PRACTICE SOLVED PAPER-1

1. **A machine worker placed a cylinder with a diameter of 18 cm between the plates of a hydraulic press. If he applied a 4.25×10^5 N force to the cylinder, the stress on the end of the cylinder due to the applied force is $A\times10^7$Pa. What is the value of A?**

   a. 1
   b. 1/2
   c. 1.3
   d. 1.67

2. Echo is produced by reflection of sound wave from denser medium. What is the phase change between sound wave and echo?

   a. 0°
   b. 180°
   c. 270°
   d. 90°

3. Hook's law states that within proportionality limit

   a. stress is less than strain
   b. stress and strain are equal
   c. product of stress and strain is constant
   d. ratio of stress and strain is constant

4. In double slits experiment, two slits are 0.2mm apart with a screen at a distance of 1m. The third bright fringe is found to be displaced at a distance 7.5mm from the central fringe. What is the value of wavelength?

   a. 0.03mm
   b. 0.004mm
   c. 0.00006mm
   d. 0.0005mm

5. Which of the following does not affect speed of sound?

   a. density
   b. pressure
   c. temperature
   d. all of these

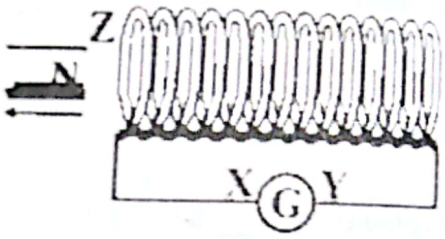
6. Which of the following is/are same for all isotopes of an element

   a. proton
   b. electron
   c. neutron
   d. both a & b

7. Unit of magnetic flux is

   a. tesla
   b. $NA^{-1}m^{-1}$
   c. weber
   d. both b & c

8. A magnet is passed through a solenoid from right to left as shown in figure



   a. Current flows from X to Y when magnet leaves the solenoid
   b. Current flows from Y to X when magnet leaves the solenoid
   c. Current flows from X to Y when magnet enters the solenoid
   d. none of these

9. In which medium speed of sound is maximum?

   a. gas
   b. water
   c. solid
   d. both b & c

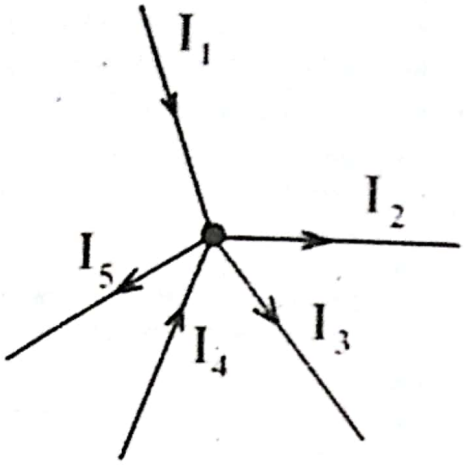
10. A car at rest starts moving with linear uniformly increasing velocity. After 20 seconds it attains the maximum velocity of 80 m/s. What is the distance covered during this time interval?

    a. 200m
    b. 400m
    c. 800m
    d. 1600m

11. Condition for light passing through diffraction grating to undergo constructive interference is that the path difference between two consecutive rays must be equal to

    a. $3\lambda/2$
    b. $\lambda/2$
    c. λ
    d. 0.2λ

12. Which of the following is true concerning the diagram below?



a. $I_1+I_2+I_3+I_4+I_5=0$
b. $I_1-I_2-I_3+I_4-I_5=0$
c. $-I_1+I_2+I_3-I_4+I_5=0$
d. both b & c

13. Energy stored in a stretched wire is given by

a. $\frac{1}{2}(\frac{EAl}{L})$
b. $\frac{1}{2}(\frac{EAl^2}{L})$
c. $\frac{1}{2}(\frac{EA}{L})$
d. $\frac{1}{3}(\frac{EAl^2}{L})$

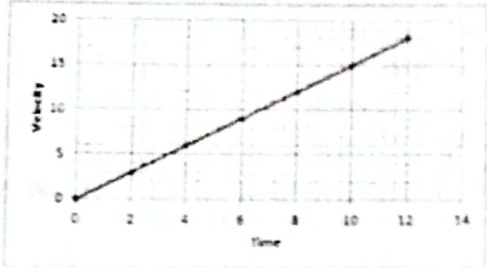
14. According to First law of thermodynamics

a. total energy of a system remains constant
b. total internal energy of a system during a process remains constant
c. internal energy and entropy during a process remains constant
d. work done by a system equals to the heat transferred by system

15. A Vernier Calliper has 1mm minimum reading on main scale and 10 numbers of divisions on vernier scale. What is its least count?

a. 0.5mm
b. 1mm
c. 0.1mm
d. 0.05mm

16. Velocity-Time graph for a body motion is shown in figure below;



Acceleration of this body will be:

a. zero
b. uniformly increasing
c. constant
d. uniformly decreasing

17. Unit of electromotive force is

a. Farad
b. Coulomb
c. Newton
d. Volt

18. Unit of strain is

a. N/m^2
b. Pa
c. no unit
d. N

19. When a β particle is emitted out of any nucleus, its atomic number

a. increase by 1
b. decrease by 1
c. remains same
d. decrease by 2

20. One Coulomb equals to

a. $Kgms^{-2}$
b. $Kgm^{-2}s^{-2}$
c. As
d. No unit

21. If the resistance of a conductor is zero, current will be

a. minimum
b. infinity
c. zero
d. maximum

22. Which of the following has one value of specific heat capacity?

a. gases
b. liquids
c. solids
d. both b & c

23. An aircraft is moving along a straight path with constant velocity, its acceleration will be:
    a. constant
    b. zero
    c. maximum
    d. uniform

24. Find 105.30 + 34.203 + 0.005 corrected up to suitable significant figures:
    a. 139.51
    b. 139.5
    c. 139.508
    d. All are true

25. X-rays having wavelength of 22pm are scattered from a carbon-14 target. The scattered radiations are being viewed at 55° to incident beam. What is change in wavelength?
    a. 2.0pm
    b. 1.0pm
    c. 2.9pm
    d. 3.5pm

26. Water having volume flow rate of 0.03 m3/s strikes a perpendicular flat surface with 3 m/s velocity. What is the force exerted by the water on the surface?
    a. 100N
    b. 0.09N
    c. 90
    d. 980

27. The heat absorbed or rejected by the working substance is given by
    a. $\Delta Q = T.S$
    b. $\Delta Q = mC\Delta T$
    c. $\Delta Q = C\Delta T$
    d. $\Delta Q = T/S$

28. Both constructive and destructive interference between two waves takes place equally when the waves are out of phase by
    a. 0°
    b. 90°
    c. 180°
    d. Any angle

29. A body moves with a constant velocity and covers X metres in 1st second and Y metres in next 4 second then what will be relation between X and Y.
    a. X=4Y
    b. Y=4X
    c. Y=16X
    d. X=2Y

30. Work done by magnetic force is
    a. 1
    b. 0
    c. IvB
    d. infinite

31. Unit of blood pressure is
    a. torr
    b. Pascal
    c. all of these
    d. N/m^2

32. Find the velocity of discharge through an orifice 2.5m below the water surface?
    a. 3.5m/s
    b. 4.0m/s
    c. 6.5m/s
    d. 7.0m/s

33. Ultrasounds are extremely important in
    a. medicine
    b. submarine navigation
    c. sound systems
    d. telecommunication

34. Average translational kinetic energy at a certain temperature:
    a. None of the above
    b. Depends on the type of gas
    c. Depends on the number of moles
    d. Is always same for all the gases

35. At room temperature which of the following gas has the highest average translational kinetic energy?
    a. H_2
    b. He
    c. CO_2
    d. All have equal

36. Ultrasound has frequency greater than
    a. 20 Hz
    b. 13500Hz
    c. 20000Hz
    d. 50000Hz

37. A manufacturer wants to design a pressure vessel with safety sensors with a purpose to cut off the steam supply when either pressure or temperature reach critical limits defined by costumer. What type of gate operation he should use to meet the purpose?
    a. AND
    b. NAND
    c. XOR
    d. OR

38. The process of polarization is associated with
    a. Longitudinal waves
    b. Transverse waves
    c. sound waves
    d. all of these

39. Which of the following gas behaves like an ideal gas?
    a. N_2
    b. O_2
    c. Ne
    d. CO_2

40. The maximum distance between the molecule of gases can be _____:
    a. zero
    b. 100 cm
    c. infinite
    d. none of these

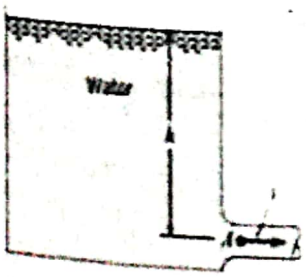
41. $2.04m^3$ water flows from a height of 15m and runs a turbine. What is the power transmitted by water to the turbine?
    a. 200kW
    b. 400kW
    c. 100kW
    d. 300kW

42. The pressure exerted by a real gas is _____ the ideal gas
    a. Greater than
    b. Equal to
    c. Less than
    d. None of the above

43. What is the average translational kinetic energy at 200 K?
    a. $4.14 \times 10^{-21}J$
    b. $6.14 \times 10^{-21}J$
    c. $3.11 \times 10^{-21}J$
    d. $1.38 \times 10^{-21}J$

44. Gases behave ideally when temperature is ____ and pressure is _____.
    a. Low, high
    b. High, low
    c. Low, low
    d. High, high

45. A 15m high reservoir is shown in the figure, the velocity of the water at the exit is 6m/s. Consider the flow is irrotational and steady through the pipe. Find the gauge pressure at A?



    a. 129kPa
    b. 139kPa
    c. 119kPa
    d. 149kPa

50. Identify the following protein structure:

    a. i. Primary, ii. β-pleated, iii. α-pleated
    b. i. Primary, ii. Tertiary, iii. Secondary
    c. i. Primary, ii. Quaternary, iii. Secondary
    d. i. Primary, ii. β-pleated, iii. α-helix

51. Which of the following has the strongest bond?
    a. CH3 – F
    b. CH3 – I
    c. CH3 – O
    d. CH3 – Br

52. A student sprayed water to a ribbon of $CrCl_3$ and the color changed to violet.

$CrCl_3 + 6H_2O \rightarrow Cr\ Cl_3\ .\ 6\ H_2O$

In this equation, what is the complex ion produced?
    a. $[Cr(H_2O)_5Cl]^{2+}$
    b. $[Cr(H_2O)_4Cl_2]^{1+}$
    c. $[Cr(H_2O)_6Cl_3]^{3+}$
    d. $[Cr(H_2O)_6]^{3+}$

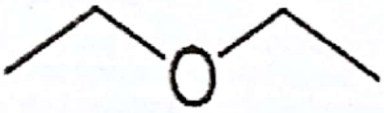
53. Calculate the root mean square speed of 10 g butane at 30°C in cm/s.
    a. 34 cm/s
    b. 3.6×10^4 cm/s
    c. 740 cm/s
    d. 63 cm/s

54. Which of the following is not the family of tetrahedral?
    a. Trigonal pyramidal
    b. Angular tetrahedra
    c. Ben It
    d. Square planar

55. Two moles of O_2 (g) is used to heat one mole of Q (s) to produce 1 mole of a gaseous compound in a small closed furnace. What is the ratio of final pressure at 616 K to the initial pressure at 308 K? Assume all reactants are converted to products.

a. 0.5
b. 4
c. 1
d. 2

56. Name this skeletal structure:

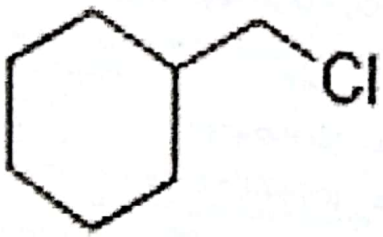


a. 2-Ethanoic acid
b. 2-Ethanoate
c. Diethyl ether
d. 2-Diethanal

57. What is the % relative humidity at 25°C and 0.01876 atm if the vapor pressure of water is 23.76 mm Hg.

a. 40%
b. 50%
c. 60%
d. 70%

58. Classify this alkyl halide:



a. 1° alkyl halide
b. 2° alkyl halide
c. 3° alkyl halide
d. 4° alkyl halide

59. What is the color of the precipitate when Brady's reagent is used to test a benzaldehyde?

a. Green
b. Brown
c. Magenta
d. Red

60. Which of the following alcohols can be reduced to aldehyde?

a. Isopropyl alcohol
b. Both A and B
c. Wood alcohol
d. Grain alcohol

61. Which of the following has the highest ionization energy?

a. Al
b. S
c. Si
d. p

62. A chemical engineer wants to use the Haber process in order to produce ammonia as raw material for fertilizers. Which of the following parameters must the chemical engineer avoid in order to obtain maximum yield of ammonia?

