correct sentence out of the following:

(a) every one of the two students got a prize.

(b) any one of the two students got a prize.

(c) each of the two students got a prize.

(d) each one of the two students got a prize.

86. The order of chemical reaction can be measure by:

(a) Half life method (b) differential method

(c) Ostwald method (d) all of these

87. If A and B are mutually exclusive events then:

(a) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

(b) $P(A \cup B) = P(A) + P(B)$

(c) $P(A \cup B) = P(A) \cup P(B)$

(d) $P(A \cup B) = P(A) \cap P(B)$

88. Which of the following series lie in the visible region?

(a) Balmer (b) Lymann (c) Paschen (d) Pfund

89. If half life of a certain chemical reaction is denoted by the relationship given bellow: $t_{1/2}=\frac{1}{Ka^1}$ Where a is initial concentration what will be the order of the reaction?

(a) first order kinetics (b) second order kinetics

(c) third order kinetics (d) fractional order kinetics

90. $\int \frac{1}{x}dx =$_____

(a) $\log_e kx + c$ (b) $\log_r x + c$ (c) $\frac{x^2}{k}+c$ (d) None

91. The binding energy per-nucleon is greater for:

(a) lighter nuclei (b) heavy nuclei

(c) intermediate nuclei (d) None

92. The standard molar enthalpy of formation is denoted by:

(a) ΔH (b) ΔH^0 (c) ΔH^0_{273} (d) ΔH^0_{298}

93. The acute angle formed by two non-perpendicular intersecting lines is given by:

(a) $\tan\theta=\left|\frac{m_2-m_1}{1+m_1m_2}\right|$ (b) $\tan\theta=\left|\frac{m_1-m_2}{1+m_2m_3}\right|$

(c) $\tan\theta=\left|\frac{-}{1-m_3m_2}\right|$ (d) $\tan\theta=\left|\frac{1+m^2-m^2}{m_2m_3}\right|$

94. When a wave comes across an obstacle, it bands ground the obstacle. This phenomenon of bending around of a wave is called:

(a) polarization (b) interference

(c) reflection (d) diffraction

95. Choose the correct statement about Born Haber cycle:

(a) Born Haber cycle is a process for a applying Hess's law to the standard enthalpy changes in the formation of covalent compounds.

(b) Born Haber cycle is a process for applying Hess's law to the standard enthalpy changes in the formation of ionic compound.

(c) Born Haber cycle is a process for applying Hess's Law to the standard enthalpy changes in the formation of ionic and covalent compounds.

(d) None

96. $\frac{d}{dx}(|x|)$ is: (a) $\frac{x}{x^2}$ (b) $\frac{x^x}{x}$ (c) $\frac{x}{|x|}$ (d) $\frac{|x|}{x}$

97. Longitudinal waves cannot be:

(a) Diffracted (b) polarized (c) interfered (d) refracted

98. If we leave this minute _____

(a) I'm sure we'll make it (b) I'm sure we'll take it

(c) I'm sure we'll get it (d) I'm sure we'll turn it.

99. I insist _____ the withdrawal of your statement.

(a) for (b) at (c) in (d) on

100. The rote law for the reaction A→ C + k is given as: Rate = K[A] the unit of K will be:

(a) $mole^{-1}\ dm^3\ s^{-1}$ (b) $mole^{-1}\ dm^{-3}\ s^{-1}$

(c) s^{-1} (d) $mole^{-1}\ dm^3$

101. If $\vec{a}$ and $\vec{b}$ are non-collinear vectors then $P\vec{a}+q\vec{b}=0$ implies:

(a) $p \neq 0, q \neq 0$ (b) $p = q = 0$

(c) $p \neq 0, q = 0$ (d) $P = 0, q \neq 0$

102. If the length of a simple pendulum is halved and mass is doubled then its time period.

(a) increases by $\sqrt{2}$ (b) remains constant

(c) cannot be predicted (d) decreases by $\sqrt{2}$

103. The maximum kinetic energy of photoelectrons emitted depends upon:

(a) frequency of incident light

(b) intensity of incident light.

(c) temperature of the metal surface

(d) None of the above

104. How many hydrogen atoms are present in one mole of water?

(a) 6.02×10^{23}atoms (b) 1.806×10^{74} atoms

(c) 1.204×10^{24}atoms (d) 3.01×10^{23} atoms

105. $\lim_{x\to 0}\frac{x}{\log_a x} =:$

(a) 0 (b) 2 (c) 3 (d) ∞

106. A wire loop is placed in a magnetic field. The magnetic flux passing through the loop is minimum when the angle between the field lines and the normal to the surface area of the wire loop is:

(a) 0^0 (b) 45 ° (c) 90 ° (d) 270 °

107. 'Be poles apart' means:

(a) either of the two poles (b) have nothing in common

(c) leading position in a race (d) affect somebody greatly

108. Choose the correct geometry of the coordination compound $[Ni(CN)_4]^{-2}$

(a) square planer (b) tetrahedral

(c) trigonal bipyramidal (d) octahedral

109. Period of $\frac{1}{2}\tan 3x$ is

(a) $\frac{\pi}{6}$ (b) $\frac{\pi}{3}$ (c) $\frac{2}{\pi}$ (d) $\frac{\pi}{7}$

110. The number of electrons in one coulomb of charge is:

(a) 6.25×10^{18} (b) 6.25×10^{13} (c) 1.6×10^{18} (d) 9.1×10^{31}

111. Select an element which exists in liquid state at room temperature.

(a) d_1 (b) F_2 (c) Br_2 (d) I_2

112. Which of the following is a conditional equation?

(a) $(x + 2)^3 = x^3 + 6x^2 + 12x + 8$

(b) $(x - 5)^2 = x^2 - 10x + 25$

(c) $\sin^2\theta = 1 - \cos^2\theta$

(d) $x - 1 = 5$

113. Which of the following is the most elastic one?

(a) rubber (b) wood (c) sponge (d) steel

114. If Kc of a certain reaction is large it indicates that at equilibrium:

(a) The reactants concentration will be high

(b) the products concentration will be low

(c) the products concentration will be high

(d) the reactants and products concentration will be equal

115. Conic is a parabola if:

(a) e = 1 (b) $e = \frac{1}{2}$ (c) $e = \frac{2}{1}$ (d) e = 2

116. If component of a vector is 3N and y component is 3N then the angle made by the resultant vector with the x-axis is:

(a) 45^0 (b) 315^0 (c) 135^0 (d) 225^0

117. A cylindrical wire 4.0m long has a resistance of 31■ and is made of metal of resistivity 1.0×10^{4}■m. What is the radius of cross section of the wire ?

(a) 1.0×10^{-4} m (b) 2.0×10^{21} m

(c) 6.4×10^{8} m (d) 2.0×10^{-4} m

118. Dilute H_2SO_4 and not HNO_3 is used to prepare H_2S form FeS because

(a) HNO_3 acts as an oxidizing agent and oxidites H_2S to SO_2

(b) HNO_3 acid is weaker acid than H_2SO_4

(c) H_2SO_4 is more reactive than HNO_3

(d) H_2SO_4 is environmental friendly as compared to HNO_3

119. Period of sinx is

(a) $\frac{\pi}{2}$ (b) 2π (c) π (d) $\frac{3\pi}{2}$

120. A total charge of 100 C flows through a 2W light bulb in a time of 50s. What is the potential difference across the bulb during the time?

(a) 0.12 V (b) 2.0 V (c) 6.0 V (d) 24V

121. $3Ca(PO_4)_2.CaF_2$ is the formula of:

(a) chlorapatitie (b) fluorapatite

(c) phosphorite (d) None of these

122. Let $\vec{a}$ and $\vec{b}$ be any two vectors and θ be the angle between them then $|b|\cos\theta$ is protection of:

(a) $\vec{b}$ in the direction of $\vec{a}$ (b) $\vec{a}$ in the direction of $\vec{b}$

(c) $\vec{b}$ in the direction of x-axis (d) $\vec{a}$ in the direction of y-axis

123. What is the ultimate tensile stress of a material?

(a) the stress at which the material becomes ductile

(b) the stress at which the material deforms plastically

(c) the stress at which the material reaches its elastic limit

(d) the stress at which the material breaks

124. 'Frown on somebody' means to:

(a) Fall flate upon a stranger

(b) Stay alive working hard

(c) Disapprove of somebody

(d) Unable to be successful

125. Cobalt metal generally forms colored compounds. The color is due to:

(a) d.d electronic transition which falls in the visible range

(b) p.p electronic transition which falls in the visible range

(c) d.v electronic transition which falls in the visible range.

(d) d.p electron transition which falls in the visible range.

126. The catalyst used in Friedel-craft reaction

(a) Lewis base (b) Lewis acid

(c) amphoenc compounds (d) none of these

127. $ax^2 + bx + C = 0$ will NOT be a quadratic equation if:

(a) $b \neq 0, c = 0$ (b) $a \neq 0, b = 0$ (c) $a = 0$ (d) $b = 0$

128. The acceleration of free fall on a planet P is $1/6^{th}$ of the acceleration of free fall on earth. The mass of a body on planet P is 30kg. what is its weight on planet?

(a) 4.9 N (b) 100N (c) 290 N (d) 49N

129. What will happen if a small piece of sodium metal is dropped into ethanol in a test tube?

(a) No reaction will take place

(b) Reaction will take place with the evolution of hydrogen gas.

(c) Reaction will take place with the evolution of oxygen gas

(d) Reaction will take place and only sodium ethoxide will be formed with no evolution of any gas.

130. The general term T_{r+1} in $(a + b)^n$ is:

(a) $\binom{n}{r}a^{n-r-1}.b^r$ (b) $\binom{n}{r}a^{n-r}$

(c) $\binom{n}{r}a^{n-r}.b^r$ (d) $\binom{n}{r}a^{n-r+1}.b^r$

131. Which is a statement of the principle of conservation of momentum?

(a) momentum is the product of mass and velocity

(b) momentum is conserved only in elastic collision

(c) momentum is conserved by all bodies in a collision

(d) momentum is conserved providing no external forces act

132. $\frac{d}{dx}\text{Cosh } x =$

(a) Sinh x (b) Sec h x

(c) – Sinhx (d) Tanhx

133. A uniform meter rod of mass 50 grams balance at distance of 20 cm from one end. The man at the other end is:

(a) 50 gm (b) 25 gm (c) 75 gm (d) 100 gm

134. If $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ be an A.M between a and b then n = :

(a) –2 (b)0 (c) 1 (d) –1

135. $\frac{1}{10},\frac{1}{14},\frac{1}{18},\frac{1}{22}$, ... is _____

(a) Geometric sequence (b) Arithmetic sequence

(c) Asymptotic sequence (d) Harmonic sequence

136. Two wires P and Q have resistances R_e and R_n respectively. Wire P is twice as long as wire Q and has twice the diameter of wire Q. the wire are made of the same material. What is the ratio R_e / R_Q ?

(a) 0.5 (b) 1 (c) 2 (d) 4

137. Dimethyl ether and ethanol is an example of:

(a) chain isomerism (b) position isomerism
(c) metamerism (d) functional group isomerism

138. If $A(x_1,y_1)$, $B(x_2,y_2)$, $C(x_3,y_3)$ are the vertices of a triangle ABC and a,b,c be the lengths of its side then $\left(\frac{ax_1+bx_2+Cx_3}{a+b+c},\frac{ay_1+by_2+Cy_3}{a+b+c}\right)$ is the:

(a) ortho-center (b) centroid

(c) In-centre (d) circum-centre

139. How is it possible to distinguish between the isotopes of uranium.

(a) their nuclei have different charge and different mass, and they emit different particles when they decay.

(b) their nuclei have the same charge but different mass

(c) their nuclei have different charge but the same mass

(d) Their nuclei have the same charge and mass, but they emit different particle, when they decay.

140. If A,G and H be respectively the A.M , G.M and H.M between a and b, then which of the following relation is correct?

(a) $G^1 = AH$ (b) $G > A > H$

(c) $H > A > G$ (d) $A < G < H$

141. Octane number one hundred is given to compound:

(a) 2,2,4-Trimethylpentane (b) n-heptane

(c) n-octane (d) iso heptane

142. ----------

(a) ..... (b) .... (c) ..... (d) ...

143. They should have arrived by now_____ I wonder:

(a) what has kept them (b) what has got them

(c) what has held them (d) what has done them

144. A student measures a current as 0.5A. Which of the following correctly expresses this result?

(a) 50mA (b) 50MA (c) 500MA (d) 500 mA

145. Nylon-6, 6 is obtained from:

(a) adipic acid and hexamthylene diame

(b) tetrafluoroethylene

(c) vinyl cyanide (d) vinyl benzene

146. $-i^{48} =$

(a) i (b) $-i$ (c) -1 (d) 1

147. He said to me, " what a stupid fellow you are" Indirect form of the sentence is:

(a) he told me that you were a stupid fellow.

(b) He exclaimed that I was a very stupid fellow.

(c) he exclaimed that what stupid fellow I was.

(d) he did tell me that I had been stupid fellow.

148. Which one of the following is thermosetting polymer?

(a) nylon-6, 6 (b) Poly ethylene

(c) Bakelite (d) Teflon

149. Factors of $x^2 + 9$ are:

(a) $(x + 3)(x - 3)$ (b) $(x + 3i)(x - 3i)$

(c) $(x - 3)(x - 3)$ (d) $(x + 3i)(x + 3i)$

150. The quantity x is to be determined form the equation $x = P - Q.P$ is measured as (1.27 ± 0.02)m and Q is measured as (0.03 ± 0.01)m. what is the percentage uncertainty in x to one significant figure?

(a) 4% (b) 2% (c) 3% (d) 7%

151. Which one of the following polymers contains nitrogen?

(a) PVC (b) Teflon (c) Nylon (d) polypropylene

152. Power of the highest derivative appearing in an equation is called its:

(a) Degree (b) order (c) power (d) index

153. Which force is caused by a pressure difference:

(a) Friction (b) viscous force

(c) up thrust (d) weight

154. Acetaldehyde on treatment with Fehling's solution forms red precipitate. The color is due to the formation of:

(a) sivler nitrate (b) silver

(c) CuO (d) Cu_2O

155. A sequence is a function whose domain is:

(a) N (b) R (c) W (d) Q

156. The symbol 'g' represents the acceleration of free fall. Which of these statements is correct?

(a) g is gravity (b) g is the ratio weight /mass

(c) g is the weight of an object

(d) g is reduced by air resistance

157. "His bad friends will ruin him" ~~Passive form of the~~ sentence is:

(a) he will ruin his bad friends

(b) he is ruined by his bad friend

(c) he will be ruined by his bad friends

(d) he is being ruined by his bad friends.

158. When formaldehyde is treated with 50% sodium hydroxide solution, it undergoes.

(a) cannizzaro's reaction (b) aldol condensation (c) Wurtz reaction (d) hydrolysis

159. If a, $G_1, G_2, G_3, \ldots G_n$, b is a G.P then $G_n =$

(a) $b\left(\frac{a^n}{b^{n-1}}\right)^{\frac{n}{n+1}}$ (b) $b\left(\frac{a}{b}\right)^{\frac{n}{n+1}}$ (c) $\left(\frac{a}{b}\right)^{\frac{n}{n+1}}$ (d) None

160. Choose the correct order of decreasing basic strength.

(a) $MgO > Na_2O > P_4O_{10} > Al_1O_3$

(b) $Na_2O > MgO > Al_1O_3 > P_4O_{10}$

(c) $P_4O_{10} > Na_2O > MgO > Al_1O_3$

(d) $Al_1O_3 > MgO > P_4O_{10} > Na_2O$

161. Select the statement which is NOT true about carbonyl group?

(a) The three atoms attached to the carboxyl carbon are not in the same plane.

(b) The carbon is carbonyl group is SP^2 hybridized.

(c) The bond angles around carbon attached to three atoms are approximately 120.

(d) The carbonyl group forms resonating structure.

162. Which statement is NOT true about benzene?

(a) Benzene is a planer molecule with bond angles 120^o

(b) It is completely miscible with water

(c) It can be converted into a cyclohexane by hydrogenation (d) It can be converted into ethyl a benzene when reacted with ethyl chloride and $AlCl_3$

163. What is plastic deformation?

(a) …. (b) …. (c) ….. (d) …..

164. $ax+\frac{b^2}{a}=c^2$ is:

(a) an equation of power 5 (b) a linear equation

(c) a cubic equation (d) a quadratic equation

165. What is the relationship between the intensity and the amplitude of a wave?

(a) $\frac{1}{a}$ =constant (b) $1u^2$ = constant

(c) $\frac{1}{a^2}$ = constant (d) 1 a =constant

166. Select the suitable product when ethylene oxide react with hydrogen bromide:

(a) 1-Bromethanol (b) Ethyl bromide

(c) 2-Bromo ethanol (d) Ethylene glycol

167. Which of the following is correct?

(a) Right bisectors of a triangle are concurrent

(b) Medians of a triangle are concurrent

(c) Altitudes of a triangle are concurrent

(d) All of the above

168. The following particles are each accelerated from rest through the same potential difference. Which one completes the acceleration with the greater momentum?

(a) α - particle (b) electron (c) Neutron (d) proton

169. Select the compound that will not be easily oxidized:

(a) CH_3CH_2OH (b) $(CH_3)_3COH$

(c) CH_3OH (d) $(CH_3)_2CHOH$

170. If A = {0} then the number of elements in the power set of A =

(a) 0 (b) 1 (c) 2 (d) 3

171. It has been raining continuously ____ last night.

(a) Since (b) For (c) From (d) With

172. Two heating coils X and Y of resistance R_x and R_y respectively deliver the same power when 12V is applied across x and 6V is applied across y. what is the ration of R_x/R_y=?

(a) ¼ (b) 6 (c) 2 (d) 4

173. The acid catalyzed dehydration mechanism of alcohols is best described by:

(a) SN_1 (b) SN_2 (c) E_1 (d) E_2

174. Molecular formula of silica is:

(a) SiO_4 (b) SiO_3 (c) SiO_2 (d) Na_2SiO_3

175. Let V_1 and V_2 be two vectors, If $V_2 = \lambda V_1$ where λ is scalar, then V_1 and V_2 are called:

(a) equal (b) parallel (c) perpendicular (d) coincident

176. The electric field at a certain distance from an isolated alpha particle is 3.0×10^7 N C^{-1}. What is the force on an electron when at that distance from the alpha particle?

(a) 4.8×10^{-12} N (b) 2.6×10^{12} N

(c) 3.0×10^7N (d) 6.0×10^7 N

177. Markownikoff's rule is NOT applicable when HBr is added to:

(a) 3-pentene (b) 2-Butene (c) 1-Butene (d) Propene

178. The associated angle of $\frac{8\pi}{3}$ is:

(a) $\frac{\pi}{3}$ (b) $\frac{\pi}{4}$ (c) $\frac{2\pi}{3}$ (d) $\frac{4\pi}{3}$ (e) None

179. Light of wavelength 700nm is incident on pair of slits forming fringes 3.0mm apart on a screen.What is the fringe spacing when light of wavelength 350 nm is used and the slit separation is doubled?

(a) 0.75mm (b) 1.5mm (c) 3.0 mm (d) 6.0 mm

180. He said "May this child live long" Indirect form of the sentence is:

(a) He prayed that that child may live long.

(b) He prayed that child will live long.

(c) He said that that child might live long.

(d) He prayed that that child might live long.

181. $AlCl_3$ generally behaves as:

(a) Lewis acid (b) Bronstead base

(c) Bronstead acid (d) Lewis base

182. A coin is flipped thrice. The number of sample points in the sample space is:

(a) 3 (b) 6 (c) 8 (d) 9

183. The radius R of the circum-circle is:

(a) $\frac{a}{2\sin\alpha}$ (b) $\frac{b}{2\sin\beta}$ (c) $\frac{abc}{4\Delta}$ (d) All

184. Several resistor are connected in parallel the resistance of their equivalent resistor will:

(a) increases (b) decreases (c) not change (d) None

185. What the required conditions for the following reaction?
$CH_4 + Cl_2 \rightarrow CH_3Cl + CH_2Cl_2 + CHCl_3 + CCl_4 + HCl$

(a) Low temperature (b) Al_3O_2 catalyst 400 °C

(c) $ZnCl_2$ 250 °C (d) UV light

186. $\frac{\cos 75^o + \cos 15^o}{\sin 75^o - \sin 15^o} =$ ____

(a) $\sqrt{3}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{1}{2}$ (d) $\frac{1}{\sqrt{2}}$ (e) None

187. A wave incident in a rare medium, when reflected from a denser medium will have a phase change of:

(a) 90° (b) 0° (c) 180° (d) 360°

188. The conversion of ethyne to acetaldehyde is carried out:

(a) NI 250 °C (b) $HgSO_4$ Fe_2O_3 80 °C

(c) Al_2O_2 Fe_2O_3 150 °C (d) Pd, 70 °C

189. The apparent weight of a man in a an elevator moving up with acceleration 'a' is:

(a) mg (b) mg – ma (c) mg + ma (d) ma

190. The line y = mx + c is tangent to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, If _____

(a) $c = \pm\sqrt{a^2m^2 + b^2}$ (b) $c = \pm\sqrt{a^2m^2 - b^2}$ (c) $c = \pm\sqrt{1 + m^2}$ (d) $c = \pm\sqrt{a^2 + b^2m^2}$

191. Your friend proved more sympathetic than expected he do.

(a) will (b) Shall (c) should (d) would

192. The sum of binomial coefficients in $(1 + x)^n$ is:

(a) 2^{n+1} (b) 2^{n} (c) 2^{-n} (d) 2^{n-1}

193. A projectile is launched at 45° to the horizontal with initial kinetic energy E. Assuming air resistance to be negligible what will be the kinetic energy of the projectile when it reaches its highest point?

(a) 0.71 E (b) 0.50 E (c) 0.87 E (d) E

194. What is the approximate mass of nucleus of uranium?

(a) 10^{-13} kg (b) 10^{-20} kg (c) 10^{-23} kg (d) 10^{-30} kg

195. Ethene could be obtained from ethyl bromide by:

(a) Hydrolysis (b) Nucleophilic substitution

(c) Dehydration (d) dehydrohalogenation

196. The quadratic equation whose roots are 3 and 4 is

(a) $x^2 - 7x + 12$ (b) $x^3 + 7x + 12$

(c) $x^3 - 12x + 7$ (d) $x^2 - 12x + 7$

197. Choose the correct sentence out of the following:

(a) As far as I know he bears a good moral character

(b) As long as I know, he bears a good moral character

(c) So far as I know, he bears a good moral character

(d) Not that I know, he bears a good moral character

198. Ketones on reaction with methyl magnesium iodide will produce:

(a) tertiary alcohol (b) primary alcohol

(c) secondary alcohol (d) All of these

199. If $^{11}P_n = 990$ then n =

(a) 2 (b) 3 (c) 5 (d) 7

200. Sound waves, emitted by small loudspeaker are reflected by wall. The frequency of the waves is adjusted until a stationary wave is formed with the antinode nearest the wall at a distance x from the wall. Which expression goes in terms of x and the speed of sound is:

(a) $f = \frac{c}{2x}$ (b) $f = \frac{2c}{x}$ (c) $f = \frac{c}{x}$ (d) $f = \frac{2x}{c}$

MEDICAL PAPER 2011

1. We need _____ guidelines to start with.
   (a) a few (b) any (c) little (d) some
2. The angle subtended at the centre of a sphere by itssurface area is equal to:
   (a) $\frac{4}{3}\pi$ radian (b) $\frac{4}{3}\pi$ steradian
   (c) 4π radian (d) 4π streradian
3. The anion size are larger than its atomic size because:
   (a)the addition of electron occupies more space
   (b) it increases the effective nuclear charge
   (c) the repulsion between electrons increases with the addition of electron
   (d) the attraction between electrons and the nucleus increases
4. Which of the following diseases is NOT caused by bacteria?
   (a) tetanus (b) small pox
   (c) tuberculosis (d) diphtheria
5. $[M^aL^bT^c]$are the dimensions of:
   (a) strain (b) refractive index
   (c) magnification (d) All of these
6. Which one would you class it as more metallic in character?
   (a) As (b) Bi (c) C (d) Sb
7. Round worms, which have body cavities are partially lined with mesoderm are classified as:
   (a) Acaelomate (b) ceolomates
   (c)Pseudo coelomates (d) Deuterostomes
8. The magnitude of the resultant of two forces is 2F. If the magnitude of each force is F, Than the angle between these forces is:
   (a) 0^o (b) 90 ° (c) 120 ° (d) 180^o
9. Hydration energy is the heat evolved or absorbed when:
   (a)one mole of gaseous ions is dissolved in one mole of water
   (b) one mole of ions in solid state is dissolved in one mole of water.
   (c) one mole of gaseous ions is dissolved in water to give infinitely dilute solution
   (d) one mole of ions in solid state is dissolved to form concentrated solution
10. The hypothesis of Ronald Ross relating to malaria was:
    (a) plasmodia are the cause of malaria.
    (b) bad air is involved in the spread of malaria
    (c) mosquitoes are possible carrier of plasmodia
    (d) Malaria is caused by bad air coming from marshyplaces.
11. The authorities have _____ that the plane to Beirutwas hijacked over the Indian ocean
    (a) assured (b) confirmed
    (c) committed (d) ensured
12. $\hat{j}\left(\hat{i}\times\hat{j}\right)$is equal to
    (a) -1 (b) zero (c) 1 (d) 2.
13. The behavior of $PbCl_2$ and $PbCl_4$ respectively are:
    (a)ionic and covalent (b) covalent and ionic
    (c) covalent and coordinate covalent
    (d)ionic and coordinate covalent
14. Crustaceans are the only arthropods that have:
    (a) chitin in their exoskeleton. (b) chelicetae
    (c) three pairs of legs (d) two pairs of antennae
15. Three vactors of equal magnitude are acting on the three sides of an equilateral triangle. The magnitude of their resultant is
    (a) zero (b) 3 (c) $\sqrt{3}$ (d) 1.73
16. Select the correct order in ionic behavior:
    (a) $AlF_3>AlBr_3>AlCl_3>AF_3$,
    (b) $AlCl_3$, $>AlF_3$,$>AlBr_3$, $>AlI_3$
    (c) $AlCl_3$, $>AlBr_3$,$>AB_3$, $>AlF_3$,
    (d) $AlF_3>AlCl_3>AlBr_3>AlI_3$
17. A cloned baby sheep "Dolly" was attributed to
    (a) Four Parents (b) Three Parents
    (c) Two parents (d) One Parent only
18. The physical quantity which produces angular acceleration in the body is:
    (a) Force (b) Moment of inertia
    (c) Impulse (d) Torque
19. Select the most stable covalent hydride:
    (a) BiH_3 (b) NH_3 (c) HF (d) SbH_3
20. In spiders, the organs that contain the silk glands are called
    (a) spinnerets (b) carapaces
    (c) medriporite (d) tube feet
21. She has let _____ her house fully furnished to a Korean couple.
    (a) out (b) at (c) up (d) in
22. The point at which an applied force produces linear motion but no rotatory motion is:
    (a) mid-point (b) centre of gravity
    (c) optical centre (d) pole
23. Potassium is found in nature as carnallite, its composition is:
    (a) $KAlSi_3O_4$ (b) $KClMgCl_26H_2O$
    (c) KCl (d) $KCl.Al_2O_3.2H_2O$
24. .....