$N_2(g) + 3\,H_2\,(g) 2NH_3\,(g)\ \Delta H^o = -92.6 \frac{kJ}{mol}$

a. Increase the temperature
b. Use a catalyst
c. Adding more nitrogen gas
d. Increase the pressure

63. Increasing number of CFC production for industrial use has been a major contributor for the depletion of ozone molecules in the stratosphere. When CFC diffuses slowly to the atmosphere in the presence of UV light between 175nm to 220nm, ozone layer decomposes. If there is 1 mole of $CFCl_3$ (Freon-11) has been released to the air, how many moles of oxygen is produced from the photodecomposition of ozone?

a. 1
b. 2
c. 3
d. 4

64. What is formed by a series of complex reactions of ozone with water in the troposphere that are driven by sunlight?

a. O radical
b. H radical
c. OH radical
d. H3O radical

65. Match the following classification of amino acid on the basis of side chain

i. Non polar	a. Arg
ii. Polar	b. Asp
iii. Acidic	c. Asn
iv. Basic	d. Ala

a. i. and a, ii and b, iii and c, iv and d
b. i. and b, ii and a, iii and d, iv and c
c. i. and d, ii and c, iii and b, iv and a
d. i. and c, ii and d, iii and a, iv and b

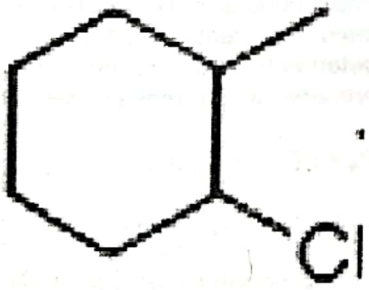
66. Which of the following is not a primary pollutant of the troposphere?

a. Carbon dioxide
b. Sulfur dioxide
c. Carbon monoxide
d. Ammonia

67. Arrange the following according to increasing ionization energy: Li, Be, Na, Mg.

a. Li<Be<Na<Mg
b. Be<Li<Na<Mg
c. Mg<Na<Li<Be
d. Na<Li<Mg<Be

68. Classify this alkyl halide:



a. 1° alkyl halide
b. 2° alkyl halide
c. 3° alkyl halide
d. 4° alkyl halide

69. What is common when carboxylic acid is reacted with base or with alcohol?

a. Catalyst
b. Formation of ester
c. Formation of salt
d. Formation of water

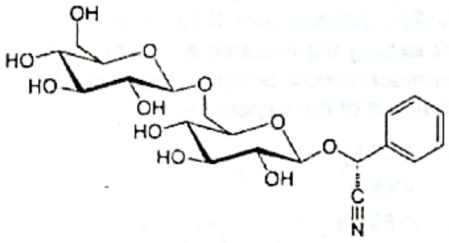
70. Jimmy went to a hospital to take some laboratory tests. After he had gotten the result, he found out that the count of his red blood cells was 2.7×10^6 / µL. The doctor said that the normal adult male hemoglobin count is 13.5 g/100 mL. Low hemoglobin count would result to anemia and high hemoglobin count would result to polycythemia. If you were the doctor, identify the condition of Jimmy. Hemoglobin is $C_{2952}H_{4664}N_{812}O_{832}S_8Fe_4$. One red blood cell is approximately 270 million hemoglobin molecules.

a. Anemic
b. Cannot be determined
c. Normal
d. Polycythemic

71. Which functional group is not a double bond?

a. Ethers
b. Aldehydes
c. Ketones
d. Esters

72. Amygdalin is a naturally occurring compound that is commonly found in seeds of apricot and apple. If you eat at least 200 of these seeds, it can be deadly. What is this harmful byproduct when amygdalin is reduced by enzymes in our body?

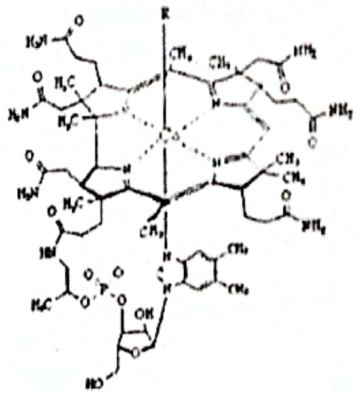


a. Cyanide ion
b. Hydrogen cyanide
c. Cyanohydrin
d. Cyano radical

73. Why water is added after the reduction process of aldehyde and ketone with LiAlH4?

a. Because water reacts violently with LiAlH4
b. Because water will protonate LiAlH4
c. Because water inhibits the process
d. Because it will result to alkenes

74. In 1956, Dorothy Crowfoot Hodgkin discovered the structure of Vitamin B_{12} or its other name "Cobalamin" because it has a transition metal cobalt as the central atom surrounded by complex amine groups and other complex functional groups as multidentate ligands.



Based on the chemical structure of Vitamin B_{12}, what could be the coordination number?

a. 3
b 4
c
6

75. A laboratory experiment requires each student to use 10g of caustic soda (NaOH). A laboratory personnel opens a new 909 g of said salt. If 42 students took exactly the required amount of salt, how much should be left in the container at the end of the experiment.

a. 1.07 kg
b. 48.9 g
c. 0.897 g
d. 0.489 kg

76. Sodium chloride injection is used to replenish fluid loss in the body. It usually contains 5% (w/w) NaCl. What is the mole fraction of each component in the solution?

a. NaCl = 0.050, Water = 0.950
b. NaCl= 0.016, Water = 0.984
c. NaCl = 0.160, Water = 0.840
d. NaCl = 0.205, Water = 0.795

77. Yttrium barium copper oxide ($YBa_2Cu_3O_7$) is a famous crystalline material ever discovered in the world of quantum physics. It becomes superconductor when it is exposed to liquid nitrogen. Calculate the mass percentage of yttrium, barium, copper, and oxygen in this compound.

a. Y = 13%, Ba = 41%, Cu = 29%, O = 17%
b. Y= 17%, Ba = 39%, Cu = 23%, O = 21%
c. Y = 15%, Ba = 52%, Cu = 10%, O = 23%
d. Y = 19%, Ba = 41%, Cu = 31%, O = 9%

78. Catalytic hydrogenation of alkenes exhibits

a. Substitution reaction
b. Elimination reaction
c. Addition reaction
d. Condensation reaction

79. Mr. Peregrine Phillips burned an elemental sulfur powder on a Bunsen burner and collected the smoke into a chamber. He further oxidized the gas that he collected in the chamber with a catalyst. What could possibly be the gas generated after oxidation?

a. Sulfur gas
b. Sulfur dioxide
c. Sulfur trioxide
d. Hydrogen sulfide

80. Phosphoric acid, H_3PO_4, is one of the main ingredients of soft drinks, detergents, and fertilizers. It can be prepared with a series of reactions:

$$P_4 + 5O_2 \longrightarrow P_4O_{10}$$

$$P_4O_{10} + 6H_2O \longrightarrow 4H_3PO_4$$

Let us say we allow 1000 kg of phosphorus to react with oxygen in a tank to yield 90% of tetraphosphorus decoxide (P_4O_{10}). In the second step of the reaction, we react it with water to yield 97% of H_3PO_4. How much in kilogram of H_3PO_4 that was produced after series of reactions?

a. 1565.72 kg
b. 965.46 kg
c. 2759.81 kg
d. 2846.12 kg

81. Pick a correct pair about the difference between E1 and E2 mechanism of methyl bromide forming an alkene.

a. E1 Mechanism – Strong Base and Alkyl Halide
E2 Mechanism – Weak Base and Alkyl Halide

b. E1 Mechanism – Weak Base and Alkyl Halide
E2 Mechanism – Strong Base and Alkyl Halide

c. E1 Mechanism – Strong Base and Alkyl Halide
E2 Mechanism – Strong Base and Alkyl Halide

d. E1 Mechanism – Weak Base and Alkyl Halide
E2 Mechanism – Weak Base and Alkyl Halide

82. Carbon monoxide is one of the products of incomplete combustion. How many bonds does carbon monoxide have?

a. 1
b. 2
c. 3
d. 4

83. Which of the following is correct according to increasing boiling point?

a. $H_2O<HF>NH_3<CH_4$
b. $HF<CH_4>NH_3<H_2O$
c. $H_2O<CH_4>NH_3<HF$
d. $CH_4<H_2O>NH_3<HF$

84. Gendry is a skilled blacksmith in Game of Thrones. If Gendry was to make a sword, he needed to prepare a furnace where he could heat the metal for shaping. King Robert Baratheon asked him to get a piece of metal to make him a twin-blade sword. Gendry then got a piece of metal and put it in the furnace until it glowed around 900°C. Then, he dipped it into 8 liters of water at 25°C until the water reached a final temperature of 30°C after shaping. What was the 7.51-mole twin-blade sword made of? The specific heat of the metal is 0.13 J/g °C.

a. Steel
b. Copper
c. Silver
d. Gold

85. We can prepare an alcohol using an ether. What is typically the reagent used for ether to break down to alcohol?

a. NaBH4
b. HBr
c. Na2Cr2O7
d. Grignard reagent

86. Two rocket fuels below are determined by their high performance

$$N_2H_4(l) + O_2(g) \rightarrow N_2(g) + 2H_2O(l) \quad \Delta H = -623kJ$$

$$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l) \quad \Delta H = -286kJ.$$

If equal masses of hydrazine and hydrogen are used, which of the following has better performance?

a. Hydrazine
b. Both have equal enthalpy of formation
c. Hydrogen gas
d. Cannot be compared

87. What happens if we react carboxylic acid with acyl chloride?

a. It forms an acid anhydride
b. It forms an acyl halide
c. It does not react due to resonance
d. It does not react due to bad leaving group

88. Which of the following transition metals has the highest variable oxidation state?

a. W
b. Pt
c. Hg
d. Mn

89. What is the cell reaction of:

$$Zn(s)\left|\begin{matrix}Zn^{2+}(aq)\\1M\end{matrix}\right|\left|\begin{matrix}Ni^{2+}(aq)\\1M\end{matrix}\right|Ni(s)$$

$$Zn^{2+}(aq) + 2e^- \rightarrow Zn(s) \quad E^0 = -0.76V$$

$$Ni^{2+}(aq) + 2e^- \rightarrow Ni(s) \quad E^0 = -0.25V$$

a. $Ni^{2+} + Zn \rightarrow Zn^{2+} + Ni$
b. $Zn^{2+} + Ni \rightarrow Ni^{2+} + Zn$
c. $Zn^{2+} + Ni^{2+} \rightarrow Zn + Ni$
d. $Zn + Ni \rightarrow Zn^{2+} + Ni^{2+}$

90. Calculate the total lattice energy of 100 mols table salt in water if each has a heat of solution of 4 kJ/mol and heat of hydration of -784 kJ/mol.

a. 78400 kJ
b. 78800 kJ
c. 19600 kJ
d. 313600 kJ

91. which of the pair of gases is not a greenhouse gas?

a. carbon dioxide and methane
b. carbon dioxide and nitric oxide
c. nitrogen and oxygen
d. water vapour and ozone

92. Tetracycline is an antibiotic which blocks protein synthesis of bacteria. the mechanism of it is

a. Inhibiting binding of aminoacyl tRNA to ribosome
b. Inhibiting translocase enzyme
c. Inhibiting initiation of translation
d. Inhibiting peptidyl transferase

93. Itching of anus is caused by

a. Ancylostoma duodenale
b. Ascaris lumbricoides
c. Enterobius vermicularis
d. Taenia solium

94. Peroxisomes

a. protect cell from toxic materials
b. digest cell
c. break down fatty acids
d. both A and C

95. Which of the following sets of bones does not include in axial skeleton?

a. Cranium and facial bones
b. Sternum, ribs, vertebrae
c. Lumbar, thoraicic, and pelvic bones
d. Pectoral girdle, pelvic girdle, and appendages

96. Diaphragm is a sheet of

a. Smooth muscles
b. Cardiac muscles
c. Skeletal muscles
d. All of the above

97. Choose the correct combination

a. Darwin --- survival of the fittest
b. Darwin --- no extinction
c. Lamarck --- Acquired transmission
d. Both A & C

98. Glucose and fructose join together through _____ to form sucrose

a. 1,4 glycosidic linkage
b. 1, 6 glycosidic linkage
c. 1, 2 glycosidic linkage
d. 1, 3 glycosidic linkage

99. _____ is activated to _____ by Enterokinase/enteropeptidase enzyme secreted the lining of duodenum:

a. Pepsinogen, pepsin
b. Trypsinogen, trypsin
c. Pepsinogen, trypsin
d. Chymotrypsinogen, chymotrypsin

100. Reabsorption of calcium is triggered by

a. Aldosterone
b. Parathormone
c. Anti-diuretic
d. Vasopression

101. Which statement about the cell wall of bacteria is correct?

a. Gram positive bacteria have more lipids in their cell wall
b. Gram negative bacteria have more lipids in their cell wall
c. Lipids are absent in cell wall of both gram positive and negative bacteria
d. Both have equal amount of lipids

102. Which of the following is not correct for food web?

a. Starts with primary consumers
b. Formed from food chain
c. Stable than food chain
d. Complex than food chain

103. What is the risk of color blind baby boy in a family when mother is color blind but father is normal?

a. 25 %
b. 50 %
c. 75 %
d. 100 %

104. The reason plants are considered totipotent is

a. Each cell has full genetic potential of the organism
b. A single cell could become a complete plant
c. Because they have lesser potential for tissue culturing
d. Both a and b

105. A long chain of spherical bacteria, like pearls in a necklace, is called____.

a. Diplococcus
b. Streptococcus
c. Staphylococcus
d. Sarcina

106. Mostly sucrose travels in _____ pathway

a. Symplast
b. Apoplast
c. Vacuolar
d. All of the above

107. which of the following is not true for retroviruses?

a. they are cuboidal in shape
b. they are enveloped by host plasma membrane
c. they have enzyme reverse transcriptase
d. all of them are not specific

108. Broken fragment of mycelium give rise to a new mycelium

a. fragmentation
b. budding
c. through conidia
d. through spores

109. Inner concave surface of Golgi complex is called _____ face

a. Ending
b. Forming
c. Starting
d. Maturing

110. Molecular formula of Chlorophyll B is:

a. $C_{55} H_{10} O_4 N_5 Mg$
b. $C_{55} H_{70} O_6 N_4 Mg$
c. $C_{55} H_{70} O_6 N_5 Mg$
d. $C_{55} H_{71} O_6 N_4 Mg$

111. Whose theory of natural selection is essentially identical to Darwin's theory?

a. Hardy-Weinberg
b. Alfred Wallace
c. Lyell
d. Malthus

112. failure of separation of sister chromatids is called

a. non fusion
b. non disjunction
c. fusion
d. interference

113. Source of Taq polymerase

a. Thermus aquaticus
b. Thermus floral
c. Floral aquaticus
d. Taq aquaticus

114. Analogous organs show

a. Straight evolution
b. Convergent evolution
c. Zig-zag evolution
d. Divergent evolution

115. Complete removal of _____ is necessary because if only head remains inside the intestine, it can grow again

a. tape worm
b. liver fluke
c. ascaris
d. pin worm

116. Auditory relay center is present in

a. Left cerebral hemisphere
b. Mid brain
c. Hypo campus
d. Hind brain

117. The total aggregate of genes in a population at any one time is called population's

a. Genome
b. Gene pool
c. Genomic library
d. Genetic group

118. Over grazing results into

a. Totally barren lands
b. Good pastured lands
c. Salinity
d. Rocky areas

119. Raw material for co-enzymes

a. Proteins
b. Metal ions
c. Carbohydrates
d. Vitamins

120. Antibodies are

a. primary proteins
b. secondary proteins
c. tertiary proteins
d. quaternary proteins

121. In nitrogen fixation, nitrogen is converted to

a. nitrate ions and ammonia
b. atomic nitrogen
c. urea
d. all.of the above

122. site of translation is

a. nucleus
b. nucleolus
c. cytoplasm
d. ribosomes

123. Lymph nodes are not present

a. Neck region
b. Axilla
c. Groin
d. Spleen

124. Guard cells function as

a. The defense system
b. Multisensory hydraulic valve
c. Hydrostatic pressure [illegible]
d. All of the abo[illegible]

125. Stop codon signal the t[illegible] of translation by binding

a. release factors
b. amber
c. ochre
d. opal

126. _____ cells store surplus food and _____ cells produce new cells for growth and development of the plant

a. Parenchymatous; Meristematic
b. Sclerenchymatous; Chlorenchymatous
c. Phloem; Meristematic
d. Parenchymatous, Chlorenchymatous

127. If there are 3 nucleotides in a genetic code, how many different genetic codes are possible to be formed?

a. 16
b. 64
c. 32
d. 48

128. _____ is involved in lipids synthesis / metabolism

a. Smooth endoplasmic reticulum
b. Rough endoplasmic reticulum
c. Mitochondria
d. Vacuoles

129. Which of the following is not the type of cells of gastric gland?

a. Zymogenic
b. Parietal
c. Sinusoidal
d. Mucous neck

130. According to pressure flow theory, _____ pressure in leaf end and _____ pressure in the fruit end causes the water along with solutes to move from leaf to fruit

a. High; high
b. High; low
c. Low; high
d. Low; low

131. Most simple amino acid is:

a. Alanine
b. Valine
c. Glycine
d. Lycine

132. _____ are animals that do not adjust their internal osmolarity and are isotonic with their environment.

a. Osmoconformers
b. Osmoregulators
c. Thermoregulators
d. Thermoconfermors

133. Secretion of pancreatic juice is stimulated by:

a. Secretin
b. Gastrin
c. Pepsinogen
d. Both secretin and gastrin

134. Left ventricle opens into

a. aorta
b. pulmonary trunk
c. pulmonary arteries
d. vena cava

135. pH at which the activity of pancreatic lipase enzyme is maximum

a. 8.00
b. 9.00
c. 7.40
d. 9.20

136. Which of these single membrane bound organelles does not contain enzymes?

a. Glyoxisome
b. Peroxisomes
c. Lysosomes
d. none

137. Nasal opening is closed by which of the following to prevent the food from entering
   a. Hard palate
   b. Epiglottis
   c. Soft Palate
   d. Larynx

138. Which type of RNA is most abundant in the cell?
   a. mRNA
   b. tRNA
   c. rRNA
   d. sRNA

139. _____ bacteria have tuft of flagella or one flagellum at each of the two poles
   a. Lophotrichous
   b. Monotrichous
   c. Amphitrichous
   d. Peritrichous

140. Two different pieces of DNA joined together by DNA ligase form
   a. Vector
   b. Recombinant DNA
   c. Chimaeric DNA
   d. Both B and C

141. Which of the following is not the function of proteins?
   a. Protection
   b. Transport
   c. Catalysis
   d. Information Storage

142. Plasmids carry gene for antibiotic resistance. Plasmid
   a. pSC 101 has antibiotic resistance gene for tetracycline
   b. pBR 322 has antibiotic resistance gene for tetracycline
   c. pBR 322 has antibiotic resistance gene for ampicillin
   d. All of the above are correct

143. Urine never contains
   a. Sodium ions
   b. Uric acid
   c. Creatinine
   d. Glucose

144. Hypoxanthine is the nucleobase of
   a. cytosine
   b. inosine
   c. trypsin
   d. Valine

145. Function of gall bladder is:
   a. Secretion of bile into duodenum
   b. Concentration of bile
   c. Secretion of several digestive enzymes
   d. All of the above

146. The enzymes of lysosomes are synthesized on
   a. RER
   b. SER
   c. Chloroplast
   d. Golgi apparatus

147. why daughter cells produced as the result of meiosis are not similar to the parent cells?
   a. 4 cells are produced as the result of complete meiosis
   b. nuclear size is increased
   c. crossing over occurs
   d. none of the above

148. The combination of a pentose sugar with a base
   a. Nucleotide
   b. Nuclei
   c. Nucleoside
   d. Polynucleotide

149. The residual volume of lungs during rest or sleep is
   a. 1.5 liters
   b. 2.5 liters
   c. 3.5 liters
   d. 4.5 liters

150. _____ is involved in lipids synthesis / metabolism
   a. Smooth endoplasmic reticulum
   b. Rough endoplasmic reticulum
   c. Mitochondria
   d. Vacuoles

151. Rib cage consists of 12 pairs of rib that articulate with
   a. Thoraicic vertebrae, ten of them connect anteriorly with sternum
   b. Cervical vertebrae, ten of them connect anteriorly with sternum
   c. Thoraicic vertebrae, all of them connect anteriorly with sternum
   d. Cervical vertebrae, all of them connect anteriorly with sternum

152. Cell suspension cultures of
   a. Cinchona produces digoxin
   b. Digitalis lanata produce digitoxin
   c. Digitalis lanata produce quinine
   d. Both a and b

153. Fear of getting obese is termed as:
   a. Bilimia nervosa
   b. Anorexia nervosa
   c. Dyspepsia
   d. Obesity

154. Which statement about enzyme is not true?
   a. Enzymes catalyze biochemical reaction without being utilized.
   b. Mostly enzymes consist of proteins as well with non-protein parts.
   c. All enzymes are fibrous Proteins.
   d. Apoenzyme + co-factor = holoenzyme

155. Red flower is a dominant trait whereas white flower is a recessive trait. But in F2 generation, a pink colored flower was obtained. Which phenomenon explains this?
   a. Law of independent assortment
   b. Law of segregation
   c. Incomplete dominance
   d. Test cross

156. The rate of transpiration is _____ at lower atmospheric pressure
   a. Increased
   b. Decreased slowly
   c. Remained unaffected
   d. Decreased rapidly