25. A ball is thrown vertically upward with a velocity of 98 m/s. if it takes 10 seconds to reach the highest point then the acceleration of the ball is:

(a) $9.8m/s^2$ (b) $980m/s^2$

(c) $98m/s^2$ (d) $-9.8m/s^2$

26. Fajan's rule states that small highly charged ions tend to form more:

(a) ionic compounds (b) polymeric compounds

(c) covalent compounds (d) coordination compound

27. Which of the following bird structures are especially adapted to support flight?

(a) Cloacas (b) Bills

(c) Gizzard (d) chest muscles

28. A man throws a ball vertically upward in a compartment of an accelerated train. The ball will fall

(a) in front of him (b) in his hand

(c) behind him (d) beside him

29. Beryllium, a member of alkaline earth metal, is almost as hard as:

(a) calcium (b) Potassium

(c) iron (d) magnesium

30. Which of the following is composed of lipids?

(a) Some hormones (b) Enzymes

(c) Skin tendons (d) insulin

31. I have no _____ to listen to the budget speech.

(a) trouble (b) convenience

(c) patience (d) perseverance

32. A bomber drops a bomb, when it is vertically above the target. It misses the target because of:

(a) vertical component of the velocity of bomber

(b) force of gravity

(c) acceleration of the bomber

(d) horizontal component of the velocity of bomber

33. Select the correct statement.

(a) All alkali metal hydroxides are stable to heat

(b) All alkali metal hydroxides are unstable to heat

(c) All alkali metal hydroxides are stable to heat except CsOH

(d) All alkali metal hydroxides are stable to heat except LiOH

34. The rate of breathing of a child of 5 years is about:

(a) 44 times / minute (b) 40 times / minute

(c) 25 times / minute (d) 20 times / minute

35. The property of the moving object by virtue of which it exerts force on the object that tries to slop it is:

(a) inertia of the body

(b) quantity of motion of body

(c) Acceleration of body (d) All of these

36. Refratory bricks used for furnace lining are formed by mixing and drying

(a) MgO and clay (b) $MgCO_3$and clay

(c) $MgSO_4$and clay (d) $MgCO_3$ $CaCO_3$

37. The middle lamella of cell-wall is composed of:

(a) Cellulose (b) pectin (c) Lignin (d) Murein

38. The dot product of force and velocity is equal to:

(a) power (b) impulse

(c) couple (d) Momentum

39. The electronegativity of [1]A element first decreases and then increases. This behavior is due to poor shielding of:

(a) S electron (b) P – electron

(c) d electron (d) f – electron

40. Nicotine in tobacco:

(a) decreases the heart rate

(b) decreases blood pressure

(c) block the transport of oxygen

(d) paralyzes cilia

41. Your _____ too long: you had better go to the hairdresser today

(a) hair is (b) hair are (c) hairs are (d) hairs is

42. The escape velocity from the earth gravitational field depends upon:

(a) rotation of earth (b) mass of body
(c) radius of earth (d) Mass of earth

43. Sodium tetraborate $Na_2B_4O_7.10H_2O$is

(a) Colemanite (b) Borax

(c) Diaspore (d) bauxite

44. Stream of chloroplast carries the fixation of:

(a) Nitrogen (b) Oxygen

(c) Carbon monoxide (d) carbon dioxide

45. If the velocity of a body becomes half, the kinetic energy of the body will become:

(a) on fourth (b) double

(c) four times (d) half

46. $2Al_{(s)} + NaOH_{(aq)} + 2H_2O \rightarrow 2NaAlO_{2(aq)} + 3H_{2(g)}$

The above reaction is slow in the start but speeds up after sometimes. This is because of:

(a) The reation is exothermic and the heat generated speeds up the reaction

(b) The hydrogen liberated during the reaction act ascatalyst

(c)The protective coat of oxide layer of the aluminum dissolves and the metal surface is exposed to thereactant

(d) Sodium aluminate is highly soluble, therefore it helps the reaction move in the forward direction

47. The valve between right atrium and right ventricle is called:

(a) bicuspid valve (b) tricuspid valve

(c) pulmonary valve (d) semi lunar valve

48. The angular velocity for daily rotation of the earth is:

(a) $\frac{\pi}{3}$ *radian* hr^{-1} (b) $\frac{\pi}{6}$ *radian* hr^{-1}

(c) $\frac{\pi}{12}$ *radian* hr^{-1} (d) 12π *radian* hr^{-1}

49. Sodium Carbonate when fused with sand forms sodium silicate which is commonly known as:

(a) Soda glass (b) water glass

(c) jinna glass (d) pyrex glass

50. Anthocyanins are various types of colourful pigments present in the:

(a) chloroplasts (b) chromoplasts

(c) leucoplasts (d) vacuoles

51. You can always count on me. I will not let you_____

(a) alone (b) down (c) off (d) through

52. The weight of a pilot when diving down in a jet plane with an acceleration of 9.8 m/s^2 will become:

(a) Double (b)half (c) Negative (d) zero

53. Silicones are resisted to chemical attack and are used in/as

(a) paints (b) vernishes

(c) water proofing fabrics(d) all of the above

54. Anti bodies are produced by:

(a) red blood cells (b) platelets

(c) B-lymphocytes (d) Hormones

55. The Geostationary satellites are:

(a) stationary (b) Rotating with the speed of earth

(c) rotating very fastly (d) rotating very slowly

56. Select the oxide which is in the solid state at room temperature

(a) N_2O_5 (b) N_2O (c) NO_2 (d) N_2O_3

57. Phage-virus secretes an enzyme "lysozyme" form its:

(a) tail region (b) head region

(c) neck region (d) capsule region

58. $[ML^{-1}T^{-1}]$ are the dimensions of:

(a) angular momentum (b) power

(c) impulse (d) viscosity

59. Group 5^{th} elementsarsenic and antimonyare considered as:

(a) metallic (b) non metallic

(c) metalloids (d) transition elements

60. Much of mechanical digestion takes place in the

(a) oesophagus (b) mouth

(c) stomach (d) duodenum

61. Styles _____ popular in the 1960s are reappearing in high fashion boutiques

(a) what have been (b) which have been

(c) that have been (d) that were

62. A two meter high tank is full of water. A hole is made in the middle of the tank. The speed of effect is

(a) 4.9 ms^1 (b) 9.8 ms^{-1} (c) 4.42ms (d) 3.75 ms

63. The bleaching action of bleaching powder is due to "available chlorine" it is the amount of chlorine.

(a)that is required for the preparation of bleachingpowder

(b) site free when excess of sulphuric acid is added tothe bleaching powder.

(c) that is required for the generation of the hypochlorite (d) Both B and C

64. H.I.V contains

(a) two R.N.As (b) a single R.N.A

(c) D.N.A and R.N.A (d) D.N.A

65. The quantity which specified the displacement as well as the direction of motion in simple harmonic motion is the

(a) phase angle (b) angular frequency

(c) path difference (d) none of these

66. The formula of mustard gas is:

(a) $(C_2H_2Cl_2)_2S$ (b) $(C_2H_4Cl_2)_2S$

(c) $(C_2H_3Cl_2)_2S$ (d) $(C_2H_4Cl)_2S$

67. The amount of energy in food is measured in:

(a) ATP (b)Calories

(c) ADP (d) Carbohydrates

68. The magnitude of the periodic force, which the simple pendulum exerts on the suspension point, depends upon:

(a) length of the pendulum

(b) time period of vibration of pendulu

(c) mass of the bob of pendulum

(d) value of 'g'

69. All gases below are monoatomic except:

(a) H (b) He (c) Ne (d) Xe

70. The inherit form of immunity through mother's milk is the:

(a) active immunity (b) innate immunity

(c) passive immunity (d) Acquired immunity

71. Waseem _____ this him as MD for many years, but he is rather unhappy with his salary

(a) is working in (b) is serving

(c) is working for (d) has been working

72. When the pressure in a medium increases, the speed of sound in that medium:

(a) decreases (b) decreases

(c) does not change

(d) sometimes increases and sometime decreases

73. Choose the correct name of Ba_2XeO_4

(a) Barium Xenate (b) Barium Xenthate

(c) Barium Prexenate (d) Barium Perxenthate

74. Which of the following is NOT an innate behavior?

(a) a body mammal sucking milk

(b) a dog looking for its food dish

(c) a worm moving away from bright light

(d) a spider spinning a web

75. The number of loops in stationary wavesdepends upon:

(a) velocity of waves (b) wavelength of waves

(c) nature of the medium(d) frequency of waves

76. The electronic configuration of $Cu_{(29)}$ is:

(a) $-3s^23p^63d^{10}4s^1$ (b) $-3s^23p'3d^94s^2$

(c) $-3s^23p'3d^84s^2$ (d) $-3s^23p'3d^94s^2$

77. Entamoeba belongs to the phylum:

(a) sporozoa (b) sarcodina

(c) mastigophora (d) microspora

78. When the light enters from air to glass, it suffers a change in the

(a) wavelength of light (b) speed of light

(c) frequency of light

(d) wavelength and speed of light

79. The highest oxidation state of Manganese $-3s^23p'3d^54s^2$ in its compounds is:

(a) +2 (b) +5 (c) +7 (d) +8

80. A non specific defence reaction to tissue damage caused by injury or infection is known as:

(a) active immunity

(b) the inflammatory response (c) (d)

81. Tahira as well as her brother _____ responsible for the loss and they must be made to makeup for it:

(a) is (b) are (c) were (d) have been

82. When the light is moving from rare medium to denser medium on reflection it suffers a phase change of

(a) 180° (b) 120 ° (c) 90° (d) 0 °

83. The oxidation power of halogen depends upon:

(a) energy of dissociation (b) electron affinity of atoms

(c) hydration energies of lons (d) all of the above

84. nuclear mitosis occurs in the kingdom of:

(a) Monera (b) Protista(c) Plantae (d) fungi

85. We can hear sound around the corner but cannot see because of:

(a) interference (b) diffraction

(c) polarization (d) dispersion

86. All compounds are organic except

(a) $(H_2NCO)_2O$ (b) NH_4CNO

(c) CH_3NO_2 (d) $C_2H_5N_2HSO_4$

87. The protein that helps other cells resist viral infection is

(a) Penicillin (b) histamine

(c) interferon (d) antigens

88. The powers of the objective and eye piece of telescope are 0.5 diopter and 10 diopter respectively. The magnifying power of telescope is:

(a) 0.5 (b) 10 (c) 20 (d) 0.05

89. The oxidation number of cobalt in $[Co(en)^2H^2O(CN)]^{2+}$
(a) 2 (b) 3 (c) 4 (d) 5

90. Rust and smut belong to the phylum

(a) zygomycota (b) ascomycota

(c) basidiomycota (d) deuteromycota

91. She _____ her parents. They must be worried about her health.

(a) had better call (b) had better called

(c) had better to call (d) better call

92. At constant temperature when the volume of the given mass of gas is doubled its density becomes:

(a) double (b) one fourth(c) four times (d) half

93. Ammonium hydroxide was added to a salt solution deep blue color was obtaine. The solution contains ions of:

(a) Zn^{+2} (b) Cu^{+2} (c) Fe^{+3} (d) Ba^{+2}

94. A network of tubules that runs through compact bone is called the:

(a) haversian canal (b) periosteum

(c) marrow (d) joint

95. The process which is performed quickly is:

(a) isobaric process (b) adlabalic process

(c) isothermal process (d) isochoric process

96. The color of coordination compound bisdimethylglyoxime nickel(11) is:

(a) red (b) blue (c) orange (d) black

97. Club-mosses are also called

(a) psilopsida (b) sphenopsida

(c) lycopsida (d) pteropsida

98. For all irreversible process, the entropy of the system

(a) decreases (b) remains constant

(c) is zero (d) increases

99. Choose the compound tetra amine aqua chloro cobalt(III) chloride:

(a) $\left[Co(NH_3)_4H_2O\left(Cl_2^{-2}\right)\right]Cl_3^{-3}$

(b) $\left[Co^{+2}(NH_3)_4H_2O\left(Cl_2^{-2}\right)\right]Cl_3^{-3}$

(c) $\left[Co(NH_3)_4H_2O\left(Cl_2^{-2}\right)\right]Cl_3^{-3}$

(d) $[Co(NH_3)_4H_2O\,Cl]Cl_2$

100. Hormones produced from cholesterol are called

(a) protein hormones (b) Non steroid hormones

(c) steroid hormones (d) poptide hormones

101. He _____ before the interview board.

(a) was afraid to appear

(b) was afraid of appearing

(c) was afraid of appearing

(d) feared appearance

102. The correct expression for the coulomb's force is:

(a) $\vec{F} = \frac{1}{4\pi\epsilon_o} \times \frac{q_1 q_2}{r^2} \vec{r}$ (b) $\vec{F} = \frac{1}{4\pi\epsilon_o} \times \frac{q_1 q_2}{r^2} \hat{r}$

(c) $\vec{F} = \frac{1}{4\pi\epsilon} \times \frac{q_1 q_2}{r^2} \vec{r}$ (d) $\vec{F} = \frac{1}{4\pi\epsilon} \times \frac{q_1 q_2}{r^2}$

103. the wave nature of an electron is illustrated by its:

(a) photoelectric effect(b) Compton effect

(c) penetrating effect (d) diffraction

104. *Lycopersicum esculentum* is commonly known as:

(a) Gram (b) tomato

(c) potato (d) red papper

105. The Potential gradient between the two charged plates having, separation of 0.5cm and potential difference of 12volts is:

(a) 240 NC^{-1} (b) 24 NC^{-1}

(c) 2.4 NC^{-1} (d) 2400NC^{-1}

106. The conversion of carbonate to urea is:

(a) slow and exothermic(b) fast and exothermic

(c) slow and endothermic(d) fast and endothermic

107. The rate of metabolism is regulated by:

(a) PTH (b) thyroxine

(c) aldosterone (d) calcitonin

108. Ohm *x*Farad is equivalent to:

(a) second (b) weber (c) henry (d) tesla

109. vehicular emission that is major environmental concern is:

(a) CO_2 (b) CO

(c) low hydrocarbons (d) All of them

110. Plant cells synthesize sugar in the:

(a) Thylakoid (b) grana (c) stroma (d) christa

111. He said, "If I were you, I would protest" can be indirectly reported as:

(a) if he had been me, he would have protested

(b) he advised us to protest

(c) if he were me, he would protest

(d) if he had been I, he would have protested

112. A wire of uniform cross section A, length 1 and resistance R is cut into two equal pieces. The resistivity of each piece will be:

(a) the same (b) one fourth (c) double (d)one half

113. Tetracthyl lead $(C_2H_2)_4Pb$ is used as antiknock agent and is abandoned because of its hazardous product during the combustion of fuel. The hazardous productis: (a) CO_2(b) CO

(c) lead (d) free radical ethyc (C_2H_2)

114. Which sequence correctly describes the route sperm take through the human male reproductive system?

(a) vas deferencs, urethra, epididymis

(b) Epididymis, vas deferens urethra

(c) Epididymis, urethra, vas deferens

(d) urethra, epididymis, vas deferens

115. Two metallic conductors have the same value of resistivity. These conductors can be differentiated from the values of their:

(a) temperature coefficient (b) resistances

(c) conductance (d) conductivity

116. Select the correct formula of 2-methyl pentane:

(a) C_5H_{12} (b) C_5H_{16} (c) C_6H_{12} (d) C_6H_{14}

117. In chlorophyll "a" The group attached to prophyrine ring is:

(a) hydroxyl group (b) methyl group

(c) carboxyl group (d) aldehyde group

118. The total driving force of the battery to draw current through a circuit is called:

(a) voltage of battery (b) power of battery

(c) e.m.f of battery (d) all of these

119. In reforming process open chain hydrocarbons are converted into:

(a) pciymers (b) branced chain hydrocarbons

(c) ring hydrocarbons

(d) Branched and ring hydrocarbon

120. The process of cell division result in:

(a) two daughter cells (b) sister chromatids

(c) mitosis (d) unregulated growth

121. _____ in the world.

(a) our's is not one of the quickest response system

(b) our is not one of the quickest response systems

(c) ours is not one of the quickest response systems

(d) our is not one of the quickest response system

122. two metallic wires are lying parallel. If the current in these wires be flowing in the same direction, the wires will:

(a) attract each other (b) repel each other

(c) have no force of attraction or repulsion

(d) remain stationary

123. An organic compound after fusion with sodium gives white precipitate when concentrated nitric acid and then silver nitrate solution was added to the filtrate. The compound is likely to be:

(a) CH_3CH_2CHO (b) $CH_3CH_2CH_2OH$

(c) CH_3CH_2COOH (d) $CH_3CH_2CH_2Br$

124. Chlorophyll is protected from intense light by:
(a) plant hormones (b) carotenoids

(c) plant-enzyimes

(d) water present in meso;hyll tissue

125. The SI unit of magnetic flux is weber which is equal to:

(a) NmA^{-1} (b) $Nm\ ^2A^{-1}$ (c) NAm^{-1} (d) NmA^{-2}

126. Ethyne has a total of:

(a) one σ bond, two η bonds

(b) one σ bond, four η bonds

(c) two σ bonds, four η bonds

(d) three σ bonds, two η bonds

127. Malphigian tubules convert nitrogenous waste into

(a) urine (b) ammonia

(c) uric acid (d) urea

128. An electron and proton are projected with same velocity normal to magnetic field which one will suffer greater deflection?

(a) proton (b) electron

(c) both will suffer greater defection (d) None of these

129. Choose the correct statement

(a) resonance hybrids are the weighted average of all the resonating forms

(b) resonance hybrids are generally considered as unstable.

(c) resonance hybrids are the averagely of all the resonance forms

(d) resonance hybrids are averaged of all the less stable resonating forms

130. Chlorosis in plants is caused by the deficiency of:

(a) nitrogen (b) megnesium

(c) potassium (d) both a and b

131. A good business man should not be unscrupulouswhile making profits the underlined word means:

(a) unprincipled (b) careless

(c) illegal (d) miserly

132. The motional e.m.f depends upon

(a) strength of magnetic field

(b) length of conductor

(c) speed of conductor (d) all of these

133. carbon-carbon double bond as compared to single bond is:

(a) less susceptible to oxidation

(b) more susceptible to oxidation

(c) equally susceptible to oxidation

(d) all of these

134. the changes in the biochemical composition and physiology occurring at regular intervals in 24 hours is termed as:

(a) gioannual rhythm (b) lunar rhythm

(c) circadian rhythm (d) tidal rhythm

135. $\frac{volt \times second}{ampere}$ is equal to:

(a) gauss (b) weber (c) henry (d) tesla

136. Which of the following is a nucleophil?

(a) $AlCl_3$ (b) CN^- (c) H_3O^+ (d) BF_3

137. Early fall of leaves and fruits in plants in caused by the deficiency of :

(a) phosphorus (b) potassium

(c) magnesium (d) nitrogen

138. The counter torque produced in the moving coil of generator is called:

(a) resotoring torque (b) defelection torque

(c) back motor effect (d) all of these

139. Select the most stable carbonium ion:

(a) $^+CH_3$ (b) $^+CH_3CH_2$

(c) $(CH_3)_2{}^+CH$ (d) $(CH_3)_3C^+$

140. The organisms developed with two heads and one trunk is called

(a) identical twins (b) Siamese twins

(c) dizygotic twins (d) fraternal twins

141. 'Cynic' and '_____' are synonyms

(a) skeptic (b) secret (c) solitary (d) truthful

142. The inductive reactance of the coil having inductance of 0.5 henry in which AC of 50Hz flows is:

(a) 94.2 ■ (b) 1.57 ■ (c) 157 ■ (d) 9.42 ■

143. Water is said to be permanently hard when it contains:

(a) carbonates of Ca^{2+} and Mg^{2+} ions

(b) Bicarbonates of Ca^{2+} and Mg^{2+} ions

(c) sulphates of Na^+ and Mg^{2+} ions

(d) chlorides of Ca^{2+} and Mg^{2+} ions

144. Hydathodes are:

(a) hormones secreting glands

(b) water secreting glands

(c) nectar secreting glands

(d) enzymes secreting glands

145. In RLC series circuit when the frequency of AC source is very low, the circuit is a / an

(a) resistive circuit (b) capacitive circuit

(c) inductive circuit (d) resonant circuit

146. Which of the following makes the motion of a perpetual motion machine a physical impossibility?

(a) fist law of thermodynamics

(b) second law of thermodynamics

(c) third law of thermodynamics

(d) None of these

147. A Punnet square is used to determine the:

(a) result of mitosis (b) result of meiosis

(c) actual outcome of a cross

(d) probable outcome of cross

148. The process of combining low frequency signal with high frequency carries waves is called:

(a) rectification (b) amplification

(c) modulation (d) magnification

149. A buffer solution containing H_2CO_3 and $NaHCO_3$ is to be propared to maintain a pH of 7.00 what must be the ratio $\frac{NaHCO_3}{H_2CO_3}$ in order to realize such a pH if Ka of carbonic acid is 4.3×10^{-7} ?

(a) 43 (b) 48 (c) 0.43 (d) 4.3

150. The numberof chromosomes of tobaccoplant are:

(a) 43 (b) 1.29 (c) 0.43 (d) 24

151. 'Professional' and '_____' are antonyms.