157. Site of glycolysis:
   a. Ribosomes
   b. Mitochondria
   c. Cytosol
   d. Nucleus

158. The cardiac cycle lasts for
   a. 1 second
   b. 0.6 seconds
   c. 0.8 seconds
   d. O.9 seconds

159. Acid rain is caused by the oxides of
   a. carbon and nitrogen
   b. carbon and sulphur
   c. nitrogen and sulphur
   d. All of the above

160. Blood pressure is highest in:
   a. Aorta
   b. Veins
   c. Arteries
   d. Capillaries

161. Complete the sentence using the most suitable preposition.

   I intend to go to London ___ Friday.

   a. At
   b. On
   c. In
   d. Since

162. Complete the sentence using the grammatically correct word or phrase.

   I ..... a report at the moment.

   a. Writing
   b. Writes
   c. Is Writing
   d. Am writing

163. Select the word or phrase which is closest in meaning to the underlined words.

   It is a colossal building.

   a. Colorful
   b. Huge
   c. Small
   d. Haunted

164. Select the word or phrase which is closest in meaning to the underlined words.

   Due to his timidity he could not perform on stage.

   a. shyness
   b. Ignorance
   c. Bodily Pain
   d. Tiredness

165. Complete the sentence using the most suitable preposition.

The police stopped him for driving ..... 120km/h.

a. On
b. over
c. In
d. Within

166. Complete the sentence using the grammatically correct word or phrase.

.....of the two books is ready to be published.

a. None
b. All
c. Not
d. Neither

167. Complete the sentence using the most suitable preposition.

Tickets for the cricket match are on sale ..... Wednesday.

a. At
b. From
c. For
d. Of

168. Complete the sentence using the most suitable preposition.

Take your mobile ..... of your pocket and give it to me.

a. off
b. Out
c. To
d. Towards

169. The word closest in meaning to Empathy is _____

a. Harshness
b. Compassion
c. Cruelty
d. Charity

170. Select the word or phrase which is closest in meaning to the underlined words.

The dinner conversation was so <u>banal</u> that he left before we had dessert.

a. Boring
b. Ordinary
c. Slow
d. Inappropriate

171. Veracity most closely refers to

a. Actuality
b. Mistake
c. Denial
d. Huge

172. The word closest in meaning to Allay is _____

a. Comfort
b. Happy
c. Dispel
d. Calm

173. Immobilize most closely refers to

a. Unimportant
b. Immaterial
c. Immature
d. Immoveable

174. Select the word or phrase which is closest in meaning to the underlined words.

The new mother <u>respited</u> when her baby fell asleep.

a. Rested
b. Cried
c. Enjoyed
d. Fainted

175. The word closest in meaning to Dale is _____

a. Tor
b. Lake
c. Hill
d. Valley

176. Select the word or phrase which is closest in meaning to the underlined words.

Due to his continuous mischievous activities, he has become a <u>rogue</u> person.

a. Thief
b. Honest
c. Dishonest
d. Sharp

177. Select the word or phrase which is closest in meaning to the underlined words.

He <u>flushed</u> with anger when his father slapped him in front of all his relatives.

a. Blackish
b. Thrilled
c. Angry
d. Reddened

178. Complete the sentence using the grammatically correct word or phrase.

I ..... my work last night.

a. Will complete
b. Complete
c. Completes
d. Completed

179. Complete the sentence using the most suitable preposition.

He knew everything ..... Lahore.

a. inside
b. about
c. into
d. despite

180. Complete the sentence using the grammatically correct word or phrase.

I have been driving ..... 3hours.

a. Since
b. From
c. For
d. By

Answer Key

Question Number	Correct Option
1.	d
2.	b
3.	d
4.	d
5.	b
6.	d
7.	c
8.	a
9.	c
10.	c
11.	c
12.	d
13.	b
14.	a
15.	c
16.	c
17.	d
18.	c
19.	a
20.	c
21.	b
22.	d
23.	b
24.	a
25.	b
26.	c
27.	a
28.	b
29.	b
30.	b

Question Number	Correct Option
31.	a
32.	d
33.	b
34.	d
35.	d
36.	c
37.	d
38.	b
39.	c
40.	c
41.	d
42.	c
43.	a
44.	b
45.	a
46.	c
47.	c
48.	c
49.	c
50.	d
51.	a
52.	d
53.	b
54.	d
55.	c
56.	c
57.	c
58.	a
59.	d
60.	b
61.	b
62.	a
63.	b

Question Number	Correct Option
64.	c
65.	c
66.	a
67.	d
68.	b
69.	d
70.	a
71.	a
72.	b
73.	a
74.	d
75.	d
76.	b
77.	a
78.	c
79.	c
80.	c
81.	b
82.	c
83.	d
84.	d
85.	b
86.	c
87.	a
88.	d
89.	a
90.	b

Question Number	Correct Option
91.	c
92.	a
93.	c
94.	d
95.	d
96.	c
97.	d
98.	c
99.	b
100.	b
101.	b
102.	a
103.	d
104.	d
105.	b
106.	a
107.	a
108.	a
109.	d
110.	b
111.	b
112.	b
113.	a
114.	b
115.	a
116.	b
117.	b
118.	a
119.	d
120.	d
121.	a
122.	c
123.	d
124.	b
125.	a
126.	a

Question Number	Correct Option
127.	b
128.	a
129.	c
130.	b
131.	c
132.	a
133.	a
134.	a
135.	a
136.	d
137.	b
138.	c
139.	c
140.	d
141.	d
142.	d
143.	d
144.	b
145.	b
146.	a
147.	c
148.	c
149.	d
150.	a
151.	a
152.	b
153.	b
154.	c
155.	c
156.	a
157.	c
158.	c
159.	c
160.	a

Question Number	Correct Option
161.	b
162.	d
163.	b
164.	a
165.	b
166.	d
167.	b
168.	b
169.	b
170.	b
171.	a
172.	a
173.	d
174.	a
175.	d
176.	c
177.	d
178.	d
179.	b
180.	a

Answers and Explanations

Question Number	1.	Correct Option	d

Explanation

We know that

$$\sigma = F/A$$

where area $A = (\pi/4)\, d^2 = 0.0254 m^2$

putting the value in above

$$\sigma = 1.67 \times 10^7 Pa$$

On comparing, we have

$A = 1.67$

Question Number	2.	Correct Option	b

Explanation

When a wave is reflection by a denser medium, it undergoes a phase change of 180°.

Question Number	3.	Correct Option	d

Explanation

Hook's law states that stress is directly proportional to strain and ratio of stress and strain is constant.

Question Number	4.	Correct Option	d

Explanation

Given data

l = 1m, h = 7.5mm

Find the value of Θ as

$$\tan\Theta = h/l$$

$$\Theta = 0.43°$$

Now using the below formula with m = 3

$$d\sin\theta = m\lambda$$

$\lambda = 0.0005mm$

Question Number	5.	Correct Option	b

Explanation

Pressure does not affect speed of sound because change in pressure changes the density, so net effect is zero.

Question Number	6.	Correct Option	d

Explanation

Isotopes have same atomic number so they have same number of protons and electrons. Only the number of neutrons is different.

For example carbon atom has two isotopes Carbon-12 and Carbon-14

So in both of the atoms the number of protons and electrons is same which is 6. The number of neutrons in C-12 is 6 whereas in C-14 it is 8.

Question Number	7.	Correct Option	c

Explanation

Weber is the unit of magnetic flux.

Question Number	8.	Correct Option	a

Explanation

When magnet leave the solenoid, change in flux is negative from maximum to zero, so the current flow in opposite direction i.e from X to Y.

Question Number	9.	Correct Option	c

Explanation

Speed of sound is maximum in solids because in solids the density is high, the particles are packed closely together. As a result the energy transfer is quick so the wave travels faster in solids as compare to the other two staes.

Question Number	10.	Correct Option	c

Explanation

Initial velocity=0

Using 1st equation of motion

$$V_f = V_i + at$$

gives

$$a = 4\ m/s^2$$

then using

$$2aS = V_f^2 - V_i^2$$

We can calculate

S= 800m

Question Number	11.	Correct Option	c

Explanation

Path difference between two consecutive rays must be equal to λ.

Question Number	12.	Correct Option	d

Explanation

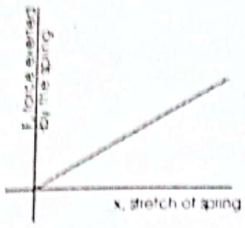
Kirchhoff's rule states that the sum of the currents flowing towards a point is equal to the sum of all current flowing away from that point.

Thus both option b & c are correct.

Question Number	13.	Correct Option	b

Explanation

We know from Hooke's Law the energy stored in a stretched wire is given by the area under the curve of force extension graph which looks like



Thus the energy becomes

$$W = \frac{1}{2} F \times x$$

Through the above equation we can find the energy in a stretched wire. Notice that in all the options E and A is mentioned which corresponds to Young's Modulus and area respectively. Therefore we need to find force in from the Young's Modulus eqution:

The Young's Modulus is given by $E = \frac{stress}{strain}$

Where stress is $\frac{Force}{Area}$

Strain is $\frac{l}{L}$

where l is the extended length and L is the original length. Substituting these in the Young's Modulus formula we get

$$E = \frac{\frac{F}{A}}{\frac{l}{L}}$$

From this equation now we can make Force the subject which comes out to be

$$F = \frac{EAl}{L}$$

Substituting this equation of force in our actual formula of work done in a stretched wire we get

$$\frac{1}{2}\left(\frac{EAl^2}{L}\right)$$

Question Number	14.	Correct Option	a

Explanation

First law of thermodynamics is all about energy conservation and states that total energy of a system remains constant. Mathematically it is given by

$$\Delta U = Q - W$$

Where ΔU is the change in internal energy Q, is the heat supplied and W is the work done by the system against external factors like pressure.

Question Number	15.	Correct Option	c

Explanation

Least Count is defined as the smallest value on the main scale divided by the total numbers on the vernier scale

In the above vernier caliper the upper scale is the main scale while the bottom scale is the vernier scale. We can see that the minimum value on the main scale is 1 mm whereas the maximum reading on the vernier scale is 10, hence our least count will be

1mm/10= 0.1mm

Question Number	16.	Correct Option	c

Explanation

As velocity is increasing uniformly, the slope of the curve which is acceleration is constant.

Question Number	17.	Correct Option	d

Explanation

Electromotive force is always measured in volts.

Capacitance is measured in Farads.

Charge is measured in Coulomb.

Force is measured in Newtons.

Question Number	18.	Correct Option	c

Explanation

Strain has no units as it is the ratio of alike quantities.

Question Number	19.	Correct Option	a

Explanation

When a β particle is emitted out of any nucleus, its atomic number increase by 1 because electron carries -1 charge with it.the charge and mass are also conserved.

Question Number	20.	Correct Option	c

Explanation

Q=Current× time= As

Question Number	21.	Correct Option	b

Explanation

If the resistance of a circuit equals to zero, then the current will increase to infinity.

Question Number	22.	Correct Option	d

Explanation

All the incompressible substances have one value of specific heat capacity.

Question Number	23.	Correct Option	b

Explanation

If there is no change in velocity acceleration will be zero.

Question Number	24.	Correct Option	a

Explanation

As the least decimal point in the given numbers is two decimal places, this shows that the value 105.30 is the least prescise of the. Hence the answer will also have two decimal places.

Question Number	25.	Correct Option	b

Explanation

Change in wavelength means Compton's shift.