(a) unemployed (b) entrepreneur

(c) amateur (d) capitalist

152. The ratio of volumetric strain to volumetric stress is called:

(a) compressibility (b) young's modulus

(c) bulk's modulus (d) shear's modulus

153. A sample containing aluminum weighing 10.0g yielded 2.0g of aluminum sulphide. What is the percentage of aluminum (atomic mass = 27.0) in the sample? Sulphur (atomic mass = 32.0)

(a) $\frac{2.0 \times 100}{10.0}$ (b) $\frac{2.0}{10} \times \frac{2 \times 27}{150} \times 100$

(c) $\frac{2.0}{10.0} \times \frac{27}{1500} \times 100$ (d) $\frac{2.0}{10.0} \times \frac{150}{3 \times 27} \times 100$

154. During replication which sequence of nucicotides would bond with the DNA sequence TATGA?

(a) AUAGA (b) ATACA

(c) UAUGA (d) ATACT

155. The substance which undergoes plastic deformation until it breaks is:

(a) ductile substance (b) brittle substance

(c) plastic substance (d) all of these

156. Choosethe region of the spectrum which would be used to determine the structure of crystalline solids:

(a) visible (b) infrated

(c) Xrays (d) ultraviolet

157. All of the following are growth hormones except:

(a) Phytohormones (b)Gibberllin

(c) auxins (d) cytokinins

158. The temperature at which the domains of the ferromagnetic substances disorient is;

(a) critical temperature(b) absolute temperature

(c) Curie Temperature (d) normal temperature

159. Which one of the following most closely resembles an ideal gas?

(a) Xe (b) H_2 (c) CO_2 (d) He

160. A cross between dissimilar individuals to bring together their best characteristics is called:

(a) genetic engineering (b) hybridization

(c) inbreeding (d) sequencing

161. Secrets leak when the _____ are many

(a) enemies (b) ill-whishers

(c) confidants (d) detractors

162. The process by which the potential barrier of the deplection region can be increased or decreased is called:

(a) amplification (b) biasing

(c) modulation (d) doping

163. According to molecular orbital theory, which of the following is most unstable molecule?

(a) He_2^+ (b) H_2^- (c) H_2^+ (d) H_2^{-2}

164. In grapes and mangoes, the inflorescence is:

(a) panicle (b) multiparous cyme

(c) capitulum (d) umbel

165. The color of light emitted by light emitting diode depends upon:

(a) forward voltage (b) reverse current

(c) forward current (d) type of semiconductor

166. How many grams of waster are produced in burning 2.24dm^3 of hydrogen at STP?

(a) 180g (b) 81.g (c) 1.8g (d) 0.18g

167. Oraganism that contain genes from other organisms are called:

(a) mutatgenic (b) transgenic

(c) glones (d) sequencing

168. The combination of AND and NOT gate is called

(a) NAND gate (b) NOR gate

(c) Or gate (d) XOR gate

169. 50 cm^3 of KOH solution was titrated against 1.0M HCl using phenolphthalein as an indicator. The acid used was found to be 7.5 cm^3. the concentration of KOH solution is:

(a) 0.15 M (b) 1.5 M (c) 0.75 M(d) None

170. Ozone layer is present in the:

(a) troposphere (b) stratosphere

(c) mesosphere (d) atmosphere

171. The guard looked at me _____ and then asked me to identify myself.

(a) dangerously (b) hurriedly

(c) suspiciously (d) nervously

172. If the temperature of the black body becomes double the intensity of radiation from it will become:

(a) double (b) four times

(c) six times d) sixteen times

173. Choose the least inert gas:

(a) Helium (b) Neon (c) argon(d) Xenon

174. An inherited characteristic that increases an organism ability to survive and reproduce in its specific environmental is called:

(a) radiation (b) adaptation

(c) vestigial organ (d) speciation

175. The scattering angle for which the Compton shift in wavelength is equal to Compton wavelength is:

(a) $\theta = 90^o$ (b) $\theta = 0^o$

(c) $\theta = 45^o$ (d) $\theta = 180^o$

176. Uranium– 235 decays to thorium- 234 by the process of:

(a) fission (b) beta decay

(c) alpha radiation (d) gamma radiation

177. C.F.C gases are produced from:

(a) Burning of coal (b) burning of charcoal

(c) automobiles engines

(d) refrigeration and air conditions

178. The uncertainty in energy of photon which is emitted from an atom radiating for 10^{-8} second is

(a) 4×10^{-7} *joul* (b) 4×10^{-7} *ev*

(c) 6.6×10^{-20} *ev* (d) 4×10 *joul*

179. The hydrolysis of an ester proceeds most slowly under the condition of:

(a) high acidity (b) high basicity

(c) neutrality (d) high temperature

180. A woman is homozygous for A– negative blood type. A man has AB– negative blood type. What is the probability that the couple's child will be type B – negative?

(a) 0 % (b) 25 % (c) 50 %(d) 75 %

181. She tried to _____ my question, but I persisted in having an answer.

(a) refrain (b) evade (c) refuse (d) deny

182. If an atom exists in the excited state n = 5, the maximum number of transition takes place is:

(a) 6 (b) 5 (c) 10 (d) 3

183. Which one of the following is strongest acid?

(a) FCH_2COOH (b) CH_3COOH

(c) $ClCH_2COOH$ (d) $C6H5CH_2COOH$

184. The area where ultraviolet Radiation are intense is the

(a) alphine forests (b) boreal forests

(c) arctic tundra (d) alpine tundra

185. When the voltage of the target in the X – ray tube increases then the

(a) penetrating power of x – ray increases

(b) intensity of x – ray increases

(c) wavelength of x – ray increases

(d) all of these

186. The frequency of light having wavelength 3×10^{-3} cm is

(a) 1×10^{6} (b) 3.0×10^{7}

(c) 1×10^{10} (d) 1×10^{13}

187. A bird's wings are homologous to:

(a) fishes tail fin (b) dog's front legs

(c) mosquito's wings (d) alligator's claws

188. The situation in which then excited state i.e. metastable state contains more number of electrons than the ground is called:

(a) ionized state (b) stimulations

(c) population inversion (d) all of these

189. Which one of the following would you suggest to locate the position of the double bond between carbon atoms in an organic compound?

(a) Addition of Bromine water (b) Addition of HI

(c) Oxidation with ozone (d) All of the above

190. Diameter of histone is:

(a) 1 nm (b) 2 nm (c) 3 nm (d) 4 nm

191. Her _____ lasted for one month. They were the longest wedding celebrations in that area.

(a) rituals (b) matrimonial (c) nuptials (d) rites

192. When a radioactive atom decays and its mass number decreases by 4 and charge number decreases by 2 the atom will emit:

(a) α radiation (b) β radiation

(c) γ radiation (d) x – radiation

193. Most of the oxides of non-metals combine with water to form:

(a) hydrogen gas (b) salt and water

(c) a base (d) An acid

194. All of the following are derived from mesoderm except:

(a) Muscles (b) liver

(c) gonads (d) Blood vessels

195. One disintegration per second is equal to

(a) one curie (b) one Becquerel

(c) one half life (d) all of these

196. What is the most important source of water pollution in Pakistan.

(a) industries (b) transportation

(c) mining industry

(d) agricultural and municipal wastage

197. The number of nitrogenous base common in both D.N.A and R.N.A are

(a) two (b) three (c) five (d) four

198. Fission reaction can be produced in $_{92}U^{238}$ by :

(a) fast neutrons (b) slow neutrons

(c) thermal neutrons (d) all of these

199. In which of the following atoms, the 1s orbital is the smallest in size?

(a) bromine (b) chlorine (c) fluorine (d) iodine

200. The genetic potential for one type of cell from a multi-cellular organism to generate a whole new organism is called:

(a) unipotent (b) multipotent

(c) totipotent (d) pluripotent

ENGINEERING PAPER 2011

1. Modulus of a + ib is:

   (a) $a^2 + b^2$ (b) $\sqrt{a^2 + b^2}$ (c) $\sqrt{a^2 - b^2}$ (d) a – ib

2. For the given set of ions in alkali metals, the hydration energy _____ with increase in ionic size:

   (a) decrease (b) increase

   (c) first decreases and then increases

   (d)first increases and then decreases

3. 9.5×10^{15} m when rounded off is 10^{16} m which is equal to:

   (a) tera meter (b) peta meter

   (c)exa meter (d) light year

4. $\lim_{x \to 0} \frac{\sin x}{x} =$

   (a) 0 (b) 1 (c) 2 (d) 6

5. The hydrides of Be and Mg are classified as intermediate hydrides. Their behavior is:

   (a) non-volatile and ionic in nature

   (b) volatile and covalent in nature

   (c) polymeric and covalent in nature

   (d) crystalline and covalent in nature

6. If 7.635 and 4.81 are two significant numbers, their multiplication in significant digits is:

   (a) 36.72435 (b) 36.724 (c) 36.72 (d) 36.7

7. $(-1)^{\frac{-21}{2}} =$ _____

   (a) $-i$ (b) i (c) 1 (d) -1

8. The oxide of chlorine, Cl_2O_2 in nature is:

   (a) strongly basic (b) weakly basic

   (c)strongly acidic (d) weakly acidic

9. The horizontal and vertical components of a force are 10N each. The direction of the resultant force with x – axis is:

   (a) 30° (b) 45 ° (c) 60 ° (d) 75°

10. Many people have _____ about winning a big prize in the lottery

    (a) imagined (b) visuallized

    (c) fantasized (d) discovered

11. If $\lim_{n \to \infty} \left(1 + \frac{1}{n}\right)^{2n} =$

    (a) e^{-1} (b) $e^{\frac{1}{2}}$ (c) e^2 (d) e^3

12. Calcium is found in nature as $CaSO_4 2H_2O$. This is commercially called:

    (a) Epsom salt (b) Dolomite

    (c)Magnesite (d) Gypsum

13. If $\vec{A} = \hat{i} + \hat{k}$ and $\vec{B} = \hat{i} + \hat{j}$, Then the angle between $\vec{A}$ and $\vec{B}$

    (a) 60° (b) 75 ° (c) 45 ° (d) 30 °

14. .....

    (a) ..... (b) ..... (c)..... (d) .....

15. Beryllium, an alkaline earth metal resists towards complete oxidation because:

    (a) it is less reactive

    (b) the oxidation process is slow

    (c)it forms hard protective coat of BeO

    (d) None of the above

16. If $\vec{A}.\vec{B} = 0$ then $\vec{A} \times \vec{B}$ will be equal to:

    (a) $AB\hat{n}$ (b) Zero

    (c) $AB \sin\theta \hat{n}$ (d) $AB \cos\theta$

17. If $\begin{vmatrix} K-2 & 1 \\ 5 & K+2 \end{vmatrix} = 0$ then k =

    (a) 0 (b) 3 (c) –3 (d) ±3

18. Which oxide sodium metal predominantly forms in oxygen?

    (a) Na_2O (b) Na_2O_2 (c) Na_2O_3 (d) NaO_2

19. Newton's first law of motion provides:

    (a) 1st condition of equilibrium

    (b) 2nd condition of equilibrium

    (c) complete equilibrium

    (d) rotational equilibrium

20. Most people like the ___of not having to work.

    (a) scheme (b) suggestion

    (c) design (d) idea

21. The co-factor of an element aij denoted by A_{ij} is: _____

    (a) $(-1)^{ij}$Mij (b) $(-1)^{i+j}$Mij

    (c) $(-1)^{i-j}$Mij (d) $(1)^{i+j}$Mij

22. The phenomenon of inert pair formation in boron family _____ down to group.

    (a) decreases (b) increases

    (c) first increases and then decreases

    (d) first decreases and then increases

23. The moment arm of a force of 0.6 N to produce maximum torque of 0.48 N.m is:

    (a) 2.88m (b) .... (c) 0.8 m (d) 0.288 m

24. $f(x) = f(0) + xf'(0) + \frac{x^2}{2!} f''(0) + ... + \frac{x^n}{n!} f^n(0)$ is called

(a) Taylor series (b) binomial series
(c) laurent series (d) maclaurin series

25. The compound, Borax is used in borax bead test for the detection of cations. The molecular formula of compound is :
(a) $Ca_2B_6O_{11}5H_2O$ (b) H_3BO_3
(c) $Na_2B_4O_7 . 10H_2O$ (d) $(C_2H_5)_3BO_3$

26. Bodies which fall freely under the action of gravity is an example of:
(a) uniform acceleration (b) variable acceleration
(c) uniform velocity (d) average acceleration

27. The roots of equation $25x^2 - 30x + 9 = 0$ are
(a) imaginary (b) rational and equal
(c) rational and unequal (d) irrational and equal

28. $[NiCl_4]^{-2}$ is tetrahedral shaped complex, the bond angler <Cl – Ni – Cl is
(a) 120° (b) 107 ° (c) 105 °(d) 109°

29. A man throws a ball vertically upward in a compartment of the train which is moving with uniform velocity. The ball will fall:
(a) in his hand (b) in front of him
(c) behind him (d) beside him

30. When I told him about it, he .....
(a) is just laughing (b) has just laughed
(c) was just laughing (d) just laughed

31. The minimum value of the function $f(x) = x^2 - x - 2$ is:
(a) – 2 (b) .... (c)l – (d) 0

32. The formula of potassium manganate is
(a) $KMnO_4$ (b) K $_2MnO_4$
(c) K_3MnO_4 (d) K $_2MnO_3$

33. A missile is fired with the speed of 98 $\vec{m}$s at 30°horizontally. The missile is borne for
(a) 20 seconds (b) 25 seconds
(c) 10 seconds (d) 5 seconds

34. For what value of λ will the equation $x^2 - kx + 4$ have sum of roots equal to product of roots: (a) 3 (b)– 2(c) – 4(d) 4

35. Phosphorus acid H_3PO_3 is highly soluble in water and behaves as:
(a) Monobasic Acid (b) Dibasic acid
(c) Tribasic acid (d) None of the above

36. The change in momentum of the body is equal to:
(a) Force (b) Torque (c) Impulse (d) Pressure

37. $\int xe^x\,dx =$
(a) $xe^x - e^x + c$ (b) $xe^x + e^x + c$
(c) $e^x + cx + c$ (d) $xe^x + c$

38. Nitric oxide acts as / an:
(a) oxidizing agent (b) reducing agent
(c) both as reducing and oxidizing agent
(d) neither oxidizing nor reducing agent

39. The dimension of work are similar to the dimensions of:
(a) impulse (b) torque
(c) power (d) angular momentum

40. Sabiha's dress <u>fits her like a glove</u>. The underlined phrose means:
(a) is too big (b) is too short
(c) fits her very well (d) is very comfortable

41. $\int \frac{dx}{\sqrt{a^2 - x^2}} =$
(a) $Cos^{-1}\left(\frac{x}{a}\right) + c$ (b) $Sin^{-1}\left(\frac{a}{x}\right) + c$
(c) $Sin^{-1}\left(\frac{x}{a}\right) + c$ (d) $Sin^{-1}x + c$

42. Choose the inter halogen compound
(a) OF_2 (b) BrF_5 (c) $HgBr_3$ (d) H1

43. The gravitational potential energy per unit mass is called:
(a) Gravitational potential
(b) Absolute potential energy
(c) Potential energy (d) potential hill

44. The length of a quarter of a circle, whose radius is r_1 is:
(a) $4\pi r_1$ (b) $2\pi r_1$ (c) $\frac{1}{4}\pi r_1$ (d) $\frac{1}{2}\pi r_1$

45. In contact process for the manufacture of sulphuric acid, the impurity Arsenic is removed by freshly precipitated ferric hydroxide which absorb Aseneous oxide to form:
(a) Fe As O^4 (b) Fe As^2 O^4
(c) Fe As_3 O_4 (d) $FeAsO_3$

46. If the mass of the body is made three times and the velocity becomes double then the kinetic energy will increase:
(a) 6 times (b) 12 times (c) 24 times (d) 18 times

47. $x^2 + 3 =$
(a) $(x + \sqrt{3})(x - \sqrt{3})$ (b) $(x - \sqrt{3})(x - \sqrt{3})$
(c) $(x + \sqrt{3})(x + \sqrt{3})$ (d) $(x + \sqrt{3})(x - \sqrt{3})$

48. Nitric oxide was passed through FeSO4 solution a brown compound was formed as formula is:
(a) FeSO4O (b) FeSO $_4(NO)_2$
(c) $Fe(SO_4)_2NO$ (d) None of above

49. A stone is rotated in vertical circle at the end of a string. When the stone is at the top of the circle then the tension in string is:
(a) Greater than the weight of stone
(b) equal to the weight of the stone
(c) Less than the weight of the stone
(d) None of the above

50. Many People don't want <u>their dirty linen washed in public</u> The underline phrase means:
(a) to have their dirty clothes drying on a clothes line
(b) to have their private affairs talked about in public

(c) to speak about and criticize something in public

(d) to ask the public to help with a noble cause

51. Harmonic means between 3 and 7 is:

(a) $\frac{5}{21}$ (b) $\frac{21}{5}$ (c) 5 (d) $\sqrt{21}$

52. Choose the correct name according to IUPAC nomenclature:

(a) 2 ethyl-3methyl pentane (b) 3-methyl-cycio hexane

(c) 3-ethyl-2methyl pentane(d) 3-ethyl-4methyl pentane

53. A 60 kg man in a lift which is moving upward with an acceleration of $4.9ms^2$ will have apparent weight of:

(a) 588 N (b) 294 N (c) 58.8 N(d) 882 N

54. $\int_0^{\frac{1}{\sqrt{3}}} \frac{dx}{1+x^2} =$ (a) $\frac{\pi}{2}$ (b) $\frac{\pi}{4}$ (c) $\frac{\pi}{3}$ (d) $\frac{\pi}{6}$

55. Which molecular formula indicates 2-methyl pentane

(a) C_5H_{12} (b) C_4H_{20} (c) C_6H_{14} (d) C_6H_{12}

56. the orbital velocity of satellite in an orbit around the earth depends upon

(a) value of 'g' (b) radius of earth

(c) radius of the orbit (d) all of these

57. ${}^nC_r =$ (a) $\frac{n!}{(n-r)!r!}$ (b) $\frac{n!}{(n-r)!}$ (c) $\frac{n!}{r!}$ (d) $\frac{(n-1)!+1}{n!}$

58. How many isomers are possible for pentane?

(a) 2 (b) 3 (c) 4 (d) 5

59. When the drag force on the object becomes equal to its real weight then the

(a) object will become stationary

(b) object will fall freely

(c) object will fall with terminal velocity

(d) object will fall with critical velocity

60. You can't agree with both of them ……..

(a) make your opinion up

(b) make your mind up

(c) make brain up

(d) make up your mind

61. The ratio in which y-axis divides the line joining point (2, –3) and (– 5, 6) is:

(a) 2 : 3 (b) 1 : 2 (c) 3 : 5 (d) 2 : 5

62. Methane can be prepared by the reaction of

(a) iodomethane with sodium in dry ether
(b) methanol with conc H_2SO_4

(c) sodium methanoate with soda lime

(d) reduction of idomethane

63. two boats moving parallel fastly, close to each other in the same direction will:

(a) attract each other (b) repel each other

(c) remain moving in the same direction

(d) sink

64. The point of intersection of the medians of a triangle is called: (a) in-center (b) centroid

(c) orthocenter (d) circumcenter

65. 2,3 dimethyl, 2 butene undergoes catalytic Hydrogenation to give

(a) 2,2 dimethyl butane (b) 2 – methyl pentane

(c) 2,3 dimethyl butane(d) 3 – methyl pentane

66. The angular frequency of then mass attached to spring when vibrates with the frequency of 0.6Hz is:

(a) 0.6 Hz (b) 3.77 Hz

(c) 0.06 $rad.sec^{-1}$ (d) 3.77 $rad.sec^{-1}$

67. Two lines $a_1x + b_1x + c_1 = 0$ and $a_2x + b_2x + c_2 = 0$ are parallel if:

(a) $\frac{a_1}{a_2} = \frac{b_1}{b_2}$ (b) $\frac{a_1}{a_2} = -\frac{b_1}{b_2}$

(c) $\frac{b_1}{c_2} = \frac{b_1}{c_2}$ (d) $\frac{a_1}{c_1} = \frac{a_2}{c_2}$

68. The combustion of one mole of propane C_3H_8 produces how many moles of water?

(a) 2 (b) 3 (c) 4 (d) 5

69. When length of a simple pendulum is increased four times, the frequency of its oscillation will become:

(a) one fourth(b)half (c) double (d) four times

70. Don't worry what other people think …….

(a) just take not note of them

(b) just take no sign of them
(c) just take not hint of them

(d) just take no notice of them

71. The lines represented by $ax^2 + 2hxy + by^2 = 0$ are parallel if:

(a) $h^2 - ab = 0$ (b) $h^2 - ab < 0$

(c) $h^2 - ab > 0$ (d) $h^2 + ab = 0$

72. Thermal decomposition of alkanes in the absence of air is called:

(a) combustion (b) oxidation

(c) cracking (d) hydrogenation

73. $[MT^{-2}]$ are the dimension of:

(a) viscosity (b) intensity

(c) pitch (d) surface tension

74. The solution of $ax + 3y \leq c$ is:
(a) closed half plane (b) open half plane

(c) circle (d) parabola

75. The dehydrohalogenation of 2-bromobutane with alcoholic potassium hydroxide gives mainly:

(a) 2butyne (b) 2 – butene

(c) 1butene (d) 1 – butyne

76. A 3 meter long string resonates in three loops. The frequency of the stationary wave having velocity of 30 m/s mainly:

(a) 5 Hz (b) 30 Hz (c) 15 Hz(d) 10 Hz

77. If A and B are not mutually exclusive events then $P(A \cup B) =$

(a) P(A) + P(B)(b) P(A) + P(B)–P(A∩B)

(c) P(A) + P(B)+P(A∩B) (d) P(A) – P(B)

78. Baeyer's reagent is:

(a) $HCl + ZnCl_2$ (b) H_2NNH_2

(c) $Br_2 in CCl_4$ (d) Dil k MnO_4

79. Which one of the following properties of light does not change with the nature of medium?

(a) frequency of light (b) wavelength of light

(c) speed of light (d) all of these

80. I don't like pasta and my sister doesn't .....

(a) too (b) neither (c) either(d) also

81. The eccentricity of hyperbola is:

(a) $e < 0$ (b) $0 < e < 1$(c) $e = 1$ (d) $e > 1$

82. The addition of HX to a double bond the hydrogen goes to the carbon that already has more hydrogen is a statement of:

(a) Hund's rule (b) morkownikov's rule

(c) Huckel rule (d) None of the above

83. The phase change of 180° is equal to path difference: (a) zero(b) half the wavelength

(c) double of wavelength

(d) quarter the wavelength

84. The radius of the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ is:

(a) $\sqrt{g^2 + f^2 + c}$ (b) $\sqrt{g^2 - f^2 + c}$

(c) $\sqrt{g^2 + f^2 - c}$ (d) $(g + f - c)$

85. Which of the following compounds on hydrolyses gives Ethyne?

(a) CaC2 (b) Mg_2C_3(c) Al_4C_3(d) $CuCl_2$

86. If the width of the slit on the young's double slit experiment becomes double the fringe spacing will become:

(a) double (b) one quarter

(c) four times (d) half

87. The equation $ax^2 + by^2 + 2hxy + 2gx + 2fy + c = 0$ represent a circle if:

(a) $a \neq b, h \neq 0$ (b) $a \neq b, h = 0$

(c) $a = b, h \neq 0$ (d) $a = b, h = 0$

88. When acetylene is passed through hot iron tube at 400 °C it gives:

(a) Benzene (b) O – xylene

(c) Toluene (d) polythene

89. The magnification of a magnifying glass having focal length of 10 cm for an object lying at a distance of 20 cm is:

(a) 0.01 (b) 10 (c) 0.1 (d) 1

90. "MISOGYMIST" most nearly means A person who:

(a) misses his shots (b) hates marriage

(c) is against hunting

(d) is left out of a sporting team

91. The sum of exponents of a and b in every term of the expansion $(a + b)^n$ is:

(a) n (b) 1 (c) 0 (d) 2n

92. Which of the following compounds comparatively would react rapidly in an SN^2reaction?

(a) $(CH_3)_3\ Cl$ (b) $(CH_3)_2\ CHI$

(c) $CH_3CH_2\ I$ (d) $CH_2 = CHI$

93. The ratio of universal gas constant to Avogadro number is equal to:

(a) plank's constant (b) boltzman's constant

(c) stefan's constant (d) decay constant

94. Second term in the expansion of $(1 - 2x)^{\frac{1}{3}}$ is:

(a) $\frac{7}{2}$ (b) $\frac{x}{3}$ (c) $\frac{2x}{3}$ (d) $-\frac{2x}{3}$

95. Ethylmagnesium iodide reacts with formaldehyde to give product which one acid hydrolysis forms:

(a) an aldehyde (b) a primary alcohol

(c) a ketone (d) a secondary alcohol

96. In air at S.T.P the average speed of the

(a) nitrogen molecules is greater than oxygen molecules

(b) oxygen molecules is less than nitrogen molecules

(c) nitrogen molecules is less than oxygen molecules

(d) oxygen molecules is equal to nitrogen molecules

97. Expansion of $(8 - 2x)^{-1}$

(a) $|x| > 4$ (b) $|x| < 4$ (c) $|x| = 0$ (d) $|x| = 4$

98. Lucas reagent is:

(a) HCl / $NaNo_2$ (b) H_2 / Pb

(c) HCl /$ZnCl_2$ (d) HCl / HNO_3

99. The work done against friction will

(a) Not change the entropy of system

(b) decreases the entropy of system

(c) cause to drop the entropy to zero

(d) increase the entropy of system.

100. Driving to work,

(a) he saw many children going to school

(b) the traffic made him lat

(c) the traffic jams infuriated him

(d) his car broke down many times

101. Cosine of the angle between two non zero vectors a and b is:

(a) $\frac{\underline{a}.\underline{b}}{|a||b|}$ (b) $\frac{|a||b|}{\underline{a}.\underline{b}}$ (c) $\frac{\underline{a} \times \underline{b}}{|a||b|}$ (d) $\underline{a}.\underline{b}$

102. The compound which reacts most readily with lucas reagent is:

(a) CH_3CH_2Cl (b) $(CH_3)_2CHOH$

(c) CH_3CH_2OH (d) $(CH_3)_3COH$

103. The coulomb's force between the charges in air is 2.0N the coulomb's force between these charges in insulating medium having $E_r = 3.8$ is:

(a) 5.26 N (b) 3.8 N (c) 2.0 N (d) 0.53 N

104. If $Cot\theta > 0 \; and \sin\theta < 0$ then terminal arc of the angle lies in quadrant:

(a) I (b) II (c) III (d) IV

105. Which of the following alcohols will give a yellow ppt of lodoform with iodine and diluted Na OH solution?

(a) 1-Propanol (b) 2-Propanol

(c) 1-Butanol (d) 2-Methyl-2-Propanol

106. The rate of change of electric potential with respect to displacement is equal to:

(a)Potential gradient (b)electric potential energy

(c) electric intensity (d) electric flux

107. $\hat{j}.(\hat{k}\times\hat{i})$

(a) 1 (b) i (c) j (d) k

108. Which of the following compounds will not be easily oxidized?

(a) Primary alcohol (b) secondary alcohol

(c) tertiary alcohol (d) aldahyde

109. The correct expression for the energy of the charged capacitor is:

(a) $\frac{1}{2}C^2V$ (b) $\frac{1}{2}Q^2/C$

(c) $\frac{1}{2}V^2/C$ (d) $\frac{1}{2}C^2V^2$

110. The president ____ on TV tonight

(a) speaks (b) will speak

(c) has spoken (d) is speaking

111. $\sin 3\alpha =$

(a) $4\cos^3\alpha - 3\cos\alpha$ (b) $3\cos^3\alpha - 4\cos\alpha$

(c) $3\sin\alpha - 4\sin^3\alpha$ (d) $4\sin\alpha - 3\sin^3\alpha$

112. The acid – catalyzed dehydration mechanism for alcohol is best deceribed as a / an:

(a) E^1 (b) E^2 (c) S^{1}_{N} (d) S^{2}_{N}

113. The resistance of a conductor having a length of one meter and an area of cross section one square meter is called

(a) Conductance (b) resistivity

(c) conductivity (d) mho

114. $\sin\left(\frac{3\pi}{2}-\theta\right) =$

(a) Sin θ (b) Cos θ (c) $-\sin\theta$ (d) $-\cos\theta$

115. Ethers are considered as:

(a) lewis acids (b) lewis bases

(c) both a & b (d) None of these

116. The resistors of 5Ω, 4Ω and 3Ω are connected in parallel. If the potential difference across 4Ω resistor is 6 volt, then the potential difference across 5Ω and 3Ω will be:

(a) 6 volt (b) 3 volt (c) 12 volt (d) 9 volt

117. The period of $3\sin\frac{x}{3}$ is

(a) π (b) 2π (c) 3π (d) 6π

118. Ethanol is isomeric with:

(a) ethanal (b) Di-ethyl ether

(c) dimethyl ether (d) propannone

119. The circuit in which the terminal voltage of the battery is equal to the emf of the battery is the:

(a) open circuit (b) close circuit

(c) short circuit (d) electric circuit

120. Running into room,

(a) a rug caught her foot and she fell

(b) she caught her foot on a rug and she fell

(c) her foot was caught on a rug and she fell

(d) she had fallen after catching her foot on a rug.

121. With usual notation, the value of a – b + c is:

(a) s + b (b) s –b (c) 2 s –b (d) 2(s – b)

122. Which of the following will give a positive test with fehling solution?

(a) acetic acid (b) ethyl acetate

(c) formaldehyde (d) acetone

123. If the current in parallel conductor be flowing in opposite direction then two conductor will

(a) attract each other (b) repel each other

(c) neither attract nor repel each other

(d) none of these

124. Radius of the described circle opposite to the vertex A is:

(a) $\frac{\Delta}{a}$ (b) $\frac{\Delta}{s}$ (c) $\frac{\Delta}{s-a}$ (d) $\frac{s-a}{\Delta}$

125. Which of the following compound on treatment with $NaHCO_3$ will liberate CO_2 (g)

(a) Acetic acid (b) ethyl amine

(c) ethyl alcohol (d) phenol

126. The magnetic field due to current in solenold can be increased by

(a) increasing the number of turns (b) using soft iron core

(c) increasing the current (d) all of these

127. The domain of the function $y = Cos^{-1}x$ is:

(a) $0 \le x \le 1$ (b) $-1 \le x \le 1$

(c) $1 \le x \le 2$ (d) $-2 \le x \le 2$

128. Acetic acid undergoes reduction with Li Al H_4 to give:

(a) ethanal (b) ethane (c) ethyne (d) ethanol

129. Which of the following particles is not deflected when projected normal to magnetic field

(a) proton (b) α -Particles

(c) Photon (d) β -Particles

130. "CEMETERY" most nearly means:

(a) graveyard (b) factory (c) system (d) pattern

131. The domain of principal sine function is:

(a) $\left[0,\frac{\pi}{2}\right]$ (b) $\left[-\frac{\pi}{2},\frac{\pi}{2}\right]$ (c) $\left[0,\frac{3\pi}{2}\right]$ (d) $[0,2\pi]$

132. Which of the following is ortho-pera orienting and ring deactivation?

(a) $-Cl$ (b) $-NH_2$ (c) $-OCH_3$ (d) $-OH$

133. The magnitude of induced e.m.f in the loop depends upon

(a) Change of electric flux

(b) rate of change electric flux

(c) rate of change of magnetic flux

(d) change of magnetic flux

134. π in term of numbers is:

(a) a symbol (b) an integer

(c) a rational number (d) an irrational number

135. Azeotropic mixtures boil at constant temperature they:

(a) are non ideal solution

(b) are ideal solution (c) obey raouit's law

(d) are accompanied by no change in enthalpy

136. The energy used to magnetize and demagnetize the core of transformer causes power loss which is due to
(a) winding in coil of transformer (b) Eddy current

(c) hystersis (d) all of these

137. $\forall a, b \in R$ the property either a = b or a > b or a < b is called:

(a) archimedean (b) trichotomy

(c) closure (d) transitive

138. Phenol is an ortho-para orienting because the hydroxyl group:

(a) increases the electron density at meta position favouring nucleophilic attack

(b) increases the electron density at meta position favouring electrophilic attack

(c) increases the electron density at O/P positions favouring nucleophilic attack

(d) increases the electron density at O/P positions favouring electrophilic attack

139. When the frequency of alternating voltage in capacitive circuit increases the alternating current

(a) decreases (b) increases

(c) remains the same (d) none of these

140. More than one student _____ absent the day before yesterday.

(a) was (b) were (c) had been (d) have been

141. $\omega^{12} + \omega^{58} + \omega^{95} =$ (a) 0 (b) 1 (c) ω (d) -1

142. Compared to benzene nitration of toluene takes place at:

(a) the same rate (b) slower rate

(c) faster rate (d) a and b both

143. In RLC series circuit when the frequency of AC source is very high then such circuit will be

(a) resistive circuit (b) capacitive circuit

(c) resonance circuit (d) inductive circuit

144. Magnitude of the vector a = (i – j) + (j – i) + (k – j) is (a) $\sqrt{3}$ (b) $\sqrt{2}$ (c) $2\sqrt{2}$ (d) $2\sqrt{3}$

145. How many nucleone are there in an atom of $^{235}_{92}U$?

(a) 92 (b) 235 (c) 123 (d) 327

146. The carrier waves on which the low frequency sound waves are super imposed are called

(a) micro waves (b) short waves

(c) modulated waves (d) medium waves

147. Let m_1 and m_2 be the slopes of the lines l_1 and l_2 respectively l_1 is perpendicular to l_2 if:

(a) $m_1 = m_2$ (b) $m_1 m_2 = 1$

(c) $m_1 m_2 = -1$ (d) $m_1 + m_2 = 0$

148. By which method order of reaction can be determined?

(a) differential method

(b) ostwald's isolation method

(c) graphical method (d) all of the above

149. The applied force at which solids can be determined?

(a) strength (b) dactllily (c) stiffness (d) toughness

150. Only after my wife asked me the time _____ that I had lost my watch.

(a) did I realized (b) I realized

(c) I did realized (d) I did realize

151. The set G = {1,–1,i,–i|} is a group under:

(a) + (addition) (b) – (subtraction)

(c) × (multipication (d) ÷ (division)

152. The rate constant (k) for a first order reaction was found to be 0.2 seconds what will be its half life?

(a) 10 seconds (b) 5 seconds

(c) 2.5 seconds (d) 15 seconds

153. The substance which breaks just the elastic limit is reached is:

(a) plastic substance (b) ductile substance

(c) ordinary substance (d) brittle substance

154. The compound proposition $(p \wedge) q (\wedge \sim) p \vee q$ is a

(a) lautology (b) sequence

(c) quantity (d) self-contradiction

155. Ethanol is manufactured by fermentation of starche. The starch conversion to maltose requires the enzyme

(a) zymase (b) invertase (c) diastase (d) all

156. The temperature at which the resistance of conductor approaches to zero is called

(a) curie temperature (b) critical temperature

(c) absolute temperature (d) normal temperature

157. The multiplicative inverse of a complex number {a,b} is:

(a) $\left(\frac{a}{a^2+b^2}, \frac{-b}{a^2+b^2}\right)$ (b) $\left(\frac{a}{a^2+b^2}, \frac{-b}{a^2-b^2}\right)$

(c) $\left(\frac{-a}{a^2+b^2}, \frac{b}{a^2+b^2}\right)$ (d) $\left(\frac{-a}{a^2+b^2}, \frac{-b}{a^2+b^2}\right)$

158. KNO_3 exists in two crystalline forms Rhomohedral and orthombic the phenomenon is known as:

(a) polymorphism (b) isomorphism

(c) allotropy (d) None of these

159. The depletion region contains:

(a) electrons (b) holes

(c) electrons and holes (d) No holes and no electrons

160. 'Moon' is to 'Satellite' as 'Earth' is to_____

(a) solar system (b) sun

(c) planet (d) asteroid

161. If (1+3i) is one of the roots of the quadratic equation, than the equation is:

(a) $x^2-2x+10=0$ (b) $x^2+2x-10=0$

(c) $x^2-4x+8=0$ (d) $x^2-10=0$

162. If an ideal gas is allowed to expand adiabatically the work done by the gas is equal to:

(a) the loss of internal energy (b) the loss of entropy

(c) the rise in temperature (d) the decrease in pressure

163. The circuit which is built of silicon chip, and ..... of transistor and capacitor is called:

(a) rectifier circuit (b) amplifier circuit

(c) operational amplifier (d) close circuit

164. If n is a negative integer or a fraction, then the binomial expansion $(a+b)^n$ terminates:

(a) after n terms (b) after n + 1 terms

(c) after n + 1 terms (d) Never

165. The vapour pressure of pure acetone is 347 mm Hg. A mixture of 58.0 g acetone and 2.0 g of water is made. According to roult's law, what is the partial pressure of the acetone in this mixture?

(a) 382 mm Hg (b) 298 mm Hg

(c) 242 mm Hg (d) 312 mm Hg

166. The inputs of gate are A and B , its output is q then $Q=\overline{A+B}$ represent the operation of:

(a) NAND gate (b) NOR gate

(c) XOR gate (d) OR gate

167. Let A and B any two matrices of the same order then $(A+B)^t$ =

(a) $A-B$ (b) $A+B$

(c) $A+B$ (d) $A+B$

168. What energy in joules would a photon of light have at wave length 3×10^{-3} cm ? $\left(h=6.6\times10^{-34}\right)$

(a) 2.2×10^{-31} (b) 2.64×10^{-36}

(c) 6.6×10^{-47} (d) 6.6×10^{-21}

169. A clock is moving with the relativistic velocity with respect to an observer, this clock with respect to the observer will:

(a) run fast (b) run slow

(c) run normally (d) stop

170. "Influenza" is to "Virus" as 'Typhoid' is to_____

(a) bacteria (b) bacillus

(c) parasites (d) protozoa

171. In binomial expansion (a + b)pascal's triangle is used to find:

(a) in (b) a , b

(c) binomial coefficients (d) None

172. The electronic configuration of gallium, atomic number 31 is:

(a) $[Ar]4s^2\,3d^{10}\,4p^1$ (b) $[Ar]3s^2\,3d^{10}\,4p^1$

(c) $[Kr]3s^2\,3d^{10}\,4p^1$ (d) $[Kr]4s^2\,3d^{10}\,4p^1$

173. The threshold frequency for a metal having work function 6.4 eV is:

(a) $6.4\times10^{-19}\,Hz$ (b) $6.4\times10^{-34}\,Hz$

(c) $1.5\times10^{15}\,Hz$ (d) $1.5\times10^{-15}\,Hz$

174. The length of ℓ of an arc of acircle in terms of and θ is:

(a) $\frac{r}{\theta}$ (b) $r\theta$ (c) $\frac{\theta}{r}$ (d) None of these

175. Li , Na, K ions in acidified solution can best be separated by:

(a) gas chromatography

(b) gas liquid chromatography

(c) thin layer chromatography

(d) ion exchange chromatography

176. The kinetic energy of electron proton alpha particles and neutron is the same. Which one will have the shortest wavelength

(a) electrons (b) protons (c) alpha particles (d) neutrons

177. ----------

178. 0.1000 Mole of NaCl was dissolved in 1.000 dm^3 distilled water at 298K. The concentration of resulting solution is:

(a) 5.85 M (b) 1.00 M (c) 0.1000 M (d) <0.1000 M

179. If the transition from higher energy level ends on energy level 3, the series of the spectral lines emitted is called:

(a) ballmer's series (b) lyman's series

(c) paschen's series (d) bracket's series

180. 'ABORGINAL' most nearly means:

(a) unsrcinal (b) native

(c) cheap (d) second rate

181. The sum of an infinite G.P is 4 and the sum of the cubes of its terms is 92. The common ratio of the srcinal G.P is:

(a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{3}$ (d) $-\frac{1}{2}$

182. Moseley demonstrated a direct relationship between the frequency of x-rays emitted by an element bombarded with high energy electrons. On what characteristic of the element does it depend?

(a) electronic configuration (b) atomic number

(c) degree of ionization (d) atomic mass

183. The intensity of x-rays depends upon

(a) filament current (b) nature of material of target

(c) operating voltage (d) All of these

184. If x>0, xy = 1 then minimum value of x + y is:

(a) 2 (b) -2 (c)1 (d) -1

185. Under which condition the change in enthalpy (ΔH) of a system is equal to the heat flow between the system and its surroundings (q) ?

(a) constant volume(b) at constant pressure

(c) constant temperature (d) None of these

186. The excited state which persists for unusually longer period of time is called:

(a) ground state (b) Ionized state

(c) metastable state (d) ordinary excited state

187. If a 4-digited number is formed by using the digit. 1, 2, 3, and 5 with no repetition then the probability that the number is divided by 5 in:

(a) $\frac{1}{2}$ (b) $\frac{1}{1}$ (c) $\frac{2}{3}$ (d) $\frac{1}{4}$

188. Benzene and toluene form nearly ideal solution. The V.P of pure toluene is 22 torr at 20°C for equimolar mixture of benzene and toluene at 20°C the V.P of toluene is:

(a) 5.5 torr (b) 11.0 torr (c) 22 torr (d) 1.1 torr

189. The amount of energy required to break the nucleus into constituent nucleous is called:

(a) ionization energy (b) exaltation energy
(c) binding energy (d) work function

190. There is no dearth of talent in our country. The underlined word means:

(a) training (b) shortcoming

(c) encouragement (d) shortage

191. Which of the following is not a solution of the equation 2x + 3y = 24 ?

(a) (9,–2) (b) (0,+8) (c) (12,0) (d) (6,4)

192. What will happen if a block of copper is dropped into a beaker containing a solution of 1.0 M of$ZnSO_4$?

(a)The copper will dissolve with no other change

(b)The copper will dissolve zinc metal wiK be deposited

(c)The copper will dissolve with the evaluation of $H_2(g)$

(d)No reaction will occur

193. Radium $_{48}R^{226}$ when disintegrates into $_{46}R^{222}$ causes the emission of:

(a) α –radiation (b) $\gamma-$ radiation

(c) $\beta-$radiation (d) cosmic rays

194. In a G.P if $a_{10}=\ell, a_{13}=m, a_{16}=n$ then

(a) $\ell n=m^2$ (b) $\ell n=n^2$ (c) $mn=\ell^2$ (d) $mn=\ell$

195. Consider the reaction

$N_{2(g)}+3H_{1(g)} \Leftrightarrow 2NH_3 \quad \Delta H=-45.19 K\,mol^{-1}$

(a) K(eq) increases with increase in temperature

(b) K(eq) decreases with increase in temperature

(c) K(eq)increases with increase in temperature

(d) K(eq)is independence of temperature and pressure

196. The hadrons are

(a) protons (b) neutrons (c) mesons (d) all

197. $\frac{5x+2}{(x+1)(x-2)}=$ ----------

(a) $\frac{1}{x+1}-\frac{4}{x-2}$ (b) $\frac{2}{x+1}-\frac{3}{x-2}$

(c) $\frac{5x}{x+1}-\frac{2}{x-2}$ (d) $\frac{1}{x+1}+\frac{4}{x-2}$

198. A solution is provided which most likely constains carbonate ions. Which of the following would you choose for testing the ions?

(a) H_2S (b) NaCl (c) $CaCl_2$ (d) None

199. The energy stored in 40 mh coil carrying 2 ampere is:

(a) 0.1 J (b) 0.8 J (c) 0.08 J (d) 0.01 J

200. Their hospitality is proverbial. The underlined word means

(a) sensible (b) well-known

(c) exceptional (d) matchless

MEDICAL ENTRY TEST 2010

1. Which of the following gives a positive test with fenling solution?
   (a) Cu (1) oxide (b) Ethanal (c) Acetone (d) Phenol
2. The SI unit of inductance is:
   (a) Weber (b) Weber meter^{-2} (c) Tesia (d) Henry
3. Which of the following has four chambered heart?
   (a) Lizard Lizard (b) Turtle (c) Crocodile (d) Frog
4. A metallic oxide when added to water would most llkely form a(n)
   (a) Base (b) Acid (c) Salt (d) Basic anhydride
5. Mother is _____ the baby dinner in the kitchen.
   (a) Preparing (b) Prepared
   (c) Preparation (d) Preparatory
6. In alternating current the average value of current in cycle is;
   (a) Zero (b) Constant (c) Positive (d) Maximum
7. MAKESHIFT is closest in meaning to:
   (a) Impulsive (b) Revolving
   (c) Substitute (d) Practical
8. The gate which has one input and one output is:
   (a) Not gate (b) And gate
   (c) NAND gate (d) OR gate
9. The shape of pollo virus is:
   (a) Polyhedral shape (b) Bad shape
   (c) Tadpole shape (d)Golf ball shape
10. The emission or absorption of energy by an atom is represented by $\Delta E =$
    (a) $h\upsilon$ (b) $\frac{1}{2} mv^2$ (c) Mgh (d) Mc^2
11. The attachment of two sub units of ribosomes on a single mRNA iscontrolled by:
    (a) Mg+ ions (b) Na- ions
    (c) Proteins (d) Ribosomal RNA
12. In transistor the emitter to base function is:
    (a) Reversed biased (b) Forward biased
    (c) Neutral (d) None of these
13. An enzyme in gastric juice of many infant mammals that precipitates milk protein is:
    (a) Rennin (b) Pepsinogen (c) Gastrin (d) Renin
14. Swelling of dead dodies in water is due to:
    (a) Osmosis (b) Diffusion
    (c) Expansion (d) Decomposition
15. Equesetum is the living member of:
    (a) Sphenopslda (b) Psilopsida
    (c) Pteropsida (d) Lycopsida
16. Aldehydes may be distinguished from ketones by the use ol:
    (a) Hoffman reagent (b) Grignard reagent
    (c) Tollens reagent (d) Cannizaro reagent
17. we were moved _____ the cat struggling to live her kitten.
    (a) See (b) Saw (c) To have seen (d) To see
18. Neutrons can be slowed down if the stationary trargets are:
    (a) ■ particles (b) Photons (c) Protons (d) Atoms
19. Hydra reproduces asexually by;
    (a) Binary fission (b) Multiple fission
    (c) Budding (d) Regeneration
20. We used $pb(C_2H_5)_4$ in the gasoline to reduce:
    (a) Consumption of fuel (b) Price of fuel
    (c) Octane number of fuel (d) Knocking of engine
21. If we pass current through the sucrose solution the galvanometer will not show any deflection because sucrose molecules:
    (a) Move towards cthods (b) Move towards anode
    (c) React with water (d) Remain neutral
22. To improve the jumping record a long jumper should jump at an angle of:
    (a) 30^0 (b) 45 ° (c) 60 ° (d) 90 °
23. All of the following tests are used to identify aldehydes except
    (a) Talons test (b) Fehling test
    (c) Bacyer test (d) Benedict test
24. At the eleventh hour means:
    (a) One hour before twelve (b) At the last moment
    (c) At eleven at night (d) Eleven hours ago
25. The turn table is a part of
    (a) Spectrometer (b) Telescope
    (c) Microscope (d) Interferometer
26. During cellular respiration $NADH_2$ produces
    (a) 2 ATP (b) 3 ATP (c) 4 ATP (d) 5ATP
27. What is the concentration of $[H^+]$ in HNO_3 acid solution with PH of 3?
    (a) 3 (b) -3 (c)- antilog [3] (d) 10^{-3}
28. Doppler's effect is applicable to:
    (a) Sound waves (b) Light waves
    (c) Light waves (d) Both sound and light waves
29. For better resolution and clear visibility through microscope we use
    (a) Longer wavelength light (b) Shorter wavelength light
    (c) Wavelength has no effect
    (d) It depends only on design of microscope not on light
30. An individual has an additional sex chromosome which syndrome does it refer to?
    (a) Down's syndrome (b) Turner's syndrome
    (c) Jacobs syndrome (d) Klinefilter's syndrome
31. HIV is also known as:
    (a) AIDS (b) HAV (c) HTLV (d) HBV
32. Elements not found in nature synthesized in nuclear reactions and involving completion of 51 orbital are known as.
    (a) Lanthanides (b) Transition elements
    (c) Rate gases (d) Actinides
33. FORESHADOW is closest in meaning to;
    (a) Dread (b) Disguise (c) Endanger (d) Indicate
34. The rest mass energy of electron is:
    (a) 0.51 joule (b) 1.02 joule
    (c) 9.11×10^{-32} joule (d) 8.2×10^{-14} joule
35. A charge moving at a relativistic speed has a speed

(a) Equal to speed of light
(b) Greater than speed of light
(c) Comparable to the speed of light
(d) None of these

36. smaller the animal
(a) More the rate of respiration
(b) Less the rate of respiration
(c) Rate of respiration has nothing to do with size of animal
(d) None of these

37. The Aruba principle governs.
(a) Coulomb potential
(b) Vapour pressure
(c) Electronic configuration
(d) Entropy

38. The dimensions of Planck constant are;
(a) $[MLT^{-2}]$ (b) $[ML^2T^{-1}]$
(c) $[MLT^{-3}]$ (d) $[ML^2T^{-2}]$

39. A _____ is a person who is dissatisfied and inclined to rebel.
(a) Delinquent (b) Revolutionary
(c) Pessimist (d) Non conformist

40. The effect of the decrease in pressure with the increase in speed of the fluid in horizontal tube gives that.
(a) Torrielll's effect (b) Bernoulll's effect
(c) Venturis effect (d) Doppler effect