We know that

Putting the value of h, mass of electron and speed of light c, we have

$\Delta\lambda = 1.0pm$

Question Number	26.	Correct Option	c

Explanation

$$F = mv/t$$

Mass per second = m/t = vol. flow rate × density of water

$$m/t = 0.03 \times 1000 = 30kg/s$$

$F = 30 \times 3 = 90N$

Question Number	27.	Correct Option	a

Explanation

From the definition of entropy; change in energy content per unit temperature.

$\Delta Q = T.S$

Question Number	28.	Correct Option	b

Explanation

Both constructive and destructive interference between two waves takes place equally when the waves are out of phase by 90°.

Question Number	29.	Correct Option	b

Explanation

If the body is moving with constant velocity then the acceleration will be 0. The body will be moving equal distances in equal proprtions of time.Hence, if the body covers Xm in 1 second it would be covering 4Xm in 4 seconds so the relation will be

$Y = 4X$

Question Number	30.	Correct Option	b

Explanation

Magnetic force is merely a bending force and it always act perpendicular to the direction of motion, so the work done is zero. This can also be shown mathematically

$w = F \times d\cos\theta$

since the angle is 90 so the work done will be 0.

Question Number	31.	Correct Option	a

Explanation

Torr is the unit of blood pressure.

Question Number	32.	Correct Option	d

Explanation

$$v = \sqrt{2gh}$$

Putting all available values gives

v = 7m/s

Question Number	33.	Correct Option	b

Explanation

Ultrasounds are very important in submarine navigation because they can travel through water with high speed and have greater penetration power.

Question Number	34.	Correct Option	d

Explanation

The average translational kinetic energy is written as:

$T = \frac{2}{3K} < K.E >$

This clearly shows that the average translational kinetic energy of a gas does not depends on any specific feature of gas but temperature.

Question Number	35.	Correct Option	d

Explanation

The average translational kinetic energy is written as:

$T = \frac{2}{3K} < K.E >$

This clearly shows that the average translational kinetic energy of a gas does not depends on any specific feature of gas but temperature.

Hence, all the mentioned gases will have equal K.E.

Question Number	36.	Correct Option	c

Explanation

Sound having frequency greater than 20kHz are called ultrasound.

Question Number	37.	Correct Option	d

Explanation

Steam supply needs to be cut off when either the pressure or temperature reaches critical limit. So OR operation must be used.

Question Number	38.	Correct Option	b

Explanation

Process of polarization is associated with transverse waves only and longitudinal waves do not undergo the polarization process because their particles vibrate in the same direction in which the wave travels.

Question Number	39.	Correct Option	c

Explanation

Ne behaves as an ideal gas because it is small in size and has least intermolecular forces between its molecules while due to large size of molecules of O_2 and N_2 London dispersion forces act between them making them more non-ideal. In CO_2 the forces are even more prominent due to its big size.

Question Number	40.	Correct Option	c

Explanation

As pressure decreases and temp increases the distance between the molecules increases and there is no upper limit on this increase. Hence, at maximum there can be an infinite distance between the molecules of a gas.

Question Number	41.	Correct Option	d

Explanation

Power transmitted by water is given as

$$P = pgQh$$

where Q is volume flow rate.

Plugging the values, we find

$$P = 300kW$$

Question Number	42.	Correct Option	c

Explanation

The pressure exerted by the real gas is less than the ideal gas because the molecules of real gas themselves have attractive forces in them which decreases the pressure exerted by the gas.

Question Number	55.	Correct Option	c

Explanation

Strategy: This is now the application of all that you learned about simple gas equations and simple stoichiometry.

$Q(s) + O_2(g) \rightarrow O_x O_y(g)$

initial : 1 mol 2 mols 0 mol

final : 0 mol 0 mol 1 mol

Step 1: Establish the reaction. "Initial" corresponds before the reaction occurred. "Final" corresponds after the reaction has occurred.

no . of Q atoms formed : 1 mol x 1 = 1

no . of Q atoms formed : 2 mols x 1=2

Therefore , the gaseous compound is QO_2

Step 2: Identify the identity of the final product using simple stoichiometry. This is to prove that you will produce 1 mol after the reaction.

PV = nRT

In the initial state , onlyO_2 is gas that contributes the pressure :

In the final state , one mole QO_2 is formed

$P_{initial}$ x V = 2 mols x R x 308 K Eq.1

P_{final} x V = 1 mol x R x 616 K Eq . 2

Step 3: Use the ideal gas law to get the initial and final pressure of the compound which contribute in the change of temperatures in the same container before and after the reaction.

Step 4: Make the ratio of Eq. 2 to Eq. 1.

$$\frac{Eq.2}{Eq.1} = \frac{P_{final} \times V = 1\ mol \times R \times 616K}{P_{initial} \times V = 2mols \times R \times 308K}$$

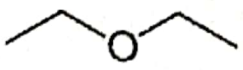
Cancell V and R since they are constant throughtout the reaction

$$\frac{P_{final}}{P_{initial}} = \frac{1(616K)}{2(308K)} = 1$$

Question Number	56.	Correct Option	c

Explanation

The name of the compound is diethyl ether because it has an oxygen atom connected with two ethyl groups.



Question Number	57.	Correct Option	c

Explanation

Strategy: Relative humidity measures how much water vapor is present in the air. It is expressed as the ratio between the pressure exerted by the water vapor and its vapor pressure at a given temperature. To calculate the problem, use this formula:

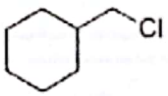
$P_{H_2O} = VP_{H_2O}(\%\ RH)$

$$\%\ RH \frac{P_{H_2O}}{VP_{H_2O}} \times 100 \frac{0.01876\ atm(\frac{760\ mm\ Hg}{1\ atm})}{23.76\ mm\ Hg} = 60\ \%$$

Question Number	58.	Correct Option	a

Explanation

This is a 1° alkyl halide because the C atom attached to halogen atom is surrounded with 1 alkyl group.



Question Number	59.	Correct Option	d

Explanation

Benzaldehyde will form a red precipitation when Brady's reagent is added. In many experiments, yellow precipitation forms when an aldehyde doesn't have rings.

Question Number	60.	Correct Option	b

Explanation

Wood alcohol or also known as methanol can be reduced to aldehyde. Grain alcohol or also known as ethanol can be reduced to aldehyde.

Question Number	61.	Correct Option	b

Explanation

Ionization energy increases across a period from left to right. All the elements in the choices can be found on period 3. The farthest right is S. Therefore, it has the highest ionization energy.

Question Number	62.	Correct Option	a

Explanation

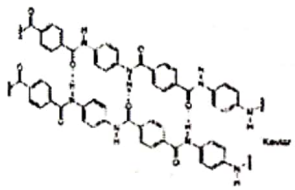
$N_2(g) + 3\ H_2\ (g) 2NH_3\ (g)\ \Delta H° = -92.6 \frac{kJ}{mol}$

Increasing the temperature makes the reaction endothermic and when this happens the direction of the reaction will chnage from right to left to make it favorbale.

Question Number	63.	Correct Option	b

Explanation

Increasing number of CFC production for industrial use has been a major contributor for the depletion of ozone molecules in the stratosphere. When CFC diffuses slowly to the atmosphere in the presence of UV light between 175nm to 220nm, ozone layer decomposes. If there is 1 mole of $CFCl_3$ (Freon-11) has been released to the air, the number of moles of oxygen is:



Question Number	64.	Correct Option	c

Explanation

Hydroxyl radical is generated by a series of complex reactions of ozone with water in the troposphere that are driven by sunlight and is one of the precursors of initiating a tropcspheric reactions.

Question Number	65.	Correct Option	c

Explanation

Amino acid can be classified on the basis of a side chain. Alanine (Ala) belongs to a nonpolar amino acid. Aspargine (Asn) belongs to a polar amino acid. Aspartic acid (Asp) belongs to acidic amino acid. Arginine (Arg) belongs to a basic amino acid.

Question Number	66.	Correct Option	a

Explanation

Carbon monoxide, sulfur dioxide, and ammonia are primary pollutants except carbon dioxide. Carbon dioxide is naturally occurring gas. It is not a primary pollutant because it is essential for plants to make food and produce oxygen.

Question Number	67.	Correct Option	d

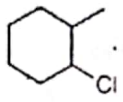
Explanation

The ionization increases from down to up the column and from left to right the row. Since all elements in the choices are alkali metals, the increasing trend will be Na<Li<Mg<Be.

Question Number	68.	Correct Option	b

Explanation

This is a 2° alkyl halide because the C atom attached to halogen atom is surrounded with 2 alkyl groups.



Question Number	69.	Correct Option	d

Explanation

If we compare the acid-base reaction and esterification process, the end product will always have a small molecule called water.

Question Number	70.	Correct Option	a

Explanation

Molecular weight of $C_{2952}H_{4664}N_{812}O_{832}S_8Fe_4$: = 2952 (12) + 4664 (1) + 832 (14) +832 (16) +8 (32) +4(56) = 65248 g/mol

$$= \frac{2.7\times10^6\ RBC}{\mu L}\left(\frac{1\mu L}{1\mu 10^{-6} L}\right)\left(\frac{1L}{1000mL}\right)\left(\frac{270\times10^6\ HG\ molecules}{1\ RBC}\right)$$
$$\left(\frac{1\ mol\ of\ HG}{6.022\times10^{23}\ HG\ molecules}\right)\left(\frac{65248\ g\ of\ HG}{1\ mol\ of\ HG}\right)$$

$$= \frac{0.079\ g\ HG}{mL}$$

per 100 mL : $\frac{0.079\ g\ HG}{mL}\times100mL = \frac{7.9\ g\ HG}{100mL}$

$\frac{7.9\ g\ HG}{100mL} < \frac{13.5g\ HG}{100\ mL}$ Therefore , jimmy is Anemic

Question Number	71.	Correct Option	a

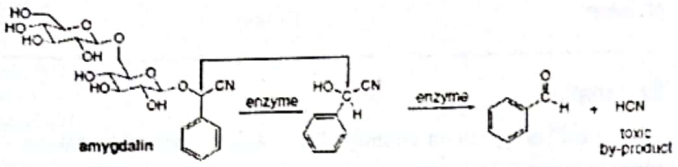
Explanation

Double-bonded functional groups are attached as substituents by a double bond. Aldehydes, ketones, and esters have carbonyl group (C=O) while ethers have have oxygen atom connected to two alkyl or aryl groups by a single bond.

Question Number	72.	Correct Option	b

Explanation

Eating the seeds of apple or apricot is deadly because the amygdalin is broken down by enzymes forming a harmful by-product HCN (hydrogen cyanide).



Question Number	73.	Correct Option	a

Explanation

$LiAlH_4$ is very reactive in any way and water must be reacted after the reduction process of the aldehyde. $LiAlH_4$ should be added to aldehyde under anhydrous condition because it violently reacts with water. Water is also added after the reaction to protonate the electron deficient site from the reduction process.

Question Number	74.	Correct Option	d

Explanation

Vitamin B_{12} is octahedral. The central atom is cobalt and is surrounded by a corrin ring system which is a tetradentate. On top can be 5-deoxyadenosie and below is dimethylbenzimidazole. All in all have 6 ligands forming an octahedral shape. Therefore the coordination number is 6.

Question Number	75.	Correct Option	d

Explanation

Strategy: Multiply the number of students to the mass of samples. The total must be deducted to the original amount of caustic soda to get the remaining amount.