41. Which germinal layer develops in digestive system?
(a) Ectoderm (b) Mesoderm
(c) Epidermis (d) Endoderm

42. Which one of the following compounds has a sharp melting point?
(a) Pure $C_6H_{22}O_6$ (b) Impure NaCL
(c) Glass (d) Mixture of above two

43. How much will be the length of a simple pendulum if its time period is one second?
(a) 2.5 m (b) 0.25 m
(c) 25 m (d) 0.025 m

44. The center of porphyrine in the head region of hemoglobin is occupied by
(a) Iron (b) Magnesium
(c) Sodium (d) Potasslum

45. To distinguish among primary secondary and tertiary alcohol one would us which of the following method:
(a) Witting reaction (b) Tollen test
(c) Lucas test (d) Ninhydrin test

46. which of the following functional groups in NOT ortho para directing and activating
(a) R (b) OH (c) COR (d) NH_2

47. The physical quantity which produces angular acceleration in body.
(a) Force (b) Centripetal force
(c) Impulse (d) Torque

48. Microsporum furfur causes:
(a) Athletes foot (b) Ring worm
(c) Dandruff (d) Ergot

49. For the exothermic reaction $2NO_{(8)}$ $N_{2(8)}+O_{2(8)}$
(a) Is independent of temperature
(b) Increases as temperature increases
(c) Decreases as temperature increases
(d) Varies with addition of N_2 and O_2

50. Which of the following is an example of vector product of two vectors?
(a) Linear momentum (b) Angular momentum
(c) Force (d) Electric flux

51. First crystalline hormone is:
(a) Thyroxine (b) Nor adrenalin
(c) Adrenalin (d) All of the above

52. If $\vec{A} = 2\hat{i} + \hat{j} + 2\hat{k}$ then its magnitude is:
(a) 9 (b) 5 (c) 3 (d) 1

53. limbic system in forebrain consists of:
(a) Hypothalamus (b) Hippocampus
(c) Amygdala (d) All of the above

54. Which one of the following diseases is due to point mutation?
(a) Down syndrome (b) Klinefelter syndrome
(c) Phenylketonuria (d) Turner syndrome

55. Which of the following is NOT a member of transition metal?
(a) Scandium family (b) Iron family
(c) Titanium family (d) Beryllium family

56. The amount of heat energy required to raise the temperature of a body through 1k is called:
(a) Specific heat (b) Molar specific heat
(c) Heat capacity (d) Heat of vaporization

57. opening of flower buds and leaf buds is called;
(a) Epinasty (b) Thermonasty
(c) Photonasty (d) Seismonasty

58. Natural chlorine occurs as a mixture of isotopes if a mixture contains 75% Cl^{35} and 25% cl^{37} what will be its correct atomic weight?
(a) 35.50 (b) 34.50 (c) 72.00 (d) 70.00

59. Mercury is 13.6 times as dense as water.
(a) Qualitative (b) Quantitative
(c) Both A and B (d) None of these

60. When sound waves move from one medium to other medium the quantity which remains unchanged is:
(a) Wavelength (b) Frequency
(c) Speed (d) Intensity

61. A cloned baby sheep Dolly was identical to the parent that:
(a) Gave birth to the dolly
(b) Donated reproductive cells
(c) Donated somatic cell (d) Both A and B

62. What is the ionic strength of 0.01 M Barium Chloride solution?
(a) 0.03 (b) 0.02 (c) 0.04 (d) 0.01

63. When everyone hung _____ the leader picked on the most suitable person to do the jo(b)
(a) Out (b) About (c) Back(d) On

64. The two metals having same resistance can be differentiated from their value of:
(a) Resistances (b) Conductice
(c) Temperature coefficient of resistivity (d) Conductivity

65. Which one of the following animals has no alimentary canal?
(a) Ascaris (b) Pin worm (c) Planaria (d) Tape worm

66. A group of scientists discovered a new element which gives the properties of inert gases they should palace new element in periodic table with the elements of:
(a) s-block (b) d-block (c) f-block (d) p-block

67. The ratio of the capacitance of the capacitor having dielectric to the capacitance of the capacitor having free space is the dielecaric:
(a) Relative permittivity (b) Permittivity
(c) Permeability (d) Electric polarization

68. In step up transformer when the alternating voltage increases then the alternating current.
(a) Will increase (b) Will decrease
(c) Will not change (d) None of the above

69. Besides mammalian diaphragm is present in;
(a) Birds (b) Crocodiles (c) Fishes (d) Toads

70. Primary cells are used in calculators for long service life the desirable quality of the cell is:
(a) Low energy densities (b) No self discharge rates
(c) High self discharge rates (d) High energy densities

71. For the production of electromagnetic waves the charges used are:
(a) Stationary charges (b) Charges moving with uniform
(c) Accelerating charges (d) All of the above

72. The formula $CH_3 (CH_2)_{16} COO^-Na^+$ represents a member of the class of compound which are known as:
(a) Steroids (b) Soaps
(c) Carbohydrates (d) Vitamins

73. All types of plastids are produced from:
(a) Chloroplastids (b) Proplastids
(c) Chromoplastids (d) Leucoplastids

74. which of the following has the same number of electrons as an alpha particle?
(a) H (b) H_2 (c) H^+ (d) H_2O

75. which of the following groups is considered to have a deactivating effect during aromatic substitution?
(a) –OH (b) –OR (c) $-NH_2$ (d) -CN

76. The pilot having a weight of 686N diving down with an acceleration of 9.8m sec^{-2} its apparent weight is
(a) 343N (b) 1372 N(c) 686 N (d) Zero

77. Sperms of which animal can remain viable for years within the female genital tract?
(a) Bat(b) Whale (c) Camel (d) Giraffe

78. Water has a vapour pressure of 23.75 at 25^0c what is the vapour pressure of a solution sucrose if its mole fraction is 0.25?
(a) 15.2 torr (b) 17.8 torr (c) 23.8 torr (d) 29.7 torr

79. The maximum drag force on a sphere falling with zero acceleration is 9.8 N its real weight is:
(a) Zero (b) 9.8 N (c) 4.9N (d) 19.6N

80. When a body moves against the force of friction on a horizontal plane the work done by the body is:
(a) Negative (b) Positive
(c) Zero (d) Maximum and positive

81. All of the following plants possess actinomorphic flowers EXCEPT:
(a) Rose (b) Potato (c) Apple (d) Pea

82. The temperature at which the resistance of conductor approaches to zero is calle(d)
(a) Normal temperature (b) Critical temperature
(c) Absolute temperature (d) Curie temperature

83. Live attenuated vaccines are used to treat all of the following diseases EXCEPT?
(a) Cholera and rabies (b) Typhoid and plague
(c) Mumps and measles (d) Yellow fever and rubella

84. Reactant formation in an endothermic reaction would be favoured by which of the following?
(a) Increase in temperature (b) Decrease in temperature
(c) No change in temperature
(d) First increase and then decrease in temperature

85. In house circuit all the electric appliances are connected in parallel between main line and neutral line appliances will have.
(a) Same current (b) Same power
(c) Different potential and same current
(d) Same potential difference

86. Which of the following animals is sedentary in adult and active in larval stage?
(a) Sponge (b) Leech
(c) Salamander (d) Grasshopper

87. Chlorofluorocarbons are mainly responsible for:
(a) Air pollution (b) Water pollution
(c) Acid rain (d) Ozone layer depletion

88. A body weighs 72 kg on the surface of the earth its weights on the surface of the moon will be:
(a) 72 kg (b) 12kg (c) 24 kg (d) 0kg

89. Total confinement of light for propagation in the optical fiber is obtained by:
(a) Total internal coflection
(b) Continuous refraction
(c) Both A and B
(d) None of these

90. Food is preserved in the form of glycogen by:
(a) Plants (b) Animals
(c) Cyano bacteria (d) Both B and C

91. Hydrolysis of Al_4C_3 gives
(a) CH^4 (b) C^2H^6 (c) C^3H^4 (d) C^4H^{20}

92. Rashid spoke ____ that he was praised by all the debaters.
(a) Well (b) As well (c) Very well (d) So well

93. The temperature scale which is independent of the nature of the working substance is:
(a) Celsius scale (b) Fahrenheit scale
(c) Centigrade scale (d) Thermodynamic scale

94. Urea formation occurs in:
(a) Kidney (b) Liver (c) Spleen (d) Lungs

95. The term Gene was coined by:
(a) Johnson (b) Corren (c) Tschmarch (d) Purkinje

96. In which of the following compounds carbon is sp hybridized?
(a) C_2H_6 (b) C_3H_6 (c) C_4H_6 (d) C_4H_8

97. The thief ran _____ the street to the other side and hid under the bridge.
(a) Over (b) Across (c) Along (d) Beside

98. The angle subtended by a vector $\vec{A} = \vec{i} - \vec{j}$ with x-axis is:
(a) 45^0 (b) 135^0 (c) 225^0 (d) 315^0

99. All of the following are gametophyte plants EXCEPT:
(a) Liver wort (b) Equisetum
(c) Funaria (d) Polytrichum

100. The values of ionic product kw are 0.64×10^{-14} at 18^0c, 1×10^{-14} at 25^0(c) form this may be derived that
(a) Endothermic process (b) Exothermic process
(c) Vaporization process
(d) Change of H_2O into O_2 and H_2

101. Newton second law of motion establishes relationship between.
(a) Force and acceleration (b) Mass and force
(c) Mass and velocity (d) Acceleration and mass

102. If father of a baby is hemophilic and mother is a carrier then chances of the baby in inheriting the disease will be:
(a) 0% (b) 50% (c) 75% (d) 100%

103. A constellation is made up of stars a troupe is made up of:
(a) Starlets (b) Speakers (c) Actors (d) Beggars

104. Condensation of chromosomes reaches to its peak during early;
(a)Prophase (b)Metaphase (c)Anaphase (d) Telophase

105. Which of the following is a characteristic of an isothermal change?
(a) Enthalpy is constant
(b) Temperature is constant
(c) Pressure is constant
(d) No heat enters or leaves the system

106. The traffic signals are red while the eyes are more sensitive to yellow because
(a) Yellow has less speed
(b) Red light refracts less due to its long wavelength
(c) Actors (d) Beggars

107. The hormone that causes seed and bud dormancy in plants is calle(d)
(a) Auxins (b) Ethylene
(c) Abscisic acid (d) Gibberellins

108. If a cu bearing material weighing 40g yield 5g Cuo(mw.76.55) the percentage of cu (at.wt.63.55) in the sample is:
(a) 5/40x100 (b) 40/5x79.55/63.x100
(c) 5/40x79.55/63.55x100 (d) 5/40x79.55/63.55x100

109. He is rather an ___ teacher he never accepts the students excuses.
(a) Incredulous (b) Unbelievable
(c) Interesting (d) Indiscriminate

110. The device which can be used for the precise measurement of wavelength is:
(a) Grating plate (b) Polaroid
(c) Prism (d) Michelson interferometer

111. All of the following are non renewable resources of energy EXCEPT.
(a) Forests (b) Iron (c) Petroleum (d) Natural gas

112. Acids are classified as monoprotic or polyprotic which of the following is a polypro tic acid?
(a) CH_3CO_2H(aq) (b) HOCl (aq)
(c) $HCHO_2$ (d) H_2CO_3

113. If a tunnel is bored through the centre of the earth and a stone is dropped into it then the:
(a) stone will stop at the centre of the earth
(b) stone will move out fro other side of the tunnel
(c) stone will perform simple harmonic motion
(d) none of these

114. Tissue plasminogen activator (TPA) is used for:
(a) Treating anaemia (b) Bonemarrow transplant
(c) Dissolving blood clot (d) Treatment of cancer

115. A gas at STP contains only 6.023×10^{23} atoms and is monoatomic it will occupy
(a) 1.2L (b) 22.4L (c) 30.5L (d) 44.8L

116. Gamma rays have high penetrating power than ■ & ■ ray due to:
(a) No charge (b) Non material nature
(c) Small size (d) Lighter particies

117. The heat engine operating in reverse is called
(a) Electric generator (b) Refrigerator
(c) Cannot engine (d) Electric motor

118. Which of the following is present in the centre of Porpyrine ring of chlorophyll?
(a) Iron (b) Sodium (c) Potassium (d) Magnesium

119. A chemical system is scaled in a strong rigid container at room temp and then heated vigorously change in work done during process is:
(a) Positive (b) Negative (c) Zero (d) Constant

120. The capacitive reactance of the AC circuit increases:
(a) By increasing the frequency of AC
(b) By decreasing the frequency of AC
(c) Does not depend upon the frequency of AC voltage
(d) None of these

121. Which of the following is included in protostome?
(a) Amphioxus (b) Sea horse
(c) Cheatopterus (d) Sea cucumber

122. Carboxyllc acid reacts readlly with alcholos in the presence of catalytic amounts of mineral acids to yield compounds calle(d)
(a) Azides (b) Esters (c) Ketones (d) Ethers

123. To have an old head on young shoulders means:
(a) To be wiser than one's age
(b) To be young but appear old
(c) To have ache in the shoulders
(d) To be old but appear young

124. The force exerted on a wire of length one meter carrying a current of one ampere lying normal to magnetic field is called
(a) Magnetic flux (b) Magnetic flux density
(c) Magnetic permeability (d) None of these

125. The charge of electron was determined by the effect of electric field on rate of fall of oil droplets under gravity this was done by:
(a) JJ Thomson (b) E Rutherford
(c) R Milliken (d) WC Roentgen

126. The force on electron in electric field of 10^{8} NC^{-1}
(a) 1.6×10^{-4} (b) 1.6×10^{-8} (c) 1.6×10^{-10} (d) 1.6×10^{-11}

127. Book lungs may be found in which of the following
(a) Clam worm (b) Spider (c) Silver fish (d) Leech

128. The current produced in coil due to induced emf depends upon.
(a) Area of the coil (b) Shape of coil (c) Turns of coil
(d) Strength of magnetic field in which the coil rotates

129. All cell membranes are composed of:
(a) Proteins (b) Lipids (c) Lipo protein (d) Cellulose

130. Metals are good conducters of electricity because they contain:
(a) Large number of freely mobile electrons
(b) Large number of bound electrons
(c) Small number of free electrons
(d) Small number of bound electrons

131. Who stated this hypothesis? Mosquitoes are involved in the spread of malari(a)
(a) Ronald (b) AFA king (c) Laveran (d) Aristotle

132. The simplest oxygen producing organisms are:
(a) Photosynthetic bacteria
(b) Autotrophic bacteria
(c) Cyanobacteria (d) Chlamydomenas

133. Which is the first step taken when metals are obtained from sulphide are?
(a) Smelting (b) Reasing (c) Reduction (d) Refining

134. The life time of an ordinary excited state is:
(a) 10^{-35} sec (b) 10^{-8} sec (c) 10^{-3} sec (d) 0.1 sec

135. Hunger centers are located in;
(a) Hypothalamus (b) Cerebellum
(c) Medulla (d) Mid brain

136. Which of the following is not a polmer?
(a) Plastic (b) Petroleum
(c) Starch (d) Natural rubber

137. The device used for detection of isotopes is
(a) Mass spectrometer (b) Cyclotron
(c) Betartron (d) Reactor

138. Do you have ___ difficulty with the language?
(a) Any (b) Some (c) Every (d) Many

139. The best shield against x-rays to absorb it is
(a) Lead (b) Steel (c) Iron (d) Copper

140. Heart muscles are called:
(a) Smooth muscels (b) Myogenic muscles
(c) Striated muscles (d) Skeletal muscles

141. A nucleophile is
(a) Lewis acid (b) Bronsted acid
(c) Bronsted base (d) Lewis base

142. The minimum number of unequal forces whose vector sum can be zero are
(a) One (b) Two (c) Three (d) Four

143. If an organism adopts saprophytic mode of nutrition during part of its life the organism is calle(d)
(a) Obligate parasite (b) Facultative parasite
(c) Obligate saprophyte (d) Facultative saprophyte

144. Which of the following ions can act as a bronsted acid and base in water?
(a) HCO^- (b) CN^- (c) NO_3^- (d) PO_4^{3-}

145. Here are your shoes,I ____ them
(a) Just clean (b) Just cleaned
(c) Have just cleaned (d) Have just cleaned

146. Which of the following bonds (.....) is the least polar?
(a) B....Cl (b) C....Cl (c) C....I (d) C....Br

147. The dimensions of the gravitational constant are:
(a) $[M^2L^2T]$ (b) $[M^{-1}L^3T^{-2}]$
(c) $[M^2L^{-2}T^{-2}]$ (d) $[ML^{-2}T^{-1}]$

148. During the development of chick peripheral part of the blastoderm lies unsepareted from the yolk and froms:
(a) Area pellucida (b) Area opaca
(c) Notochord (d) Primitive streak

149. In which of the following a covatent bond is not likely to exist?
(a) Br (b) SiF (c) CaO (d) SeH

150. The stranger ___ the little girl with some sweets.
(a) Deceived (b) Attracted (c) Enticed (d) Praised

151. The wave velocity in any medium depends upon
(a) Elasticity (b) Density
(c) Homogeneity (d) All of the above

152. Phloem tissues are composed of:
(a) Trachelds (b) Trachea
(c) Colleen chyma (d) Sieve tubes

153. Monotropa is a
(a) Total parasite (b) Total saprophyte
(c) Partial parasite (d) Partial saprophyte

154. Which of the following oxides has the most basic character?
(a) Na2O (b) MgO (c) Al_2O_3 (d) P_2O_5

155. The heating and cooking of food evenly by mocro wave oven is an example of:
(a) Resonance (b) Specific heat
(c) Damped oscillation (d) None of these

156. Considera chemical reaction $2Cl(g) \rightleftharpoons Cl_2(g)$ The extent of completing this reaction depends upon the magnitude of ke and shows that the equilibrium mixture will consist almost of cl molecules when.
(a) Kc is very large (b) Kc is very small
(c) Kc is netiher very small nor very large
(d) Kc is equal to 1

157. When a body moves in a circle the angle between its linear velocity and angular velocity is always:

(a) 0^0 (b) 180^0 (c) 360^0 (d) 90^0

158. Extra embryonic membranes like amnion and chorion appeared for the first time in.
(a) Fish (b) Amphibian (c) Reptiles (d) None

159. Which one of the following characteristics is not usually attributed to Ionic substances?
(a) High melting point (b) Deform when struck
(c) Fragility (d) Crystalline

160. The actress traveled ____ to avoid being recognized by her fans.
(a) Unknown (b) Concealed
(c) Incognito (d) Anonymously

161. Resistive forces are;
(a) None conservative (b) Conservatice
(c) Both sconservative and none conservative
(d) None of the above

162. Which one is microsporangium?
(a) Pollen grains (b) Stamens
(c) Pollen sacs (d) Female cone

163. The device in which the controlled fission chain reactioin is maintained is:
(a) Cyclotron (b) Betatron
(c) Accelerator (d) Nuclear reactor

164. A machine that works like kidney for the removal of nitrogenous wastes from the blood is calle(d)
(a) Lithotlpser (b) Heomometer
(c) Dialyzer (d) None of the above

165. The bond form between boron and Hydrogne is:
(a) Ionic (b) Covalent
(c) Coordinate covalent none of the above
(d) None of the above

166. You should not swim __ a meal.
(a) After (b) Over (c) About (d) Scross

167. .....

168. Yeast belongs to the phylum
(a) Zygomycota (b) Ascomycota
(c) Basidiomycota (d) Deutromycota

169. Carotenoid pigments are present in:
(a) Euglenophyta (b) Pyrrophyta
(c) Chrysophyta (d) Both A and B

170. Which is good quality iron are containing low phosphorus content?
(a) Heamattie (b) Limonite
(c) Siderite (d) Magnetite

171. The scientist who was awarded noble prize for explaining photoelectric effect
(a) Max planck (b) Compton
(c) Lousie (d) Einstein

172. Salmonella typhosa is a
(a) Coccus bacterium (b) Bacllius bacterium
(c) Spirillus bacterium (d) Nitrobacterium

173. Which is the correct formula of ammonium carbamate?
(a) H_2NCONH_2 (b) NH_4COONH_4
(c) $H_2NCOONH_2$ (d) NH_2COONH_4

174. The energy of electron in the excited state n=4 in hudrogen atom is:
(a) -13.6eV (b) -3.4eV (c) -0.85eV (d) -1.5eV

175. Increased production of RBCs is called:
(a) Leukaemia (b) Polycythemia
(c) Edema (d) Anemia

176. Carboxylic acid forms alcohol in presence of Li AlH_4 and the process is:
(a) Reduction (b) Oxidation
(c) Hydrolysis (d) None of above

177. Rhymicity of respiration is maintained by.
(a) The cardiac center (b) Ventillation center
(c) Pons (d) Carotid sinus

178. Which of the following is NOT considered to be an odidizing agent?
(a) MnO_2 (b) Cl_2 (c) NaOH (d) Na_2O_2

179. The instrument that is used to determine the weight of proton as well as positive Ion and is capable of recording its result as photograph is called:
(a) Mass spectroscope (b) Atomic spectroscope
(c) Spectrophotographic analyzer
(d) Spectrophotometer

180. He has ___ his pen and is buying another one.
(a) Lose (b) Lost (c) Loser (d) Loss

181. In CRO the time base circuit is connected to:
(a) Vertical plates (b) Electron gun
(c) Horizontal plates (d) Fluorescent screen

182. Aestivation is also known as:
(a) Spring sleep (b) Winter sleep
(c) Autumn sleep (d) Summer sleep

183. Displacement reaction that proceeds by the SN_2 mechanism are most successful with compounds that are:
(a) Neopentyi system
(b) Tertiary compound with no branch
(c) Secondary halldes
(d) Primary compound with no branch at B – carbon

184. A wire of length 10 cm lying normal to magnetic field of 0.5T is experiencing a force of 5N. The current in the wire is
(a) 10A (b) 50A (c) 100A (d) 500A

185. All of the following are polysaccharides EXCEPT:
(a) Cellulose (b) Glycogen (c) Starch (d) Lactose

186. The substances which undergo deformation with small force are called;
(a) Elastic substances (b) Inclastic substances
(c) Diamagnetic substances
(d) Ductile substances

187. Which of the following is a swimming bird?
(a) Penguin (b) Ostrich (c) Hawk (d) Kiwi

188. The expression for w in the first law of thermodyamics if negative implies all of the following EXCET:
(a) Total internal energy has decreased
(b) System has lost heat
(c) Work done by the system
(d) Work done on the system

189. .....

190. In a Galvanic cell the following reaction takes place:

191. $2H_2O \rightleftharpoons O_2 + 4H^+ + 4e$ it occurs at the
(a) Cathode (b) Anode
(c) External conductor (d) Cathode and anode

191. Fatty acids are converted into carbohydrates by

(a) Glyoxisome (b) Bile juice
(c) Pancreatic juice (d) Lysosomes

192. The military coup in the country brought an end to ___ rule by the emperor.
(a) Omnipotent (b) Almighty
(c) Dictatorial (d) Monopolistic

193. .....

194. The amount of energy required to break the nucleus into constituent nucleons is called;
(a) Excltation energy (b) Ionization energy
(c) Binding energy (d) Work function

195. When the kidney fails to form urine the condition is calle(d)
(a) Nephritis (b) Nephrosis (c) Ptosis (d) Anuria

196. A sample of gas has a volume of 450 ml at 270^0C when its temperature is increased to its volume becomes:
(a) 480 ml (b) 460 ml (c) 470 ml (d) 475ml

197. When ■ particle is emitted by radium$_{88}Ra^{226}$ the daughter nucleus is radon the mass number and charge number of which will be:
(a) $_{90}Rn^{220}$ (b) $_{86}Rn^{222}$
(c) $_{89}Rn^{226}$ (d) $_{90}Rn^{222}$

198. The malarial patient feels chill and fever when:
(a) merozoites increase their population in RBC and burst open the RBC
(b) sporozoites enter the blood stream
(c) sporozoites enter the liver cells.
(d) merozoites come out the liver cells.