$909g - 42(10g) = 489g\left(\frac{1kg}{1000g}\right) = 0.489kg$

Question Number	76.	Correct Option	b

Explanation

Strategy: First, set a basis by mass in order to calculate the solute present in the solution. Then from the basis, deduct the calculate mass in order to get the mass of solvent. Then, convert each mass to mols and calculate the mole fractions.

Basis : 100g of sodium Chloride Solution

mass of NaCl = 0.05 (100g) = 5 g of NaCl

mass of water = 100 g of solution - 5 g of salt = 95 g of water

Molecular weight of NaCl = 1 (23)+ 1 (35.45) = $58.45\frac{g}{mol}$

Molecular weight of H_2O = 2 (1) + 1 (16) = $18\frac{g}{mol}$

Mole Fraction of NaCl $\frac{\frac{5}{58.45}}{\frac{5}{58.45}+\frac{95}{18}}$ = 0.016

Mole fraction of water = 1 - 0.016 = 0.984

Question Number	77.	Correct Option	a

Explanation

To find %age mass of each atom we need to find the total mass of the compound and then simply divide the mass of each element present in the compound by the total mass of the compound

Molecular Weight of $YBa_2Cu_3O_7$ = 1 (89) + 2 (137) +3 (64) + 7 (16) = 667 g / mol

% Y by mass= $\frac{1(89)}{667g} \times 100 = 13\%$

% Ba by mas= $\frac{2(137)g}{667g} \times 100 = 41\%$

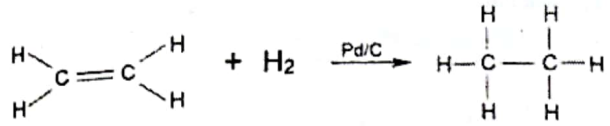
%Cu by mass= $\frac{3(64)g}{667g} \times 100 = 29\%$

%O by mass= $\frac{7(16)g}{667g} \times 100 = 17\%$

Question Number	78.	Correct Option	c

Explanation

Catalytic hydrogenation of alkenes exhibit addition reaction.



Addition reactions occur in an unsaturated compound meaning a compound which has a double bond can go addition reactions. The addition Reactions can be classified into three main categories

1. Electophillic addition: In these types of reaction a specie which accepts an electron pair attacks the electron rich site of the double bond between carbon atoms. The reaction examples include the reactions of alkenes with hydrogen halides.
2. Nucleophilic addition: In these types of reaction species which have electron pairs donate to form a chemical bond. These reactions usually occur in compounds having a carbonyl group like aldehydes or ketones.
3. Free-radical Addition: In these types of reactions non polar molecules form bounds with unsaturated compounds. These reactions occur when free radicals are formed. Free radicals are specie that have an unpaired valence electron.

Question Number	79.	Correct Option	c

Explanation

$SO_2\,(g) + O_2\,(g) \rightarrow SO_3\,(g)$

Question Number	80.	Correct Option	c

Explanation

Molecular weight of P_4: 4(31) = 124 kg/ mol

Molecular weight of H_3PO_4: 3(1) +1(31)+4 (16) = $98\frac{kg}{kmol}$

$P4+5O_2 \rightarrow P_4O_{10}$

Reaction 1 : 1000 kg OF $P_4 \frac{1\ kmol\ of\ P4}{124\ kg\ P4}\ \frac{1\ kmol\ of\ P4O10}{1\ kmol\ P4}$ = 8.064516129 kmol ofP_4O_{10}

Actual yield = 0.9 (8.064516129 k mol of P_4O_{10}) = 7. 258064516 kmol ofP_4O_{10}

P_4O_{10}+ 6 $H_2O \rightarrow H_3PO_4$

Reaction 2 : 7.258064516 kmol of $P_4O_{10}(\frac{4\ kmol\ H3PO4}{1\ kmol\ of\ P4O10})$ 29 . 03225806 kmolH_3PO_4

Actual yield : 0.97 (29.03225806 kmol H_3PO_4) = 28.16129032 kmolH_3PO_4

Production :28.16129032 kmol$H_3PO_4(\frac{98\ kg\ of\ H3PO4}{1\ kmol\ H3PO4})$2759.81 kg of$H_3PO_4$

Question Number	81.	Correct Option	b

Explanation

The strength of the base determines the mechanism of elimination. Strong bases favor E2 reactions. Weak bases favor E1 reactions.

Question Number	82.	Correct Option	c

Explanation

Carbon Monoxide (CO) has three bonds. To prove it, we can use the Co-ordinate Covalent version:

Total number of valence electrones : $\frac{4e^-}{1\ C\ atom}$ x 1 c aotm + $\frac{6e^-}{1\ O\ atom}$ x 1 o atom = $10e^-$

Total number of valence electrones in octect : $\frac{8e^-}{1\ C\ atom}$ x 1 C atom + $\frac{8e^-}{1\ O\ atom}$ x 1 O atom = $16e^-$

Total of shared electrons : $6e^- \frac{1\ bond}{2e}$ = 3 covalent bonds

Question Number	83.	Correct Option	d

Explanation

Increase in boiling point indicates a trend in electronegativity and size. The larger the surface area, the larger the force. The shorter the bond length due to electronegativity, the stronger the bond. Therefore, the increasing trend is $CH_4<H_2O>NH_3<HF$ or it can be rearranged as $CH_4< NH_3<H_2O<HF$.

Question Number	84.	Correct Option	d

Explanation

Q water = Q metal

$m_{water}C_{water}\Delta T = m_{metal}C_{metal}\Delta T$

$[8L(\frac{1\ g}{mL})(\frac{1000\ mL}{1L})](4.184\frac{J}{g.^0C})(30-25)^0C$

$= m_{metal}(0.13\frac{J}{g^0C})(900-30)^0C$

$m_{metal} = 1479.75\ g$

$MW metal = \frac{mass\ of\ metal}{mole\ of\ metal} = \frac{1479.75\ g}{7.51\ mol} = 197\frac{g}{mol}$(Gold)

Question Number	85.	Correct Option	b

Explanation

An ether can be broken down into alcohols if the reagent is strong enough to break the bond of O atom. A strong acid such as HBr can break it to form an alcohol and an alkyl halide but the ratio should be 1:1. If there's an excess HBr, it will form two alkyl halides and not an alcohol.

Question Number	86.	Correct Option	c

Explanation

$N_2H_4(l) + O_2(g) \rightarrow N_2(g) + 2H_2O(l) \quad \Delta H = -623kJ$

$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l) \quad \Delta H = -286kJ$

Let's assume that 1g of hydrazine and hydrogen gas are used

1 g of Hydrazine $(\frac{1\,mol}{32\,g})(\frac{-623\,kJ}{1\,mol}) = -19.47\frac{kJ}{g}$

1 g of Hydrogen gas $(\frac{1\,mol}{2\,g})(\frac{-286\,kJ}{1\,mol}) = -143\frac{kJ}{g}$

Therefore,the rocket fuel that has higher performance is hydrogen gas since it has more negative value

Question Number	87.	Correct Option	a

Explanation

When carboxylic acid is reacted with acyl chloride, it forms a carboxylic acid derivative called acid anhydride and small molecule HCl

Question Number	88.	Correct Option	d

Explanation

The highest variable oxidation state among all transition metals is manganese with +7.

Question Number	89.	Correct Option	a

Explanation

$Zn(s)\left|\begin{matrix}Zn^{2+}(aq)\\1M\end{matrix}\right|\left|\begin{matrix}Ni^{2+}(aq)\\1M\end{matrix}\right|Ni(s)$

$Zn^{2+}(aq) + 2e^- \rightarrow Zn(s) \quad E^0 = -0.76V$

$Ni^{2+}(aq) + 2e^- \rightarrow Ni(s) \quad E^0 = -0.25V$

Zn has more negative value. Therefore, it must occur in the anode.

Anode: $Zn(s) \rightarrow Zn^{2+}(aq) + 2e^-$

Cathode: $Ni^{2+}(aq) + 2e^- \rightarrow Ni(s)$

Overall: $Ni^{2+} + Zn(s) \rightarrow Zn^{2+} + Ni(s)$

Question Number	90.	Correct Option	b

Explanation

$\Delta H_{solution}$= Lattice Energy $+\Delta H_{hydr}$

Lattice Energy $=\Delta H_{hydr} - \Delta H_{solution} = 4\frac{kJ}{mol} - (-784\frac{kJ}{mol}) = 788\frac{kJ}{mol}$

100 mols of table salt $\frac{788\,kJ}{1\,mol}$ = 78800 kJ

Question Number	91.	Correct Option	c

Explanation

fact. carbondioxide is responsible for usually more than half of the greenhouse effect. other contributors are CFCs and methane. nitric oxide also contributes.

Question Number	92.	Correct Option	a

Explanation

tetracycline is a class of antibiotics. they are protein synthesis inhibitors. they inhibit inding of aminoacyl tRNA to ribosome.

Question Number	93.	Correct Option	c

Explanation

: fact

Enterobius vermicularis is also known as pinworm. it causes intense itching of anus, inflammation of mucous membrane of colon and appendix. this results in loss of appetite and insomnia.

Question Number	94.	Correct Option	d

Explanation

Peroxisomes are small vesicles found around the cell. They have a single membrane that contains digestive enzymes for breaking down toxic materials in the cell.

They are responsible for the protection of cells against hydrogen peroxide by converting hydrogen peroxide to water. peroxisomes also break down fatty acids to be used for forming membranes and as fuel for respiration. Peroxisomes hold on to oxidative enzymes.

They differ from lysosomes in the type of enzyme they hold.

Lysosomes are responsible for the digestion of cells.

Question Number	95.	Correct Option	d

Explanation

Explanation: human skeleton consists of 2 portions

i. Axial skeleton: made of central axis, includes skull, vertebrae, ribs, and sternum
ii. Appendicular skeleton: made of limbs and girdles

Question Number	96.	Correct Option	c

Explanation

The floor of the chest is called diaphragm which is a sheet of skeletal muscles. Diaphragm contracts during inhalation and expands during exhalation.

Question Number	97.	Correct Option	d

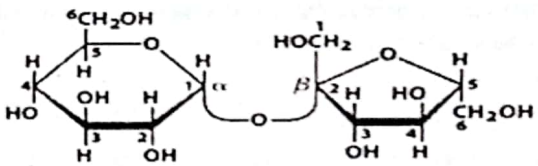
Explanation

The main concept of Darwin's theory is extinction of species.

Question Number	98.	Correct Option	c

Explanation

Fact



Sucrose
α-D-glucopyranosyl β-D-fructofuranoside
Glc(α1↔2β)Fru

Question Number	99.	Correct Option	b

Explanation

Enteropeptidase or enterokinase is produced by cells of the duodenum and converts trypsinogen (a zymogen) into its active form trypsin, resulting in the subsequent activation of pancreatic digestive enzymes including trypsin.

Question Number	100.	Correct Option	b

Explanation

Explanation: fact

Aldosterone triggers reabsorption of sodium.

Parathormone triggers reabsorption of calcium

ADH triggers reabsorption of water.

Vasopressin is another name for ADH

Question Number	101.	Correct Option	b

Question Number	102.	Correct Option	a

Explanation

Food chain does not follow straight path. It is the network of interlocking food chains. It has no starting point.

Question Number	103.	Correct Option	d

Explanation

The gene for color blindness is located on X chromosome and the offspring receives it from mother. Father gives Y chromosome to his son and X to daughter.

Now, the son gets defected gene from mother but there is no allele of color blindness on Y chromosome, so the disease will show and in this way all the sons will be color blind.

Question Number	104.	Correct Option	d

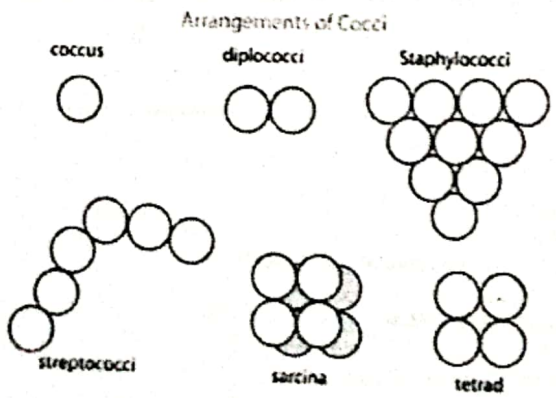
Explanation

definition of totipotent

Question Number	105.	Correct Option	b

Explanation

arrangement of cocci



Number	106.	Correct Option	a

Explanation

Symplast is the system of interconnected protoplast in the root cells. The neighboring cells are connected through plasmodesmata. It is the cytoplasmic projections that extend through pores in adjacent cell walls.

Question Number	107.	Correct Option	a

Explanation

they are spherical in form. all the other options are correct.

Question Number	108.	Correct Option	a

Explanation

fragmentation: mycelium breaks down into fragments and each each fragment gives rise to new mycelium

budding: buds are produced which are later separated. unicellular fungi are reproduced this way including yeats.

Spores are released from sporangia and germinate to produce new hype

conidia cut off at the tip of conidiophores and cause rapid colonisation of new food.

Question Number	109.	Correct Option	d

Explanation

Their outer convex surface of golgi complex is forming face, while the inner concave surface is the maturing face. The cisternae break up into vesicles from the maturing face.

Question Number	110.	Correct Option	b

Question Number	111.	Correct Option	b

Explanation

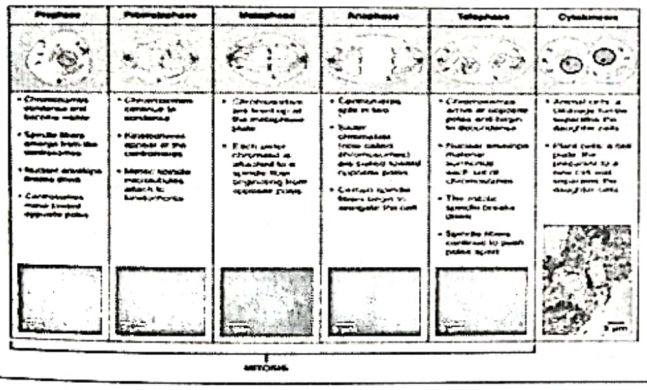
Alfred Wallace played an important role in developing the theory of natural selection. but over the time, Darwin became universally famous.

Question Number	112.	Correct Option	b

Explanation

definationof non disjunction. this may result in several diseases.

non disjunction during mitosis results in occurrence of cancer and non disjunction during meiosis may result in turner, kleinfelter, or down syndrome.



Question Number	113.	Correct Option	a

Explanation

Taq polymerase is a DNA polymerase enzyme which is thermostable or temperature insensitive. it is extracted from a bacteria, Thermus aquaticus, which lives in hot springs.

Question Number	114.	Correct Option	b

Explanation

Divergent evolution occurs when two separate species evolve differently from a common ancestor.

Convergent evolution occurs when species have different ancestral origins but have developed similar features.

Question Number	115.	Correct Option	a

Explanation

Once tape worms enters the human body, it is difficult to remove because it grows again from its head even if rest of the body is removed. anema along with drugs is given to remove tape worm from body

Question Number	116.	Correct Option	b

Explanation

Auditory relay center is present in mis brain.

Question Number	117.	Correct Option	b

Explanation

Genome is the complete set of genes or genetic material present in a cell or organism.

Gene pool is the stock of different genes in an interbreeding population.

Genomic library is a collection of the total genomic DNA from a single organism.

Question Number	118.	Correct Option	a

Explanation

Simple fact.

Question Number	119.	Correct Option	d

Explanation

Fact. Co-enzymes are not proteins. They are derived from vitamins.

Question Number	120.	Correct Option	d

Explanation

They consist of several subunits of tertiary folded proteins, that form a quaternary protein complex.

Question Number	121.	Correct Option	a

Explanation

in nitrogen fixation, nitrogen is converted to nitrate ions and ammonia by nitrogen fixing bacteria.

Question Number	122.	Correct Option	c

Explanation

proteins are formed in cytoplasm. site of protein production is ribosomes which are present in cytoplasm.

Question Number	123.	Correct Option	d

Explanation

Explanation: lymph nodes are present in neck region, axilla, and groin of human.

Lymph node is a mass of connective tissue. Several afferent lymph vessels enter lymph node which is emptied into single efferent lymph vessel.

Spleen is a lymphoid mass.

Question Number	124.	Correct Option	b

Explanation

Guard cells act as multisensory hydraulic valve. They regulate the opening and closing ofstomatato facilitate gas exchange and control transpiration in plants.

They work by regulating the flow of fluid.

Question Number	125.	Correct Option	a

Explanation

A release factor is a protein that allows for the termination of translation by recognizing the termination codon or stop codon in an mRNA sequence.

Question Number	126.	Correct Option	a

Explanation

Cells	Functions
Parenchymatous	store surplus food
Meristematic	produce new cells for growth and development of the plant
Sclerenchymatous	give support to the plant
Chlorenchymatous	carry out photosynthesis
Xylem	Transport water from roots to the site of photosynthesis

Question Number	127.	Correct Option	b

Explanation

If genetic code is three letters long, then $4^3 = 64$ genetic codes are possible; for example, AUU, GCG, or UGC.

Question Number	128.	Correct Option	a

Explanation

smooth endoplasmic reticulum is involved in lipid synthesis and metabolism.

rough endoplasmic reticulum is involved in protein synthesis.

he main job of mitochondria is to perform cellular respiration. This means it takes in nutrients from the cell, breaks it down, and turns it into energy.

Question Number	129.	Correct Option	c

Explanation

Gastric glands are composed ofthreemajor cell types:

1. Zymogenic
2. Parietal
3. Mucous neck cells.

At the base of the gland are the zymogenic or chief cells that are thought to produce the enzymes pepsin and rennin. Pepsin digests proteins, and rennin curdles milk.

Question Number	130.	Correct Option	b

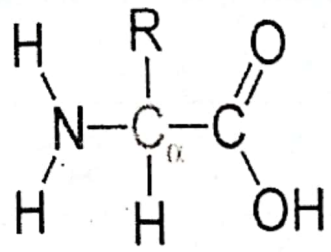
Explanation

Pressure flow theory explains the movement of sucrose from leaves (source) to fruit or roots (sink).

It works on the principle of pressure gradient. The high pressure in leaves and low osmotic pressure in fruit causes the water and solutes to move towards the fruit.

Question Number	131.	Correct Option	c

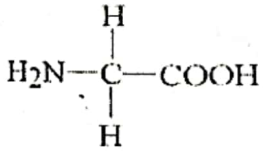
Explanation



general structure of amino acid is:

R group can be any alkyl or hydrogen atom.

the most simplest amino acid must have Hydrogen as R group. glycine is simplest amino acid.



glycine

Question Number	132.	Correct Option	a

Explanation

Osmoconformers are animals that do not adjust their internal osmolarity and are isotonic with their environment.

Osmoregulators are animals that are not isotonic with their environment and have developed mechanisms to regulate their internal solute and water concentrations.

Thermoregulators are animals that have constant body temperature. They maintain their temperature despite fluctuating environmental conditions.

Thermoconfermers are animals that have same temperature as the environmental temperature.

Question Number	133.	Correct Option	a

Explanation

Pancreatic juice helps in digestion of major components of food including fats, proteins, and carbohydrates.

When the acidic chyme reaches the duodenum, the first part of small intestine, the walls of the intestine secrete a hormone secretin which enters the blood and stimulates pancreas to secrete pancreatic juice.

Question Number	134.	Correct Option	a

Explanation

Explanation: aorta leads blood to different parts of the body through arteries.

Structures and functions of heart	
Structure	Function
Septum	Prevents mixing of oxygenated blood and deoxygenated blood
Aorta	Carries oxygenated blood to the organs
Pulmonary artery	Carries deoxygenated blood to the lungs
Pulmonary vein	Carries oxygenated blood to the lungs
Superior vena cava	Returns deoxygenated blood from head and arms to the heart
Inferior vena cava	Returns deoxygenated blood from lower limbs and organs to the heart

Question Number	135.	Correct Option	a

Explanation

Enzymes are affected by changes in pH and the pH at which the enzyme is most active - is known as the optimum pH.

As pancreatic lipase breaks down dietaryfatmolecules in the human intestinal lumen which has basic pH, so the optimum pH of pancreatic lipase is also basic.

Question Number	136.	Correct Option	d

Explanation

all the others are involved in biochemical reactions and contain enzymes.

Question Number	137.	Correct Option	b

Explanation

Fact.

Epiglottis is located behind the tongue above larynx and it seals off the windpipe during eating to prevent the food from inhaling.

Larynx is the voice box.

Question Number	138.	Correct Option	c

Explanation

ribosomal RNA are most abundant.

mRNA encodes amino acid sequence of a polypeptide.

tRNA brings amino acids to ribosomes during translation.

rRNA with ribosomal proteins, makes up the ribosomes, the organelles that translate the mRNA.

Question Number	139.	Correct Option	c

Explanation

bacilli and spiral shaped bacteria have flagella.

cocci rarely have flagella.

Question Number	140.	Correct Option	d

Explanation

Definition. Recombinant DNA is also called chimaeric DNA.

Question Number	141.	Correct Option	d

Explanation

proteins protect through immune system. immune system consists of antibodies that are proteins.

transport proteins help in transport of molecules inside and outside of cells.

proteins in the form of enzymes catalyse reactions.

information storage is the function of nucleotides not proteins.

Question Number	142.	Correct Option	d

Explanation

pSC 101 has antibiotic resistance gene for tetracycline and pBR 322 has antibiotic resistance gene for tetracycline and ampicillin.

Question Number	143.	Correct Option	d

Explanation

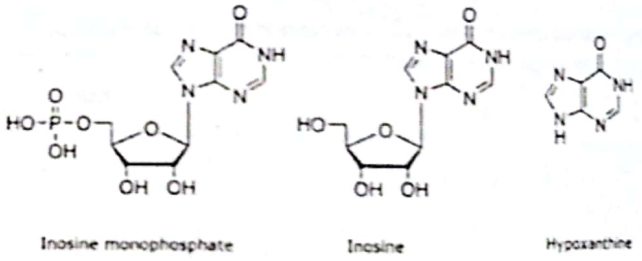
Normal urine is composed of greater than 95% of water. Other constituents include urea, chloride, sodium, potassium, creatinine, and other substances.

Glucose is conserved by the body, Itnever is excreted in normal conditions.

Question Number	144.	Correct Option	b

Explanation

Fact.Inosine is commonly found in tRNAs and is essential for proper translation of the genetic code in wobble base pairs.



Inosine monophosphate Inosine Hypoxanthine

Question Number	145.	Correct Option	b

Explanation

Gallbladder does not secrete any enzyme. It stores and concentrates bile by absorbing water and electrolytes

Question Number	146.	Correct Option	a

Explanation

The rough endoplasmic reticulum is where mostprotein synthesisoccurs in the cell. Ribosomes are organelles that help in thesynthesisofproteins. they are attached to RER or free in cytoplasm. The function of the smooth endoplasmic reticulum is to synthesize lipids in the cell. The smooth ER also helps in the detoxification of harmful substances in the cell.