199. Which is an isomer of ethanol?
(a) CH_3OH (b) $C_2H_5OCH_3$
(c) CH_3OCH_3 (d) C $_2H_5OC_2H_5$

200. 2.3g of ethanol (C2H5OH) is added to 500g of water determine the molallty of the resulting solution;
(a) 0.01 molal (b) 0.1 molal
(c) 1.1 molal (d) 1.0 molal

ENGINEERING ENTRY TEST 2010

1. The graph of $y^2 = 4ax$ is symmetric about:
   (a) y-axis (b) x-axis (c) Origin (d) None of the above
2. She wears sun glasses to ___ her eyes from the harmful rays of the sun.
   (a) Prevent (b) Protect (c) Defend (d) Shelter
3. The solubility of solute depends on:
   (a) Temperature of solution (b) Quantity of solvent
   (c) Quantity solute (d) All the three choices
4. Several resistors are connected in parallel the resistance of their equivalent resistor
   (a) Increase (b) Decrease
   (c) Not change (d) None of these
5. The lines 6x+2y+8 =0&x-3y+7=0 are:
   (a) Perpendicular (b) Parallel
   (c) Passing through srcin (d) None of the above
6. The number of electron in one coulomb of charge are:
   (a) 6.25×10^{21} (b) 1.6×10^{-27} (c) 6.25×10^{18} (d) $.6\times10^{-19}$
7. By definition $n\frac{(A\cap B)}{n(B)}$ defines:
   (a) P(A/B) (b) P(B/A) (c) P(A∩B) (d) P(AUB)
8. The noisy behaviour of the children ___ their teacher.
   (a) Aggrieved (b) Impeached
   (c) Tempered (d) Incensed
9. With increase in atomic number the basic character of s-block elements:
   (a) Decreases (b) Increases
   (c) First increases and then decreases
   (d) Does not change
10. For irreversible cycle the net change of entropy:
   (a) Remains constant (b) Increases
   (c) Decreases (d) None of these
11. The variables involve in a linear problem are called _____ constraints:
   (a) Non negative (b) Positive
   (c) Problem (d) Both A and C
12. $H_2S+H_2O \rightarrow H_3O^+ + HS^-$
   (a) Oxidation reaction (b) Reduction reaction
   (c) Acid base reaction (d) No oxidation reduction
13. When the drag force on the droplet becomes equal to its real weight the droplet will fall with.
   (a) Maximum acceleration (b) Minimum acceleration
   (c) Zero acceleration (d) Acceleration due to gravity
14. $\lim_{n\to\infty}\left(1+\frac{1}{n}\right)^n =$
   (a) e (b) $\lim_{n\to\infty}(1+n)^{\frac{1}{n}}$ (c) 1 (d) Both A &B
15. The angular velocity of earth in one rotation (daily) is
   (a) $\frac{\pi}{2}\,rad\,hr^{-1}$ (b) $\frac{\pi}{6}\,rad\,hr^{-1}$
   (c) $\frac{\pi}{3}\,rad\,hr^{-1}$ (d) $\frac{\pi}{12}\,rad\,hr^{-1}$
16. The asymptotes of the hyperbola $\frac{x^2}{9}-\frac{y^2}{4}=1$ are:
   (a) $y=\pm\frac{2}{3}x$ (b) $x=\pm\frac{2}{3}y$
   (c) $y=\pm x$ (d) None of the above
17. The students will go camping ____ the vacations.
   (a) At (b) During (c) For (d) In
18. The heat capacity of a substance at constant volume is directly related to the;
   (a) Enthalpy H (b) Enthalpy S
   (c) Internal energy U or E (d) Free energy G
19. The vector produce of vector A by itself is:
   (a) 1 (b) Zero (c) -1 (d) Null vector
20. If X = {a,b,c,d}, Y = {1,2,3,4} and g = {(a,3),(b,2),(c,3)} then g is __ function from x to y.
   (a) 1-1 (b) Onto (c) Bijective (d) None of the above
21. Elastic collision involves:
   (a) Loss of energy (b) Gain of energy
   (c) No relation between energy & elastic collision
   (d) No gain no loss of energy
22. The dimensions of torque are:
   (a) $[MLT^{-2}]$ (b) $[ML^2T^2]$ (c) $[MLT^{-1}]$ (d) $[ML^2T^{-2}]$
23. The triangular ratios of $405\frac{\pi}{2}$ are the same as that of:
   (a) $\frac{3\pi}{2}$ (b) $\frac{3\pi}{4}$ (c) $\frac{5\pi}{4}$ (d) $\frac{\pi}{2}$
24. The point at which an applied force produces a linear acceleration but no rotation is:
   (a) Centre of gravity (b) Centre of body
   (c) Weight of body (d) None of these
25. Which one of the following is the strongest acid?
   (a) CH_2ClCH_2-COOH (b) CH_3-COOH
   (c) $CHCl_2$-COOH (d) CH_3-CH_2-COOH
26. Species in search of the positive charge are called;
   (a) Reducing agent (b) Nucleophile
   (c) Bases (d) Electrophone
27. If a machine does 550 Foot pound work in one second its power will be.
   (a) 550 watt (b) 746watt
   (c) 746horse power (d) 550 horse power
28. $\lim_{x\to0}\frac{\sqrt{1+x}-1}{x} =$
   (a) $\frac{0}{0}$ (b) $\frac{1}{2}$ (c) ∞ (d) 2
29. The number of orbitals in'M' shell of an atom is;
   (a) 1 (b) 4 (c) 5 (d) 9

30. Which of the following type of force can do no work?
(a) Elastic force (b) Frictional force
(c) Gravitational force (d) Centripetal force

31. The escape velocity for a ball of mass 0.25 kg will be:
(a) 44km sec^{-1} (b) 11km sec^{-1}
(c) 2.75m sec^{-1} (d) 0.25m sec^{-1}

32. The kth term of the series
$1^2+(1^2+2^2)+(1^2+2^2+3^2)+....$is:
(a) K^2 (b) $\frac{k(k+1)(2k+1)}{6}$
(c) $\frac{k^2(k+1)^2}{4}$ (d) None of the above

33. The librarian can provide you a/an ___ edition of the book.
(a) Abridged (b) Summarized
(c) Abbreviated (d) Shortened

34. At what temperature both Fahrentheit and Celsius scales coincide?
(a) 40^0C (b) -30^0C (c) 32^0C (d) -40^o

35. As the pressure of medium increases the speed of sound in medium.
(a) Increases (b) Decreases
(c) Remains constant (d) None of these

36. $\sum_{j=1}^{\infty} \frac{1}{2^j} =$
(a) 1 (b) ∞ (c) $\frac{1}{2}$ (d) $\frac{1}{2^n}$

37. Which of the following most closely represents an ideal gas?
(a) He (b) H_2 (c) CO_2 (d) Ne

38. The motion of the source of sound with respect to stationary listener causes a change in:
(a) Intensity of sound (b) Frequency of sound
(c) Velocity of sound (d) None of these

39. Equation of latus rectum of the parabola $Y^2=4ax$ is:
(a) x=a (b) y=0 (c) x+a=0 (d) x=0

40. Which of the following points lie on the circle $x^2+y^2-13x-5y+16=0$?
(a) (1,1) (b) (3,-1) (c) (0,0) (d) Both A & B

41. BRILLIANT is closest in meaning to:
(a) Sparklin (b) Glorious (c) Talented (d) Showy

42. During the formation of a chemical bond between two atoms the forces which are operative are:
(a) both forces of attraction and repulsion
(b) either force of attraction nor repulsion
(c) only force of attraction
(d) only force of repulsion

43. If the temperature of the source of heat increases the efficiency of a carnots engine:
(a) Increases (b) Decreases
(c) Remains constant (d) None of these

44. $Y = -2^x$ is the reflection of:
(a) $y = \frac{1}{2^x}$ (b) $Y = 2^{-x}$
(c) $Y = 2^{-x}$ (d) $Y = \frac{1}{-2x}$

45. During the hydrolysis of 18g of acidified water hydrogen released at cathode is:
(a) 18 L (b) 22.4L (c) 11.2L
(d) 1L

46. At constant temperature if the pressure of the gas is doubled its volume becomes.
(a) One half (b) Double
(c) Four times (d) Remains the same

47. The physical quantity which produces angular acceleration in body.
(a) Force (b) Centripetal force
(c) Impulse (d) Torque

48. When dilute HNO_3 is treated with metals like Cu Ag pb besides their nitrates which one of the following gases is obtained?
(a) N_2 (b) NO (c) NO_2 (d) N_2O

49. The span of broad jump depends upon:
(a) mass of jumper (b) Vision of jumper
(c) Angle of projection of jumper
(d) Height of jumper

50. The acceleration due to gravity on a planet having a mass and radius half of the earth will be equal to:
(a) 2g (b) g (c) g/2 (d) g/4

51. First crystalline hormone is:
(a) Thyroxine (b) Nor adrenalin
(c) Adrenalin (d) All of the above

52. Which one has a bond formed by the overlap of an SP2 hybrid orbital with a SP hybrid orbital?
(a) CH_3CH_3 (b) $CH_2=C=CH_2$
(c) $CH_2=CH_2$ (d) $CH_3C=CCH_2CH_3$

53. One light year is equal to:
(a) $946x10^{15}$km (b) $9.46x10^{15}$m
(c) $9.46x10^{15}$cm (d) $9.46x10^{15}$ft

54. $\lim_{x\to\infty}\left(\frac{2x^2+5x+1}{20x^2-1}\right) =$
(a) $\frac{1}{10}$ (b) ∞ (c) -1 (d) 0

55. ___ property was damaged by the typhoon
(a) Many (b) Much (c) More (d) Several

56. Evaporation occurs at:
(a) All (b) Low temperature
(c) High temperature (d) Absolute temperature

57. Metallic potassium could not be prepared from a potassium iodide solution by means of a chemical reducing agent because
(a) K is a strong reducing (b) Metallic k is unstable
(c) K ion is strong oxidizing
(d) K is strong oxidant

58. Through which medium the sound waves travel faster?
(a) Oxygen (b) Carbon diodide

(c) Hydrogen (d) Nitrogen

59. ----------

60. When ${}^{n}P_2 = 30$ then n =
(a) 5 (b) 3 (c) 6 (d) 0

61. The SI unit of the spring constant k is identical to:
(a) Energy (b)Pressure (c)Density (d)Surface tension

62. The dimensions of impulse are similar to the dimensions of:
(a) Torque (b) Work (c) Momentum (d) Force

63. If A B C are conformable for multiplication then $(ABC)^t$=
(a) $C^tB^tA^t$ (b) $B^tA^tC^t$ (c) $A^tB^tC^t$ (d) $B^tA^tC^t$

64. According to MOT oxygen molecule is paramagnetic due to:
(a) Presence of one unpaired electron
(b) presence of two unipaired electrons
(c) presence three unpaired electrons
(d) presence of four unpaired electrons

65. If the scalar product of two non zero vectors A and B is zero then the magnitude of their vector product will be:
(a) AB (b) Zero (c) AB sin ■ (d) AB cos

66. If the vectors ma+nb and pq+pb are parallel then:
(a) m = p,n=q (b) m + n = p+q
(c) $\frac{m}{p} = \frac{n}{p}$ (d) None of the above

67. We are eager ___ the scientist
(a) To meet (b) Meet (c) To have met (d) Meeting

68. Ca^{++} ions are more hydrate than Na^{+} ions because these are:
(a) Larger in size (b) Smaller in size
(c) Divalent positively charged
(d) Small and divalent positively

69. Three points A B C are said to be collinear if they lie on the same:
(a) Line (b) Plane
(c) Quadrant (d) None of the above

70. Acid $HCLO_4$,H_2SO_4 HCl and HNO_3 have nearly equal strength in aqueous medium the phenomenon is calle(d)
(a) Common ion effect (b) Leveling effect
(c) Ionization (d) Titration

71. The process in which the structure of the nucleus can be changed by boarding it with high energy particle is calle(d)
(a) Fission reaction (b) Fusion reaction
(c) Nuclear transformation (d) All of the above

72. Which one of the following Grignard reactions could give rise to $CH_3CH_2CH(OH)CH_2CH_3$?
(a) propane and methyl grignard
(b) Butly Grignard and acetaldehyde
(c) Crotonabldehyde and ethyl grignard
(d) ethyl Grignard and propionaldehyde

73. Radioactive materials can be identified by measuring their:
(a) Density (b) Hardness (c) Buctility (d) Half life

74. The reaction of alkyl halide with ammonia is calle(d)
(a) Wurtz reaction (b) Hoffman reaction
(c) Flanklands reaction (d) Friedal craft reaction

75. Time taken by light to reach from sun to earth is:
(a) 10 min 20sec (b) 8 min 20sec
(c) 5 min 20sec (d) Infinity

76. The Function $f :\rightarrow \sqrt{x}$ is called:
(a) Identity function (b) Linear function
(c) Square root functioin (d) None of the above

77. The building was completely ___ by the fire.
(a) Obliternated (b) Demolished
(c) Annihilated (d) Destroyed

78. Positron was discovered by
(a) Compton (b) Anderson (c) Einstein (d) Dirac

79. $(5-4i)^{-1}$ can be written in the form of x + iy as:
(a) 5/41-4/41i (b)5/41+4/41i (c) 5/9+4/9i (d) 5/9-4/9i

80. The rate of reaction is defined as
(a) Dc/dt (b) Dt/dc(c) d(c)dt(d) $(dc)^2/(dt)^2$

81. The life time of an atom in the meta stable state is:
(a) 10^{-8}sec (b) 10^{-15} sec (c) 10^{-3} sec (d) 10^{-2} sec

82. $\int Sin\, kx\, dx =$
(a) Sin kx +c (b) Cos kx +c (c) $-\frac{Coskx + c}{k}$ (d) None of the above

83. Have you made ___ your mind about acting in the play?
(a) Out (b) Over (c) Up (d) On

84. The oxidation number of nitrogen in the nitrite ion NO^2 is
(a) +1 (b) +2 (c) +3 (d) +1

85. A precise measurement is one which has:
(a) Less uncertainty (b) Maximum precision
(c) Absolute precision (d) None of these

86. Which of the following is not the binary operation in N.
(a) + (b) - (c) * (d) None these

87. There are many __ organization here which need voluntary workers.
(a) Sympathetic (b) Charitable
(c) Generous (d) Sociable

88. Which of the following is not transition element
(a) Zn (b) Cr (c) Mn (d) Ni

89. Two forces of 12N and 6N are applied simultaneously to a body. The maximum magnitude of their resultant is:
(a) 24N (b) 30N (c) 18N (d) 36N

90. $\cos\left(\frac{-2\pi}{3}\right)$ lies in
(a) 1st quadrant (b) 2nd quadrant
(c) 3rd quadrant (d) 4th quadrant

91. faisal has made no ___ progress in his studies
(a) Notice (b) Noticeable
(c) Noticeably (d) Noticed

92. A reaction between CO and H2O is $CO_{(g)} + H2O$ -------CO2(g)+H2 the unit of equilibrium for this reaction is:
(a) Mol/liter (b) Liter/mol
(c) Dimensionless (d) Mol/cm^3

93. The amount of energy required to eject an electron from the metal surface is called:
(a) Work function (b) Threshold energy
(c) Rest mass energy (d) Total energy

94. Urea formation occurs in:
(a) Kidney (b) Liver (c) Spleen (d) Lungs

95. Which of the following group is considered to have a deactivating effect during aromatic substitution?
(a) ΘH (b) $-NH_2$ (c) $-CH_3$ (d) -CN

96. If the speed of the moving particle increases the wavelength associated with it will.
(a) Increase (b) Decrease
(c) Not change (d) None of these

97. $\lim_{m\to\infty}\left(1+\frac{1}{m}\right)^{20} =$
(a) 0 (b) ∞ (c) e (d) 1

98. Of the four chlorides listed below which does not readily dissociate to form ions in water?
(a) NaCl (b) LiCl (c) AgCl (d) $CaCl_2$

99. The nuclei having the same mass number but different atomic number are called:
(a) Isobars (b) Isotopes (c) Isotones (d) Isomars

100. $\int e^{\sin x}\cos x dx =$
(a) Sin x e^{sinx}+c (b) e^{sinx}+c
(c) Cos x e^{sinx}+ c (d) None of above

101. According to the Bronsted lowery concept which of the following species cannot function as an acid?
(a)SO_4^{-2} (b) $H3O^-$ (c) HSO_4^- (d) $\overset{+}{N}H_4$

102. The atoms of an element having same atomic number but different mass number are calle(d)
(a) Isotones (b) Isotopes (c) Isobars (d) Isomars

103. The lines represented by $x^2+5xy-y^2 = 0$ are:
(a) Parallel (b) Coincident
(c) Perpendicular (d) None of the above

104. I cant make ___ what he has written
(a)Out (b) Up (c) After (d) For

105. The depletion region has:
(a) Electrons only (b) Holes only
(c) Neither holes nor electrons
(d) Both holes and electrons

106. $\frac{d}{dx}a^x =$
(a) a^x (b) $a^x \ln e$ (c) $\frac{ax}{\ln a}$ (d) $a^x \ln a$

107. during the electrolysis of a CuSO4 solution which of the following reaction is possible at the anode?
(a) $2H_2O=O_2+4H^++4e$ (b) $CU^{++}+2e=CU$
(c) $2H^++2e^-=H_2$ (d) $CU=CU^{++}+2e^-$

108. The velocity of earth satellite can be measured from the change in frequency or radio waves by using.
(a) Doppler effect (b) Beats
(c) Interference (d) Diffraction

109. The resistances of 3 ohm 4 ohm and 5 ohm are connected in parallel if the potential difference across 3 ohm resistor be 12 volt then the potential difference across 4 ohm and 5 ohm will be:
(a) 3volt (b) 6volt (c) 9 volt (d) 12 volt

110. $\frac{d}{dx}\cos x.\sec x =$
(a) 1 (b) 0 (c) Sec^2x (d) None of above

111. Which of the following compounds when warmed with Fehlings solution gives a red precipitate?
(a) Methanol (b) Ethanol (c) Aldehyde (d) Ketone

112. The combination of NOT and and NOR gate is called
(a) XOR gate (b) NAND gate
(c) XNOR gate (d) None of the above

113. ----------

114. I am much obliged to you for your ____ assistance.
(a) Valuable (b) Value (c) Valuation (d) Valueless

115. Which of the following is responsible for an increase in the entropy of a gaseous system?
(a) Increase in heating (b) Cooling the system
(c) Heating followed by cooling
(d) Compression at specific temperature

116. Which of the following particle can move with the speed of light?
(a) Electron (b) Positron (c) Proton (d) Photon

117. Let G = {-1,1,-*i*,*i*} then (G, *) is
(a) Group (b) Not a group
(c) A belian group (d) None of the above

118. Who postulated the following equatioin for energy emission when an electron drops from state n_2 to n_1?
(a) Einstein (b) Bohr (c) Rutherford (d) Heisenberg

119. Which scientist made the following proposal equal volumes of gases under the asme conditions of temperature and pressure contain the same number of particles?
(a) Gay lussac (b) Curie (c) Dalton (d) None of the above

120. The emf in a milli Henry inductor in which the current changes from 3A to 1A in a millisecond is:
(a) 2 volt (b) 0.2 volt (c) 20volt (d) 0.02 volt

121. $\text{Sin } 30^0.\text{Cos}60^0+\text{Cos}30^0.\text{Sin}60^0 =$
(a) 0 (b) ½ (c) 1 (d) ∞

122. The young officer was __ because of his excellent performance.
(a) Raised (b) Progressed
(c) Improved (d) Promoted

123. Which of the statements given below is NOT a property of ammonia?
(a) Is a bronsted base
(b) Has ability to form complex
(c) May display acidic behaviour
(d) Cant be easily liquefied by cooling or compressing

124. Let A be a matrix of order n x n then $|A| =$
(a) $|-A|$ (b) $|A^{-1}|$ (c) $|A'|$ (d) None of these

125. The rms value of alternating voltage
(a) 1.77 volt (b) 17.7 volt
(c) .707 volt (d) 0.0177 volt

126. They heard the sirens ___ as the fire engines approached:
(a) To will (b) Wail (c) Willed (d) Willing

127. How much heat is absorbed by 100g of water when its temperature decreases from 25^0C to 5^0C?(heat capacity is 4.2j/gk)
(a) 84,000j (b) -2000/4.2j
(c) 2000/4.2j (d) -84,00j

128. If the sum of the coefficients in the expansion $(1+x)^n$ is 2^nthen the sum of the coefficients in the expansions of $(1+x)^m$ is:
(a) 2^m (b) m+1 (c) 2^{m+n} (d) 2^{n-1}

129. Let OP = a and OR = b then PR =
(a) a-b (b) b-a (c) A+b (d) None of the above

130. Which of the following molecules contains six bonding electrons?
(a) NCl_3(b)CO_2(c)H_2S(d)SF_6

131. The motion of the rocket in space is according to law of conservation of:
(a) Energy (b) Charge (c) Mass (d) Momentum

132. Range of $f(x)=x^2+1$ is
(a) R (b) $f(x)>1$ (c) $f(x)\geq 1$ (d) ∞

133. The log of rate constant of a reaction is:
(a) directly proportional to temperature change
(b) Not effected by temperature change
(c) inversely proportional to temperature
(d) effected by activation energy not by temperature

134. A wire of uniform cross section A length L and resistance R is cut into equal pieces The resistivity of each plece is:
(a) Halved (b) Doubled
(c) One fourth (d) Remains constant

135. The lines represented by $x^2+5xy+y^2=0$ are
(a) Coincident (b) Perpendicular
(c) Imaginary (d) None of the above

136. Sarwar ___ collect antiques but now he has other pastimes
(a) Used to (b) Was used to
(c) Used to be (d) Using to

137. 10ml of 1.5 M NaOH solution is neutralized by 20ml of a M HCl solution. The value of a will be:
(a) 1.0 (b) 0.75 (c) 0.5 (d) 0.25

138. The heat energy dissipated by 40 watt Bulb in one hour is
(a) 1440 joules (b) 14400 joules
(c) 144000 joules (d) 1440000 joules

139.In the expansion $(1+x)^n$ if n is rational then the number of terms are provided $|x|<1$:
(a) n +1 (b) n-1 (c) finite (d) Infinite

140. The solubility product values for the following salts are given

$Cus = 1.0 \times 10^{-10}$
$Hgs = 1.0 \times 10^{-15}$
$Pbs = 1.0 \times 10^{-20}$

(a) Hgs will ppt first (b) Pbs will ppt first
(c) Cus will ppt first
(d) All three will ppt simultaneously

141. The magnetic induction at a distance of 0.1m from a straight wire through which 10A current flow is:
(a) 0.2×10^{-5}T (b) 2×10^{-5}T
(c) 0.02×10^{-5}T (d) 0.002×10^{-5} T

142. The minimum number of unequal forces whose vector sum can be zero are:
(a) One (b) Two (c) Three (d) Four

143. Self induction of the coil depends upon:
(a) Area of coil (b) Number of turns
(c) Length of coil (d) All of these factors

144. When coal is heated (500-1000^0C) in the absence of air the process is called
(a) Distillation (b) Carbonization
(c) Cracking (d) Reforming

145. Which of the following will NOT be deflected when moving in magnetic field?
(a) α-rays (b) β-ray (c) γ-ray (d) None

146. $\frac{d}{dx}\frac{1}{g(x)}$ when $g(x) \neq 0$ is :

(a) -g (x) (b) $\frac{-g(x)}{[g(x)]^2}$ (c) 0 (d) None

147. If a circle has its centre on the srcin then it passes through
(a) X axis (b) Y axis
(c) Both A and B (d) 0 electrons

148. An orbital may never be occupied by:
(a) 1 electron (b) 2 electrons
(c) 3 electrons (d) 0 electron

149. In which of the following a covatent bond is not likely to exist?
(a) Br (b) SiF_4 (c) CO (d) CH_4

150. Propagation of light in an optical fibre
(a) the light should be polarized
(b) the light should be totally confined
(c) the light should be dispersed
(d) the light should travel along straight line

151. ${}^nC_r+{}^nC_{r-1} =$
(a) ${}^nc_r$ (b) ${}^np_r$ (c) ${}^{n+1}C_{r+1}$ (d) ${}^{n+1}C_r$

152. The least accurate of the volumetric measuring devices is the
(a) Pipet (b) Burret
(c) Volumetric flask (d) Graduated cylinder

153. The ability of an instrument to reveal the minor details of an object under examination is its:
(a) Linear magnification (b) Angular magnification
(c) Resolving power (d) None of these

154.Glass is an example of an amorphous solid which can be characterized as:
(a) A malleable solid (b) A molecular soild
(c) Crystal like in structure (d) Very viscous fluid

155. The heating and cooking of food evenly by mocro wave oven is an example of:
(a) Resonance (b) Specific heat
(c) Damped oscillation (d) None of these

156. $\frac{d}{dx}\log_e \text{Sin } x =$
(a) Tan x (b) Cosec x (c) Cos x (d) Cot x

157. There is sufficient ___to charge the man with fraud:
(a) Data (b) Information (c) Evidence (d) Clue

158. What causes a sharp increase in the energy with a further decrease in the distance between atoms A and B after bond formation?
(a) Attraction of atoms A and B
(b) Repulsion of nuclel of A and B and electrons of A and B
(c) Attraction of nucleus of A and electron of B
(d) Bond formation

159. The process of superposing the sound waves on carrier waves is called:
(a) Rectification (b) Modulation
(c) Amplification (d) Transformation

160. sin (■+■) Sin (■■) =
(a) 2 cos■ Sin■ (b) 2Sin ■ Cos■
(c) 2 sin ■ sin ■ (d) - 2sin ■sin■

161. if p1 and p2 are any two points on a coordinate line then $|p_1p_2|$ denotes:
(a) Directed distance (b) Length
(c) Undirected distance (d) Both B and C

162. Dry CO_2 is passed through Grignard reagent in the presence of ether as a solvent the intermediate is decomposed with dil HCL which gives the compound:
(a) Primary alcohol (b) Acetone
(c) Carboxylic acid (d) Secondary alcohol

163. In simple AC capacitive circuit.
(a) the current leads the voltage by 90^0
(b) the current and voltage are in phase
(c) the voltage leads the current by 90^0
(d) the current lags from the voltage by 90^0

164. Product of the roots of the equation:
$ax^2+bx+c = 0$, where a,b,c $\in$ R& a $\neq 0$
(a) c/a (b) -c/a (c) Undefined (d) 0

165. Mr. Alif Din is a/an ___ figure in the political scandal.
(a) Prominent (b) Outstanding
(c) Conspicuous (d) Remarkable

166. Which of the following reacts with hydrogen and nickel to form propane?
(a) $CH_3CH=CH_2$ (b)$CH_3CH_2CH_2OH$
(c) $CH_3CH=C(CH_3)^2$ (d) $CH_3CH_2CH=CH_2$

167. The reciprocal of bulk modulus is called:
(a) Plasticity (b) Conductivity
(c) Compressibility (d) Ductility

168. A natural element y has the electronic configuration $1s^2 2s^2 2p^6 3s^2$ it will gain or lose electrons to form an ion of valence:
(a) -2 (b) +2 (c) -1 (d) +1

169. Which of the following cannot be polarized?
(a) Sound waves (b) X – rays
(c) Radio waves (d) Light waves

170. The transpose of a row matrix is a
(a) Column matrix (b) Row matrix
(c) Square matrix (d) None of the above

171. The magnifying power of magnifying glass is 6. its focal length is:
(a) 6 cm (b) 3cm (c) 4cm (d) 5cm

172. The championship games is on this weekend ___ I am feeling a little nervous:
(a) since (b) But (c) Although (d) And

173. Quality of fuel is judged from its octane number the best fuels are
(a) straight chain hydrocarbons
(b) branched chain hydrocarbons
(c) cyclic compounds (d) aromatic compounds

174. The colour of sky is blue due to:
(a) Interference of light (b) Diffraction of light
(c) Polarization of light (d) Scattering of light

175. If $f(x)= \frac{1}{x}$ and $g(x) = x^3$ then:
(a) f o g < g o f (b) f o g ≠ g o f
(c) f o g = g o f (d) F o g > g o f

176. Most people are afraid to go ___ the beaten track.
(a) From (b) To (c) off (d) Against

177. Four ballons were filled with different gases. One of the balloons flew the highest the gas filled in it was:
(a) Oxygen (b) Nitrogen (c) Helium (d) Hydrogen

178. During a redox reaction an oxidizing agent:
(a) Gains electrons (b) Is hydrolyzed
(c) Is oxidized (d) Loses electrons

179. If A and B are any two complementary events in a sample space s then P(A)+P(B)-P(A∩B)=
(a) P(A∩B) (b) P(A-B) (c) P(AUB) (d) P(AUB)

180. He has ___ his pen and is buying another one.
(a) Lose (b) Lost (c) Loser (d) Loss

181. A two meter high tank is full of water a hole is made in the middle of the tank the speed of efflux will be:

(a) 4.4 m sec^{-1} (b) 6.2 m sec^{-1}

(c) 5.1m sec^{-1} (d) 4.9 m sec^{-1}

182. $Sin^2x+Cos^2x=1$ is true for:

(a) One value of x (b) Some values of x

(c) No value of x (d) All values of x

183. The potential difference between two points is one volt. The work done in moving one coulomb of charge from on point to other point is:

(a) One erg (b) One foot pound

(c) One electron golt (d) One joule

184. In the fraction $\frac{4}{(x^2+1)(x^4-1)}$ total, different real factors in the denominators are:

(a) 6 (b) 3 (c) 4 (d) 5

185. Which of the following carbonium ion is more stable?

(a) R_3C^+ (b) $R_2\overset{+}{C}H$ (c) $R\overset{+}{C}H_2$ (d) CH_3

186. Which of the salts below will produce an alkaline solution when dissolved in water?

(a) Na_2CO_3 (b)NaCl(c)$NaNO_3$(d)Na_2SO_4

187. The capacitor which charges and discharges quickly will have

(a) Small value of RC (b) Large value of RC

(c) Large value of time constant

(d) None of these

188. The inverse of $y = 2^x$ is:

(a) $y = \log x$ (b) Y = 2-x

(c) Y = -2x (d) None of above

189. When salt of sodium such as NaCl is heated in a flame:

(a) proton will leave the nucleus of Na

(b) ■ particles will be emitted

(c) electron will move to higher orbit

(d) Na atoms will react with one another

190. Which of the following elements mixes safely with hydrogen in dark but reacts rather explosively with hydrogen in light?

(a) Nitrogen (b) Phosphorus

(c) Chlorine (d)Potassium

191. Which one is not the unit of magnetic induction?

(a) Tesla (b) Weber

(c) Weber $meter^{-2}$ (d) $Nm^{-1}A^{-1}$

192. The military coup in the county has brought an end to ___ rule by the emperor.

(a) Tyrant (b) democratic rule

(c) Eclipse (d) Lasting

193. Which of the following compounds has bonds formed by an overlap of sp and p orbitals?

(a) BF_3 (b) NH_3 (c) $BeCl_2$ (d) CH_4

194. If an atom exists in the excited state n = 4 then maximum number of spectral lines emitted will be.

(a) Three (b) Four (c) Five (d) Six

195. ----------

196. Which of the following reagents may not be used for oxidation of aldehyde and ketones to organic acids?

(a) $KMnO_4$ (b) $K_2Cr_2O_7$

(c) $LiAiH_4$ (d) $KOCL\&H_2SO_4$

197. To calculate the momentum of an electron which of the formulas given below would be the most appropriate?

(a) Hv_2 (b) mev (c) hv (d) reB

198. The penetrating power of x rays depends upon.

(a) Filament current

(b) operating voltage

(c) The nature of the filament

(d) none of these

199. Let R be a relation from A into B then

(a) Dom R $\subseteq$A (b) Range R $\subseteq$ A

(c) Dom R $\not\subset$B (d) Dom R $\supset$B

200. What is the right configuration of an of an element with 24 electrons.

(a) $1s^2 2s^2 2p^6 3p^6 3d^6$

(b) $1s^2 2s^2 3s^2 2p^6 3p^6 4s^2 3d^4$

(c) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^4$

(d)$1S^2 2S^2 2p^6 3S^2 4S^1 3d^5$

KEY OF 2017

Medical Paper 2017

1. A	55. A	109. A	163. A
2. C	56. D	110. C	164. C
3. A	57. A	111. C	165. B
4. B	58. C	112. C	166. A
5. A	59. A	113. B	167. C
6. C	60. C	114. C	168. C
7. C	61. A	115. C	169. B
8. D	62. A	116. C	170. C
9. C	63. A	117. A	171. D
10. A	64. D	118. B	172. A
11. A	65. A	119. C	173. B
12. B	66. A	120. C	174. D
13. A	67. B	121. B	175. D
14. D	68. D	122. B	176. C
15. A	69. D	123. B	177. D
16. C	70. A	124. D	178. A
17. C	71. C	125. D	179. D
18. C	72. B	126. C	180. C
19. A	73. D	127. D	181. C
20. C	74. D	128. D	182. B
21. A	75. C	129. C	183. B
22. A	76. D	130. C	184. D
23. C	77. D	131. D	185. C
24. D	78. B	132. B	186. C
25. B	79. C	133. C	187. B
26. B	80. B	134. D	188. D
27. D	81. C	135. C	189. D
28. D	82. C	136. B	190. C
29. C	83. B	137. D	191. D
30. B	84. A	138. A	192. D
31. B	85. C	139. A	193. A
32. C	86. B	140. C	194. B
33. A	87. A	141. A	195. A
34. C	88. B	142. B	196. A
35. D	89. D	143. B	197. B
36. D	90. A	144. B	198. A
37. C	91. C	145. D	199. C
38. A	92. D	146. B	200. C
39. C	93. B	147. C	
40. A	94. B	148. B	
41. C	95. C	149. A	
42. D	96. C	150. B	
43. B	97. C	151. B	
44. B	98. B	152. B	
45. D	99. C	153. A	
46. B	100. C	154. A	
47. D	101. A	155. C	
48. C	102. B	156. B	
49. B	103. B	157. B	
50. D	104. D	158. B	
51. C	105. D	159. A	
52. B	106. A	160. D	
53. D	107. A	161. A	
54. B	108. D	162. A	

Engineering Paper 2017

1. B	55. A	109. B	163. A
2. A	56. C	110. B	164. B
3. D	57. D	111. C	165. C
4. A	58. C	112. B	166. D
5. D	59. D	113. A	167. D
6. B	60. A	114. B	168. C
7. A	61. B	115. B	169. B
8. C	62. A	116. B	170. A
9. B	63. B	117. A	171. D
10. B	64. C	118. D	172. C
11. A	65. C	119. B	173. C
12. D	66. C	120. C	174. A
13. D	67. B	121. A	175. A
14. C	68. D	122. A	176. D
15. D	69. D	123. D	177. D
16. A	70. B	124. A	178. D
17. D	71. D	125. A	179. B
18. C	72. B	126. A	180. D
19. B	73. A	127. B	181. C
20. A	74. C	128. A	182. B
21. A	75. B	129. C	183. B
22. A	76. B	130. D	184. D
23. A	77. A	131. A	185. B
24. C	78. B	132. D	186. A
25. C	79. B	133. A	187. D
26. C	80. C	134. A	188. C
27. A	81. B	135. D	189. B
28. D	82. C	136. A	190. C
29. B	83. D	137. A	191. D
30. A	84. A	138. A	192. C
31. C	85. C	139. A	193. A
32. C	86. D	140. D	194. D
33. B	87. D	141. D	195. A
34. B	88. C	142. A	196. A
35. A	89. B	143. B	197. B
36. A	90. A	144. C	198. D
37. D	91. B	145. B	199. D
38. D	92. C	146. C	200. D
39. C	93. B	147. A	
40. C	94. C	148. A	
41. B	95. C	149. D	
42. B	96. C	150. A	
43. D	97. C	151. A	
44. C	98. C	152. B	
45. A	99. B	153. A	
46. C	100. B	154. B	
47. C	101. C	155. A	
48. D	102. A	156. C	
49. B	103. B	157. D	
50. A	104. C	158. C	
51. C	105. B	159. D	
52. D	106. A	160. A	
53. B	107. B	161. D	
54. C	108. C	162. B	

Medical Paper 2016

1.	D	55.	A	109.	D	163.	B
2.	A	56.	D	110.	B	164.	D
3.	A	57.	C	111.	A	165.	D
4.	D	58.	C	112.	C	166.	A
5.	A	59.	C	113.	B	167.	D
6.	C	60.	C	114.	C	168.	D
7.	B	61.	D	115.	D	169.	A
8.	A	62.	C	116.	C	170.	C
9.	B	63.	B	117.	B	171.	C
10.	C	64.	C	118.	C	172.	B
11.	D	65.	D	119.	B	173.	C
12.	C	66.	A	120.	A	174.	B
13.	C	67.	D	121.	C	175.	A
14.	B	68.	A	122.	A	176.	A
15.	C	69.	B	123.	A	177.	B
16.	C	70.	B	124.	A	178.	A
17.	D	71.	D	125.	D	179.	C
18.	C	72.	C	126.	D	180.	A
19.	D	73.	A	127.	C	181.	D
20.	A	74.	C	128.	A	182.	B
21.	C	75.	C	129.	B	183.	D
22.	B	76.	B	130.	D	184.	A
23.	D	77.	D	131.	A	185.	B
24.	A	78.	A	132.	D	186.	B
25.	B	79.	A	133.	D	187.	B
26.	C	80.	D	134.	A	188.	D
27.	B	81.	C	135.	D	189.	B
28.	A	82.	B	136.	C	190.	D
29.	C	83.	B	137.	A	191.	D
30.	C	84.	C	138.	C	192.	D
31.	A	85.	A	139.	D	193.	C
32.	A	86.	B	140.	C	194.	A
33.	C	87.	C	141.	A	195.	B
34.	A	88.	B	142.	B	196.	C
35.	B	89.	C	143.	D	197.	A
36.	B	90.	A	144.	B	198.	D
37.	D	91.	D	145.	A	199.	C
38.	B	92.	D	146.	D	200.	C
39.	D	93.	D	147.	D		
40.	C	94.	A	148.	D		
41.	D	95.	B	149.	B		
42.	-	96.	D	150.	D		
43.	-	97.	C	151.	D		
44.	C	98.	C	152.	A		
45.	C	99.	D	153.	D		
46.	C	100.	D	154.	B		
47.	A	101.	A	155.	C		
48.	D	102.	C	156.	C		
49.	C	103.	B	157.	A		
50.	A	104.	D	158.	C		
51.	A	105.	C	159.	B		
52.	B	106.	C	160.	A		
53.	B	107.	A	161.	A		
54.	D	108.	A	162.	B		

Engineering Paper 2016

1.	C	55.	D	109.	C	163.	B
2.	A	56.	B	110.	D	164.	D
3.	D	57.	B	111.	A	165.	C
4.	A	58.	B	112.	C	166.	B
5.	B	59.	A	113.	C	167.	D
6.	B	60.	A	114.	C	168.	D
7.	C	61.	D	115.	D	169.	---
8.	B	62.	B	116.	B	170.	B
9.	C	63.	D	117.	D	171.	A
10.	D	64.	A	118.	D	172.	D
11.	B	65.	D	119.	D	173.	B
12.	C	66.	B	120.	A	174.	B
13.	C	67.	D	121.	D	175.	C
14.	A	68.	A	122.	D	176.	C
15.	B	69.	B	123.	D	177.	C
16.	B	70.	D	124.	C	178.	B
17.	B	71.	A	125.	C	179.	C
18.	A	72.	C	126.	B	180.	C
19.	C	73.	C	127.	C	181.	C
20.	A	74.	C	128.	C	182.	B
21.	B	75.	C	129.	C	183.	C
22.	C	76.	D	130.	B	184.	D
23.	C	77.	A	131.	A	185.	C
24.	D	78.	A	132.	D	186.	A
25.	A	79.	D	133.	C	187.	C
26.	A	80.	A	134.	C	188.	C
27.	B	81.	C	135.	A	189.	A
28.	C	82.	C	136.	B	190.	C
29.	B	83.	B	137.	C	191.	C
30.	D	84.	D	138.	D	192.	C
31.	B	85.	B	139.	D	193.	D
32.	A	86.	B	140.	D	194.	C
33.	A	87.	C	141.	C	195.	B
34.	C	88.	C	142.	B	196.	D
35.	C	89.	B	143.	D	197.	C
36.	C	90.	C	144.	C	198.	---
37.	A	91.	C	145.	C	199.	A
38.	C	92.	C	146.	B	200.	D
39.	D	93.	C	147.	C		
40.	D	94.	A	148.	B		
41.	C	95.	B	149.	D		
42.	A	96.	A	150.	B		
43.	B	97.	A	151.	A		
44.	B	98.	D	152.	D		
45.	B	99.	C	153.	B		
46.	B	100.	B	154.	B		
47.	D	101.	C	155.	C		
48.	B	102.	A	156.	D		
49.	B	103.	C	157.	B		
50.	A	104.	D	158.	C		
51.	A	105.	B	159.	C		
52.	C	106.	C	160.	D		
53.	A	107.	D	161.	B		
54.	A	108.	C	162.	B		

Medical 2015

1.	D	52.	B	103.	D	154.	C
2.	B	53.	B	104.	B	155.	D
3.	D	54.	B	105.	C	156.	B
4.	B	55.	B	106.	B	157.	D
5.	D	56.	C	107.	D	158.	B
6.	A	57.	B	108.	C	159.	B
7.	A	58.	B	109.	B	160.	A
8.	B	59.	A	110.	B	161.	C
9.	D	60.	A	111.	D	162.	A
10.	B	61.	C	112.	B	163.	D
11.	A	62.	B	113.	C	164.	B
12.	B	63.	B	114.	C	165.	C
13.	D	64.	B	115.	B	166.	B
14.	A	65.	B	116.	A	167.	C
15.	A	66.	A	117.	C	168.	D
16.	C	67.	D	118.	D	169.	D
17.	D	68.	B	119.	B	170.	A
18.	B	69.	C	120.	B	171.	C
19.	B	70.	B	121.	B	172.	C
20.	B	71.	D	122.	C	173.	A
21.	C	72.	D	123.	C	174.	D
22.	A	73.	C	124.	D	175.	D
23.	D	74.	D	125.	C	176.	C
24.	C	75.	B	126.	A	177.	B
25.	A	76.	C	127.	C	178.	A
26.	B	77.	D	128.	A	179.	A
27.	B	78.	C	129.	B	180.	B
28.	D	79.	C	130.	D	181.	D
29.	D	80.	C	131.	A	182.	D
30.	A	81.	D	132.	A	183.	C
31.	D	82.	C	133.	D	184.	A
32.	D	83.	A	134.	D	185.	B
33.	D	84.	A	135.	A	186.	B
34.	C	85.	C	136.	A	187.	A
35.	B	86.	C	137.	A	188.	B
36.	A	87.	D	138.	C	189.	C
37.	D	88.	C	139.	B	190.	A
38.	C	89.	D	140.	B	191.	C
39.	B	90.	C	141.	C	192.	D
40.	B	91.	C	142.	A	193.	C
41.	C	92.	D	143.	D	194.	A
42.	A	93.	C	144.	D	195.	B
43.	D	94.	B	145.	A	196.	B
44.	D	95.	D	146.	C	197.	B
45.	B	96.	A	147.	D	198.	B
46.	B	97.	C	148.	A	199.	A
47.	B	98.	A	149.	D	200.	D
48.	B	99.	A	150.	B		
49.	A	100.	C	151.	B		
50.	C	101.	D	152.	A		
51.	B	102.	B	153.	B		

Engineering 2015

1.	B	51.	A	102.	B	153.	B
2.	D	52.	B	103.	A	154.	B
3.	A	53.	B	104.	B	155.	B
4.	C	54.	A	105.	A	156.	A
5.	C	55.	B	106.	B	157.	C
6.	D	56.	C	107.	C	158.	A
7.	B	57.	C	108.	B	159.	B
8.	C	58.	B	109.	A	160.	C
9.	C	59.	C	110.	D	161.	D
10.	B	60.	A	111.	B	162.	A
11.	C	61.	C	112.	A	163.	A
12.	C	62.	B	113.	C	164.	B
13.	D	63.	A	114.	C	165.	B
14.	B	64.	B	115.	A	166.	D
15.	A	65.	B	116.	C	167.	A
16.	A	66.	B	117.	D	168.	B
17.	A	67.	A	118.	B	169.	A
18.	A	68.	D	119.	D	170.	D
19.	B	69.	B	120.	B	171.	C
20.	C	70.	D	121.	A	172.	D
21.	C	71.	C	122.	B	173.	A
22.	B	72.	A	123.	C	174.	C
23.	C	73.	C	124.	A	175.	C
24.	C	74.	D	125.	A	176.	B
25.	C	75.	D	126.	C	177.	A
26.	B	76.	C	127.	D	178.	B
27.	D	77.	B	128.	B	179.	A
28.	C	78.	A	129.	A	180.	D
29.	B	79.	C	130.	B	181.	C
30.	B	80.	C	131.	B	182.	B
31.	B	81.	D	132.	C	183.	D
32.	A	82.	D	133.	B	184.	C
33.	B	83.	D	134.	B	185.	B
34.	B	84.	C	135.	C	186.	D
35.	A	85.	B	136.	D	187.	C
36.	A	86.	C	137.	A	188.	C
37.	A	87.	B	138.	C	189.	B
38.	A	88.	B	139.	B	190.	A
39.	B	89.	D	140.	C	191.	D
40.	D	90.	C	141.	D	192.	B
41.	A	91.	D	142.	B	193.	A
42.	D	92.	D	143.	A	194.	C
43.	C	93.	B	144.	D	195.	C
44.	A	94.	D	145.	C	196.	B
45.	B	95.	A	146.	D	197.	C
46.	C	96.	C	147.	D	198.	A
47.	D	97.	A	148.	D	199.	B
48.	D	98.	C	149.	C	200.	A
49.	A	99.	B	150.	B		
50.	B	100.	C	151.	D		
		101.	D	152.	D		

Medical 2014

1.	D	57.	A	113.	B	169.	A
2.	C	58.	B	114.	C	170.	C
3.	A	59.	A	115.	A	171.	D
4.	C	60.	D	116.	A	172.	D
5.	D	61.	A	117.	C	173.	C
6.	C	62.	A	118.	B	174.	A
7.	B	63.	B	119.	A	175.	C
8.	A	64.	A	120.	A	176.	D
9.	C	65.	B	121.	B	177.	C
10.	C	66.	D	122.	B	178.	D
11.	B	67.	D	123.	A	179.	C
12.	C	68.	A	124.	C	180.	C
13.	B	69.	B	125.	B	181.	A
14.	A	70.	D	126.	C	182.	B
15.	B	71.	C	127.	C	183.	C
16.	B	72.	A	128.	A	184.	D
17.	C	73.	A	129.	A	185.	C
18.	A	74.	C	130.	B	186.	B
19.	D	75.	B	131.	D	187.	C
20.	B	76.	D	132.	C	188.	A
21.	B	77.	B	133.	D	189.	D
22.	C	78.	A	134.	C	190.	C
23.	B	79.	D	135.	D	191.	C
24.	D	80.	A	136.	A	192.	D
25.	B	81.	C	137.	A	193.	A
26.	A	82.	C	138.	A	194.	C
27.	B	83.	D	139.	C	195.	D
28.	A	84.	D	140.	C	196.	A
29.	B	85.	D	141.	D	197.	B
30.	A	86.	A	142.	B	198.	B
31.	A	87.	C	143.	C	199.	A
32.	A	88.	A	144.	B	200.	D
33.	C	89.	A	145.	A		
34.	C	90.	D	146.	C		
35.	C	91.	A	147.	C		
36.	A	92.	D	148.	D		
37.	B	93.	B	149.	B		
38.	D	94.	A	150.	C		
39.	D	95.	C	151.	A		
40.	D	96.	A	152.	D		
41.	D	97.	C	153.	D		
42.	A	98.	B	154.	A		
43.	A	99.	B	155.	D		
44.	D	100.	C	156.	B		
45.	A	101.	A	157.	B		
46.	A	102.	D	158.	A		
47.	A	103.	C	159.	C		
48.	C	104.	A	160.	B		
49.	B	105.	A	161.	C		
50.	D	106.	A	162.	A		
51.	A	107.	D	163.	B		
52.	B	108.	B	164.	B		
53.	A	109.	C	165.	C		
54.	B	110.	D	166.	D		
55.	A	111.	C	167.	D		
56.	D	112.	A	168.	A		