Question Number	147.	Correct Option	c

Explanation

During crossing over, chromosomes pair up with each other and exchange different segments of genetic material to form recombinant chromosomes. recombinant DNA is not similar to parent DNAs.

Question Number	148.	Correct Option	c

Explanation

nucleoside = sugar + nitrogenous base

nucleotide = nucleoside + phosphate group

Question Number	149.	Correct Option	d

Explanation

In an adult human, the total capacity of lungs is 5 liters. The residual volume of lungs during rest or sleep is 4.5 liters because normally when we are at rest or sleeping, the exchange of gases is only about half a liter.

Question Number	150.	Correct Option	a

Explanation

smooth endoplasmic reticulum is involved in lipid synthesis and metabolism.

rough endoplasmic reticulum is involved in protein synthesis.

he main job of mitochondria is to perform cellular respiration. This means it takes in nutrients from the cell, breaks it down, and turns it into energy.

Question Number	151.	Correct Option	a

Explanation

Explanation: Rib cage consists of 12 pairs of rib that articulate with thoraicic vertebrae. 10 of them connect anteriorly with sternum either directly or through costal arch.

The lower 2 rib pairs are floating ribs.

Rib cage provides support to chest cavity.

Question Number	152.	Correct Option	b

Explanation

fact

Cell suspension cultures of Cinchona produces quinine and Digitalis lanata produce digitoxin

Question Number	153.	Correct Option	b

Explanation

Anorexia nervosa is the psychological disorder in which patient fears of getting obese.

Question Number	154.	Correct Option	c

Explanation

All enzymes are proteins but not necessarily fibrous proteins. Most enzymes are globular.

Question Number	155.	Correct Option	c

Explanation

Genotypic and phenotypic ratio will remain same in F2 generation.

Incomplete dominanceis a form of intermediate inheritance in which one allele for a specific trait is not completely expressed over its paired allele. This results in a third phenotype in which the expressed physical trait is a combination of the phenotypes of both alleles.

Question Number	156.	Correct Option	a

Explanation

When atmospheric pressure is low, the rate of diffusion of water molecules from the surface of mesophyll cells, air spaces, and through stomata to outside the leaf increases. This increases the rate of transpiration.

Question Number	157.	Correct Option	c

Explanation

Fact .

Question Number	158.	Correct Option	c

Explanation

Explanation: cardiac cycle is the sequence of events that occurs when theheartbeats. There are two phases. It consists of 3 phases

1. Relaxation phase – diastole – walls of the atria relax and blood reaches atria
2. Atria contract – atrial systole – blood leaved atria and ventricles are filled
3. Ventricles contract – ventricular systole – blood leaves ventricles and are transported to the whole body

One cycle completes in 0.8 seconds

Question Number	159.	Correct Option	c

Explanation

Nitrogen and sulphur oxides give rise to acid rain.

The byproducts of industrial burning of coal and fossil fuels are oxides of nitrogen and sulphur which combine with water in the atmosphere to give rise to acid rain. Acid rain is particularly harmful to aquatic life.

Question Number	160.	Correct Option	a

Explanation

Explanation: Blood pressure is highest as its leaves theleft ventriclethrough theaortawhen heart contracts. It gradually decreases as it enters smaller and smaller blood vessels – arteries,arterioles, and capillaries.

Question Number	161.	Correct Option	b

Explanation

- At is used with particular points of clock, day or week.

Usage: *I will eat lunch at 1 pm.*

- On is used with days to refer to one occasion.

Usage: *I will wear a suit on your wedding.*

-In is used to describe something that is enclosed.

Usage: *Put your mobile in your pocket.*

- Since is used when the starting point of something is given.

Usage: *He has been waiting for you since morning.*

The suitable option is on as it refers to an occasion.

Question Number	162.	Correct Option	d

Explanation

-*At the moment* indicates you need to use present progressive, the use of "am" is necessary here. "I" is used with am whereas he/she/it is used with is.

- *Writes* is used with a singular noun which isn't the case above. For example: *He writes.*

- Since it is a present continuous tense and we use verb+ing (writing) in present continuous tense but "writing" cant be used without 'am' therefore, Am writing is the most appropriate choice.

Question Number	163.	Correct Option	b

Explanation

- Colosal means extremely large.

-Colorful is something rich in colors.

-Huge means big in size.

-Small means tiny.

-Haunted means inhabited by ghosts.

Therefore, option B is the most appropriate.

Question Number	164.	Correct Option	a

Explanation

Timidity means to lack confidence.

- Shy is to feel nervous or confuse.

- Ignorant is a person who lacks knowledge and wisdom.

- Bodily pain here implies any physical pain in any part of the body.

- Tiredness is the feeling of weariness, which causes lethargy.

Therefore, option A is the most appropriate.

Question Number	165.	Correct Option	b

Explanation

-Preposition "on" is use to express a surface of something or used to refer to dates or occasions.

Sample sentence: *I am sitting on a chair.*

- Preposition "in" is used for unspecific time during a day, a month, a year or to talk about where something is in relation to a larger area around it.

Sample sentence: *Put my mobile in your bag.*

- Preposition "within" is used to imply inside of or not further than a geographical boundary.

Sample sentence: *The lake lies within the city.*

- Preposition "over" here implies greater than a particular number.

Sample sentence: *The meeting had an attendance of over 20 people.*

Hence,overis the most appropriate preposition to fill in the blank.

Question Number	166.	Correct Option	d

Explanation

When the sentence talks about two subjects, we use neither.If there are more than two subjects, we use none. All is also used for more than two subjects.

Question Number	167.	Correct Option	b

Explanation

-Preposition "at" is use to point out specific time.

- Preposition "for" is commonly used to indicate a reason for something, also for duration and for exchange.

- Preposition "of" indicates relationship between part and whole.

- Preposition "from" indicates the origin or the starting point.

Therefore, *from* is an appropriate preposition to fill in the blank.

Question Number	168.	Correct Option	b

Explanation

-Preposition "off" means away from.

Sample sentence: *He ran off from the scene.*

- Preposition "out" indicates. Movement form within something or somewhere.

Sample sentence: *Get out from my room, he shouted.*

- Preposition "to" indicates the direction or position, indicates the receiver of an action and used in telling the time.

Sample sentence: *This parcel is for you.*

- Preposition "towards" describes a movement in a direction or position.

Sample sentence: *I was moving towards him when he ran away.*

Hence, the best choice is B

Question Number	169.	Correct Option	b

Explanation

- Empathy means to understand other's feelings.

-Harshness is being rude.

-Compassion is to have a sense of sympathy for other people.

-Cruelty means the quality of being cruel and heartless.

-Charity is to give benefits to public.

Hence,compassion is the suitable answer to empathy.

Word	Synonym	Antonym
Harshness	brutality, cruelity	kindness, niceness
compassion	benevolence, grace	animosity, tyrany
Cruelty	atrocious, barbarous	considerate, gentle
Charity	philanthropy, endowment	hinderance, injury

Question Number 170. Correct Option b

Explanation

- Banal means something that has been done many times and has become ordinary.

- Boring means something that is very dull.

Sample sentence: *It was so hard to spend time with him, he is such a boring man.*

-Ordinary means something that has become very common.

Sample sentence: *You are wearing nothing special, it's an ordinary dress everyone has it.*

-Slow means not moving quickly.

Sample sentence: *I ask him to slow down, he was driving so fast it scared me.*

-Inappropriate means something which is unsuitable.

Sample sentence: *He was using inappropriate language while his parents were around, what a shame it is.*

Hence,ordinary is the suitable answer.

Question Number 171. Correct Option a

Explanation

-Veracity means conforming to truth, reality and fact.

- Actuality means reality or existence.

-Mistakemeans incorrect.

-Denial is to denounce something that is said or believed.

-Huge means gigantic.

Therefore, actualityis the most appropriate synonym.

Word	Synonym	Antonym
Veracity	accuracy, faimess	deceit, dishonesty
Actuality	fact, reallity	lie, failure
Denial	rebuttal, rejection	sanction, affirm
Huge	colossal, immense	dwarf, miniature

Question Number 172. Correct Option a

Explanation

- Allay is to comfort or soothe someone.

- Dispel means to disperse.

- Comfort means to ease someone.

- Calm means to be peaceful.

- Happy means to enjoy or feel pleasure.

So comfort is the suitable answer to allay.

Question Number 173. Correct Option d

Explanation

Immobilize means lack of movement.

-Unimportant means lacking significance.

-Immaterial means unimportant or irrelevant in a particular context.

-Immature means emotionally underdeveloped.

-Immovable means lack of motion, prevention of movement.

Therefore, option Dis most appropriate.

Word	Synonym
Unimportant	frivolous, trivial
Immaterial	extraneous, impertinent
Immature	unripe, unfledge
Immovable	impassive, motionless

Question Number 174. Correct Option a

Explanation

- Respited means to rest or relief.

-Cried means to weep.

-Fainted means to pass out.

-Enjoyed means to rejoice something.

Hence,rested is the suitable answer to respited.

Word	Synonym	Antonym
Respited	defer, abate	accuse, charge
Fainted	black out, succumb	ascend, improve
Enjoyed	appreciate, savor	dislike, detest

Question Number 175. Correct Option d

Explanation

Dale means an open river valley.

-Tor means a prominent rock.

-Lake means a body of water surrounded by fresh water.

-Hill means a well-defined elevation of land.

-Valley means a long depression in surface of land that contains water.

Therefore, word Valleyis the synonym fordale.

Word	Synonym
Tor	elevation, peak
Lake	lagoon, pond
Hill	dune, cliff
Valley	basin, canyon

Question Number	176.	Correct Option	c

Explanation

- Rogue is a person who is dishonest and unreliable.

-Thief is a person who steals from other people.

-Honest is the one who is not disposed to cheat.

- Dishonest is the one who is a fraud and unreliable.

-Sharp is the one who is smart and clever.

So,dishonest is the suitable answer.

Question Number	177.	Correct Option	d

Explanation

-Flushed means redness of face.

- Blackish means something that is black.

- Thrilled means to get excited.

- Angry means to get annoyed.

- Reddened means when the cheeks become red with blood due to emotions.

So reddened is the most suitable answer. In such questions try to understand the contextual meaning of the phrase, it helps to identify the correct word. For example, in sentence above the boy was slapped which made him angry, it becomes evident that after being slapped his face turned red.

Question Number	178.	Correct Option	d

Explanation

-It is a simple past tense, so we use second form of the verb. Hence, completed is the right choice.

- Complete can be used in simple present tense.

- Will Complete can be used in simple present tense.

- Usecompleteswith singular, like *He, She, It.*

Question Number	179.	Correct Option	b

Explanation

- Preposition "inside" refers to the inner part of something.

- Preposition "about" means, concerning, related to or in regard to.

- Preposition "into" indicates the entrance in close space.

- Preposition "despite" is use to explain that one thing was present to prevent the other thing yet the other thing happened.

So the best choice is B.

Question Number	180.	Correct Option	a

Explanation

- Since is also used when starting time is given but no specific time period like 1 hour, 1 day, 1 year.

- From is used when a staring point is given.

- The main difference between the use of since and for is thatsince is used for an action that started but it has not yet finished, whereas for is used for a finished action or of action.

For example (since and when):

- *I have been waiting since 3 hours.*

- *I will have to wait for 3 hours.*

- By is used to identify the proximity.

Usage: *His house is located by the forest.*

- For is used to show to whom something is intended.

Usage: *These tickets are for you.*

Hence,Since is the right choice.