Engineering 2014

1.	C	57.	A	113.	A	169.	D
2.	C	58.	B	114.	C	170.	A
3.	A	59.	C	115.	A	171.	B
4.	C	60.	B	116.	D	172.	C
5.	B	61.	C	117.	C	173.	D
6.	D	62.	B	118.	B	174.	D
7.	D	63.	A	119.	D	175.	D
8.	B	64.	C	120.	B	176.	C
9.	B	65.	B	121.	A	177.	B
10.	B	66.	A	122.	D	178.	D
11.	D	67.	D	123.	C	179.	C
12.	A	68.	A	124.	D	180.	B
13.	B	69.	C	125.	B	181.	B
14.	A	70.	B	126.	D	182.	A
15.	A	71.	C	127.	D	183.	C
16.	B	72.	B	128.	C	184.	B
17.	B	73.	A	129.	A	185.	D
18.	C	74.	A	130.	C	186.	D
19.	A	75.	B	131.	B	187.	A
20.	A	76.	C	132.	C	188.	D
21.	C	77.	D	133.	A	189.	B
22.	D	78.	E	134.	A	190.	C
23.	C	79.	C	135.	D	191.	A
24.	C	80.	B	136.	A	192.	A
25.	A	81.	B	137.	B	193.	D
26.	B	82.	C	138.	A	194.	C
27.	C	83.	B	139.	A	195.	B
28.	D	84.	B	140.	A	196.	A
29.	C	85.	A	141.	B	197.	A
30.	D	86.	D	142.	D	198.	A
31.	B	87.	B	143.	B	199.	B
32.	B	88.	C	144.	B	200.	B
33.	D	89.	A	145.	B		
34.	D	90.	C	146.	A		
35.	A	91.	D	147.	D		
36.	D	92.	D	148.	C		
37.	A	93.	C	149.	C		
38.	B	94.	C	150.	A		
39.	D	95.	C	151.	D		
40.	C	96.	A	152.	A		
41.	B	97.	D	153.	D		
42.	B	98.	B	154.	D		
43.	C	99.	B	155.	B		
44.	C	100.	A	156.	C		
45.	A	101.	B	157.	A		
46.	D	102.	A	158.	B		
47.	C	103.	B	159.	A		
48.	C	104.	D	160.	D		
49.	B	105.	B	161.	C		
50.	B	106.	B	162.	A		
51.	D	107.	C	163.	D		
52.	B	108.	D	164.	A		
53.	D	109.	B	165.	B		
54.	D	110.	D	166.	B		
55.	B	111.	D	167.	B		
56.	A	112.	A	168.	A		

Medical Paper 2013							
157.	B	53.	B	105.	B	157.	D
158.	B	54.	C	106.	C	158.	B
159.	D	55.	B	107.	A	159.	B
160.	B	56.	B	108.	B	160.	D
161.	A	57.	B	109.	A	161.	A
162.	C	58.	C	110.	C	162.	D
163.	A	59.	C	111.	D	163.	C
164.	B	60.	B	112.	A	164.	A
165.	D	61.	A	113.	D	165.	D
166.	B	62.	B	114.	C	166.	A
167.	B	63.	C	115.	B	167.	D
168.	A	64.	C	116.	D	168.	A
169.	C	65.	C	117.	D	169.	B
170.	C	66.	A	118.	C	170.	C
171.	C	67.	C	119.	B	171.	C
172.	C	68.	B	120.	B	172.	D
173.	B	69.	B	121.	C	173.	A
174.	B	70.	D	122.	C	174.	C
175.	B	71.	A	123.	B	175.	B
176.	C	72.	B	124.	B	176.	B
177.	C	73.	C	125.	D	177.	C
178.	B	74.	C	126.	C	178.	D
179.	C	75.	B	127.	C	179.	C
180.	B	76.	D	128.	C	180.	C
181.	B	77.	C	129.	A	181.	B
182.	B	78.	A	130.	B	182.	B
183.	B	79.	C	131.	A	183.	D
184.	C	80.	C	132.	B	184.	D
185.	C	81.	B	133.	C	185.	C
186.	C	82.	C	134.	A	186.	D
187.	C	83.	B	135.	D	187.	B
188.	A	84.	C	136.	D	188.	C
189.	A	85.	B	137.	B	189.	C
190.	B	86.	C	138.	C	190.	B
191.	B	87.	C	139.	D	191.	C
192.	A	88.	C	140.	D	192.	C
193.	B	89.	B	141.	C	193.	B
194.	D	90.	D	142.	C	194.	C
195.	C	91.	C	143.	B	195.	C
196.	B	92.	C	144.	C	196.	C
197.	B	93.	D	145.	B	197.	B
198.	C	94.	A	146.	B	198.	D
199.	C	95.	B	147.	B	199.	C
200.	C	96.	B	148.	B	200.	C
201.	C	97.	B	149.	B		
202.	D	98.	C	150.	B		
203.	A	99.	C	151.	C		
204.	C	100.	B	152.	D		
205.	D	101.	D	153.	D		
206.	C	102.	B	154.	D		
207.	D	103.	A	155.	B		
208.	A	104.	C	156.	C		

Engineering Paper 2013							
1.	A	53.	B	105.	A	157.	B
2.	A	54.	C	106.	D	158.	C
3.	B	55.	D	107.	B	159.	A
4.	D	56.	A	108.	B	160.	D
5.	A	57.	A	109.	D	161.	A
6.	B	58.	B	110.	C	162.	B
7.	C	59.	D	111.	C	163.	D
8.	D	60.	C	112.	B	164.	C
9.	A	61.	C	113.	C	165.	A
10.	C	62.	C	114.	D	166.	C
11.	D	63.	B	115.	B	167.	B
12.	D	64.	A	116.	A	168.	C
13.	B	65.	A	117.	B	169.	A
14.	C	66.	B	118.	C	170.	B
15.	B	67.	C	119.	A	171.	D
16.	A	68.	D	120.	D	172.	C
17.	A	69.	C	121.	A	173.	C
18.	B	70.	B	122.	B	174.	B
19.	D	71.	D	123.	D	175.	C
20.	C	72.	A	124.	C	176.	D
21.	D	73.	B	125.	C	177.	D
22.	B	74.	C	126.	B	178.	B
23.	C	75.	D	127.	D	179.	A
24.	A	76.	A	128.	A	180.	A
25.	A	77.	A	129.	A	181.	A
26.	B	78.	D	130.	A	182.	B
27.	D	79.	C	131.	B	183.	C
28.	C	80.	B	132.	B	184.	D
29.	B	81.	A	133.	C	185.	B
30.	C	82.	B	134.	D	186.	A
31.	D	83.	D	135.	C	187.	C
32.	D	84.	C	136.	B	188.	D
33.	D	85.	D	137.	A	189.	A
34.	C	86.	A	138.	A	190.	A
35.	B	87.	B	139.	D	191.	C
36.	A	88.	C	140.	C	192.	D
37.	D	89.	C	141.	D	193.	A
38.	B	90.	A	142.	C	194.	D
39.	C	91.	D	143.	B	195.	B
40.	A	92.	B	144.	A	196.	C
41.	D	93.	C	145.	D	197.	D
42.	A	94.	A	146.	B	198.	B
43.	C	95.	B	147.	A	199.	C
44.	D	96.	B	148.	C	200.	A
45.	A	97.	A	149.	B		
46.	D	98.	B	150.	D		
47.	B	99.	D	151.	A		
48.	C	100.	C	152.	A		
49.	B	101.	C	153.	C		
50.	A	102.	A	154.	C		
51.	C	103.	D	155.	B		
52.	D	104.	B	156.	B		

Medical Paper 2012							
1.	C	53.	B	105.	C	157.	B
2.	C	54.	C	106.	A	158.	A
3.	A	55.	D	107.	B	159.	C
4.	B	56.	A	108.	D	160.	D
5.	D	57.	B	109.	B	161.	A
6.	C	58.	C	110.	C	162.	B
7.	A	59.	D	111.	A	163.	C
8.	B	60.	D	112.	D	164.	A
9.	B	61.	B	113.	B	165.	A
10.	D	62.	A	114.	A	166.	C
11.	A	63.	D	115.	C	167.	D
12.	B	64.	C	116.	D	168.	A
13.	A	65.	A	117.	B	169.	D
14.	C	66.	D	118.	A	170.	B
15.	D	67.	A	119.	D	171.	A
16.	B	68.	C	120.	C	172.	C
17.	B	69.	B	121.	A	173.	B
18.	D	70.	C	122.	A	174.	A
19.	D	71.	A	123.	C	175.	B
20.	A	72.	D	124.	D	176.	C
21.	A	73.	B	125.	B	177.	C
22.	B	74.	C	126.	B	178.	D
23.	C	75.	D	127.	A	179.	A
24.	D	76.	A	128.	D	180.	B
25.	C	77.	B	129.	D	181.	A
26.	C	78.	B	130.	C	182.	C
27.	D	79.	A	131.	B	183.	D
28.	B	80.	A	132.	A	184.	B
29.	A	81.	D	133.	D	185.	D
30.	B	82.	C	134.	A	186.	A
31.	C	83.	B	135.	C	187.	D
32.	D	84.	D	136.	B	188.	A
33.	B	85.	D	137.	C	189.	C
34.	B	86.	B	138.	B	190.	B
35.	A	87.	C	139.	D	191.	C
36.	D	88.	B	140.	A	192.	B
37.	A	89.	C	141.	D	193.	D
38.	D	90.	A	142.	C	194.	B
39.	B	91.	D	143.	C	195.	C
40.	D	92.	B	144.	B	196.	A
41.	B	93.	B	145.	B	197.	A
42.	D	94.	A	146.	D	198.	D
43.	C	95.	D	147.	C	199.	B
44.	A	96.	A	148.	A	200.	B
45.	B	97.	A	149.	A		
46.	C	98.	B	150.	D		
47.	D	99.	B	151.	C		
48.	A	100.	C	152.	B		
49.	B	101.	B	153.	C		
50.	D	102.	C	154.	D		
51.	C	103.	A	155.	A		
52.	A	104.	A	156.	B		

Engineering Paper 2012							
1.	B	53.	D	157.	A	201.	C
2.	A	54.	A	105.	C	158.	A
3.	A	55.	C	106.	B	159.	D
4.	A	56.	B	107.	A	160.	B
5.	A	57.	A	108.	B	161.	A
6.	B	58.	C	109.	A	162.	B
7.	C	59.	D	110.	C	163.	--
8.	B	60.	D	111.	D	164.	B
9.	C	61.	A	112.	D	165.	C
10.	D	62.	C	113.	C	166.	C
11.	A	63.	B	114.	A	167.	D
12.	A	64.	D	115.	A	168.	A
13.	C	65.	C	116.	D	169.	B
14.	D	66.	B	117.	A	170.	C
15.	B	67.	C	118.	B	171.	A
16.	A	68.	D	119.	B	172.	D
17.	A	69.	A	120.	B	173.	A
18.	A	70.	B	121.	A	174.	C
19.	C	71.	A	122.	C	175.	B
20.	D	72.	B	123.	C	176.	A
21.	A	73.	B	124.	A	177.	B
22.	D	74.	D	125.	B	178.	A
23.	A	75.	C	126.	C	179.	A
24.	D	76.	A	127.	D	180.	D
25.	B	77.	A	128.	B	181.	A
26.	C	78.	D	129.	C	182.	C
27.	B	79.	C	130.	D	183.	D
28.	C	80.	B	131.	A	184.	B
29.	A	81.	D	132.	C	185.	C
30.	B	82.	C	133.	B	186.	A
31.	D	83.	A	134.	D	187.	C
32.	C	84.	B	135.	A	188.	D
33.	A	85.	C	136.	D	189.	C
34.	B	86.	D	137.	C	190.	A
35.	B	87.	B	138.	B	191.	D
36.	C	88.	B	139.	D	192.	B
37.	A	89.	B	140.	A	193.	A
38.	C	90.	A	141.	--	194.	C
39.	D	91.	C	142.	C	195.	D
40.	B	92.	D	143.	D	196.	A
41.	B	93.	A	144.	A	197.	A
42.	A	94.	D	145.	C	198.	A
43.	C	95.	B	146.	B	199.	B
44.	D	96.	C	147.	C	200.	B
45.	B	97.	B	148.	B		
46.	D	98.	A	149.	B		
47.	C	99.	D	150.	C		
48.	A	100.	C	151.	A		
49.	D	101.	B	152.	C		
50.	A	102.	D	153.	D		
51.	C	103.	A	154.	A		
52.	B	104.	C	155.	B		

Medical Paper 2011							
1.	A	53.	D	105.	A	157.	A
2.	D	54.	C	106.	C	158.	C
3.	C	55.	B	107.	B	159.	D
4.	B	56.	A	108.	A	160.	B
5.	D	57.	A	109.	A	161.	C
6.	B	58.	D	110.	B	162.	B
7.	C	59.	C	111.	D	163.	D
8.	A	60.	B	112.	A	164.	A
9.	C	61.	D	113.	C	165.	D
10.	A	62.	C	114.	B	166.	C
11.	B	63.	B	115.	A	167.	B
12.	B	64.	A	116.	D	168.	B
13.	A	65.	A	117.	B	169.	A
14.	D	66.	D	118.	D	170.	B
15.	A	67.	B	119.	D	171.	C
16.	D	68.	D	120.	A	172.	D
17.	D	69.	A	121.	C	173.	D
18.	D	70.	C	122.	A	174.	B
19.	C	71.	D	123.	D	175.	A
20.	A	72.	C	124.	B	176.	A
21.	A	73.	C	125.	A	177.	A
22.	B	74.	B	126.	D	178.	B
23.	B	75.	D	127.	C	179.	C
24.	-	76.	A	128.	A	180.	A
25.	A	77.	B	129.	A	181.	B
26.	C	78.	D	130.	A	182.	C
27.	D	79.	C	131.	A	183.	A
28.	B	80.	B	132.	D	184.	C
29.	C	81.	A	133.	B	185.	A
30.	A	82.	A	134.	C	186.	D
31.	C	83.	D	135.	C	187.	B
32.	D	84.	A	136.	B	188.	C
33.	D	85.	B	137.	A	189.	C
34.	C	86.	B	138.	D	190.	B
35.	A	87.	C	139.	D	191.	B
36.	A	88.	C	140.	B	192.	A
37.	B	89.	B	141.	A	193.	D
38.	A	90.	C	142.	C	194.	B
39.	C	91.	A	143.	D	195.	B
40.	C	92.	D	144.	B	196.	A
41.	A	93.	B	145.	B	197.	D
42.	C	94.	A	146.	B	198.	A
43.	B	95.	B	147.	D	199.	C
44.	D	96.	B	148.	C	200.	C
45.	A	97.	C	149.	D		
46.	C	98.	D	150.	D		
47.	B	99.	D	151.	C		
48.	C	100.	C	152.	A		
49.	B	101.	B	153.	B		
50.	D	102.	B	154.	B		
51.	B	103.	D	155.	A		
52.	D	104.	B	156.	C		

Engineering Paper 2011							
1.	B	53.	D	105.	B	157.	A
2.	A	54.	D	106.	A	158.	A
3.	D	55.	C	107.	A	159.	D
4.	B	56.	C	108.	C	160.	D
5.	D	57.	A	109.	B	161.	A
6.	D	58.	B	110.	B	162.	A
7.	B	59.	C	111.	C	163.	B
8.	C	60.	D	112.	B	164.	D
9.	B	61.	D	113.	B	165.	D
10.	A	62.	D	114.	D	166.	B
11.	C	63.	A	115.	B	167.	B
12.	D	64.	B	116.	A	168.	D
13.	A	65.	C	117.	D	169.	B
14.	-	66.	D	118.	C	170.	A
15.	C	67.	A	119.	A	171.	C
16.	A	68.	C	120.	D	172.	A
17.	D	69.	B	121.	D	173.	C
18.	B	70.	D	122.	C	174.	B
19.	A	71.	A	123.	B	175.	D
20.	D	72.	C	124.	C	176.	C
21.	B	73.	B	125.	A	177.	D
22.	B	74.	A	126.	D	178.	C
23.	C	75.	C	127.	B	179.	C
24.	D	76.	C	128.	D	180.	B
25.	C	77.	B	129.	C	181.	A
26.	A	78.	D	130.	A	182.	B
27.	B	79.	A	131.	B	183.	B
28.	D	80.	C	132.	A	184.	D
29.	A	81.	D	133.	C	185.	B
30.	D	82.	B	134.	C	186.	C
31.	B	83.	B	135.	A	187.	D
32.	B	84.	C	136.	C	188.	C
33.	C	85.	A	137.	B	189.	C
34.	D	86.	D	138.	D	190.	D
35.	B	87.	D	139.	B	191.	A
36.	C	88.	A	140.	B	192.	D
37.	A	89.	C	141.	A	193.	A
38.	C	90.	B	142.	C	194.	A
39.	B	91.	A	143.	D	195.	B
40.	C	92.	C	144.	B	196.	D
41.	C	93.	B	145.	B	197.	D
42.	B	94.	D	146.	C	198.	C
43.	A	95.	B	147.	C	199.	C
44.	D	96.	D	148.	D	200.	B
45.	D	97.	B	149.	A		
46.	B	98.	C	150.	A		
47.	A	99.	D	151.	C		
48.	A	100.	A	152.	B		
49.	C	101.	A	153.	D		
50.	B	102.	D	154.	D		
51.	B	103.	D	155.	C		
52.	C	104.	C	156.	B		

Medical Paper 2010

1.	B	69.	B	137.	A
2.	D	70.	B	138.	A
3.	C	71.	C	139.	A
4.	A	72.	B	140.	B
5.	A	73.	B	141.	D
6.	A	74.	C	142.	C
7.	A	75.	D	143.	D
8.	A	76.	D	144.	A
9.	D	77.	A	145.	C
10.	A	78.	B	146.	C
11.	A	79.	B	147.	B
12.	B	80.	A	148.	A
13.	A	81.	D	149.	C
14.	A	82.	B	150.	C
15.	A	83.	A	151.	D
16.	C	84.	A	152.	D
17.	D	85.	D	153.	B
18.	C	86.	A	154.	A
19.	C	87.	B	155.	A
20.	D	88.	A	156.	B
21.	D	89.	C	157.	D
22.	B	90.	D	158.	C
23.	C	91.	A	159.	C
24.	B	92.	D	160.	C
25.	A	93.	D	161.	A
26.	B	94.	B	162.	C
27.	D	95.	A	163.	D
28.	D	96.	C	164.	C
29.	B	97.	B	165.	B
30.	D	98.	D	166.	A
31.	C	99.	B	167.	-
32.	D	100.	A	168.	B
33.	D	101.	A	169.	D
34.	A	103.	B	170.	A
35.	A	103.	C	171.	D
36.	A	104.	B	172.	B
37.	C	105.	B	173.	D
38.	B	106.	B	174.	C
39.	A	107.	C	175.	B
40.	B	108.	A	176.	A
41.	D	109.	A	177.	C
42.	A	110.	D	178.	C
43.	B	111.	A	179.	C
44.	A	112.	D	180.	B
45.	C	113.	C	181.	A
46.	C	114.	C	182.	D
47.	D	115.	B	183.	D
48.	C	116.	A	184.	A
49.	C	117.	B	185.	D
50.	B	118.	D	186.	A
51.	A	119.	C	187.	A
52.	C	120.	B	188.	C
53.	D	121.	C	189.	-
54.	C	122.	B	190.	D
55.	D	123.	A	191.	A
56.	A	124.	B	192.	C
57.	A	125.	C	193.	-
58.	A	126.	D	194.	C
59.	C	127.	B	195.	B
60.	B	128.	C	196.	B
61.	C	129.	C	197.	B
62.	A	130.	A	198.	A
63.	B	131.	B	199.	C
64.	D	132.	C	200.	B
65.	D	133.	A		
66.	D	134.	B		
67.	A	135.	A		
68.	B	136.	B		

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1.	b	69.	A	137.	B
2.	B	70.	B	138.	C
3.	D	71.	C	139.	D
4.	B	72.	D	140.	B
5.	A	73.	D	141.	B
6.	C	74.	B	142.	C
7.	A	75.	B	143.	D
8.	A	76.	C	144.	B
9.	B	77.	D	145.	C
10.	B	78.	B	146.	B
11.	A	79.	B	147.	C
12.	C	80.	A	148.	C
13.	C	81.	C	149.	C
14.	A	82.	C	150.	B
15.	D	83.	C	151.	D
16.	A	84.	C	152.	D
17.	B	85.	C	153.	C
18.	C	86.	B	154.	D
19.	D	87.	B	155.	A
20.	D	88.	A	156.	D
21.	D	89.	C	157.	C
22.	D	90.	C	158.	B
23.	B	91.	B	159.	B
24.	D	92.	C	160.	A
25.	C	93.	A	161.	C
26.	B	94.	B	162.	C
27.	B	95.	D	163.	A
28.	B	96.	B	164.	A
29.	D	97.	D	165.	C
30.	D	98.	C	166.	A
31.	B	99.	A	167.	C
32.	B	100.	B	168.	D
33.	A	101.	A	169.	A
34.	D	103.	B	170.	A
35.	C	103.	C	171.	D
36.	A	104.	A	172.	D
37.	B	105.	C	173.	B
38.	B	106.	D	174.	D
39.	A	107.	B	175.	C
40.	A	108.	A	176.	C
41.	C	109.	D	177.	D
42.	A	110.	B	178.	A
43.	A	111.	C	179.	C
44.	B	112.	C	180.	B
45.	B	113.	-	181.	A
46.	A	114.	A	182.	D
47.	D	115.	A	183.	D
48.	B	116.	D	184.	C
49.	C	117.	C	185.	A
50.	A	118.	B	186.	A
51.	B	119.	D	187.	A
52.	B	120.	A	188.	A
53.	B	121.	C	189.	C
54.	A	122.	D	190.	C
55.	B	123.	C	191.	B
56.	A	124.	C	192.	A
57.	A	125.	C	193.	C
58.	C	126.	B	194.	D
59.	C	127.	D	195.	-
60.	C	128.	A	196.	C
61.	D	129.	B	197.	D
62.	C	130.	A	198.	B
63.	A	131.	D	199.	A
64.	B	132.	C	200.	D
65.	A	133.	A		
66.	C	134.	D		
67.	A	135.	D		
68.	D	136.	A		

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Seats Distribution Medical

The total seats available for admission in each Medical/ Dental College and their allocation against each category are shown in the following table:

Category of Seats	MBBS									BDS			Total
	KMC	AMC	SMC	GMC	KGMC	BMC	BKMC	NMC	GKMC	KCD	ADS	BKDS	
Provincial:													
Open Merit Seats	163	138	62	62	76	55	41	85	84	30	10	16	822
Self-Finance Seats:													
General Self Finance Seats	16	20	10	12	10	12	5	8	8	5	2	4	112
Foreign Self Finance Seats	7	8	2	2	4	2	3	7	7	2	1	0	45
Reciprocal for N.M.C (Multan)	1	0	0	0	0	0	0	0	0	0	0	0	1
Minorities	1	0	1	0	0	0	0	0	0	0	0	0	2
Disabled Candidates	2	2	0	0	0	0	0	0	0	1	0	0	5
Khyber Pakhtunkhwa Backward Areas:													
Kohistan	2	2	0	0	0	0	0	0	0	0	1	0	5
Chitral	2	2	0	0	0	0	0	0	0	1	1	0	6
Dir Upper	1	1	0	1	1	0	0	0	0	0	0	0	4
Dir Lower	1	1	0	0	0	0	0	0	0	0	0	0	2
Gadoon	1	1	0	0	0	0	0	0	0	0	0	0	2
Amazai	0	1	0	0	0	0	0	0	0	0	0	0	1
Gadoon & Amazai	0	0	0	0	0	0	0	0	1	1	0	0	2
Tor Ghar (Kala Dhaka) & Upper Tanawal	1	0	0	0	0	0	0	0	0	0	1	0	2
Tor Ghar (Kala Dhaka)	0	1	0	0	0	0	0	0	0	0	0	0	1
Battagram	1	1	0	0	0	0	0	0	0	0	0	0	2
Balakot	0	1	0	0	0	0	0	0	0	0	0	0	1
Allai	0	1	0	0	0	0	0	0	0	0	0	0	1
Shangla	0	1	1	0	0	0	0	0	0	1	0	0	3
Buner	0	1	1	0	0	0	0	0	0	0	0	0	2
Kalam	0	0	1	0	0	0	0	0	0	0	0	0	1
Hangu	2	0	0	0	0	0	0	0	0	0	0	0	2
Tank	0	0	0	2	0	0	0	0	0	0	1	0	3
Federal Seats:													
FATA	35	28	10	10	5	25	0	0	0	5	5	5	126
FATA/ Balochistan Project Seats	4	4	5	5	3	5	0	0	0	2	1	0	29
AJK	1	22	5	5	0	0	0	0	0	0	1	0	34
GilgitBaltistan (Northern Areas)	1	6	0	0	0	0	0	0	0	0	0	0	7
Technical Assistance Program Seats	3	2	0	0	0	0	0	0	0	1	0	0	6
Overseas Pakistanis of Khyber Pakhtunkhwa Seats	1	2	0	0	0	0	0	0	0	0	0	0	3
Afghan National Seats	2	2	2	1	1	1	2	0	0	1	1	0	11
Indian Occupied Kashmir Seats (IOK)	2	2	0	0	0	0	0	0	0	0	0	0	4
Total	**250**	**250**	**100**	**100**	**100**	**100**	**50**	**100**	**100**	**50**	**25**	**25**	**1250**