


ETEA engineering 2019

| | |
|---|---|
| 1) Pollutant which inhibit the synthesis of hemoglobin is a) Hg b) Pb c) Ni d) Ag | 12) A source of sound of frequency 500 Hz is moving towards an observer with velocity 30m/sec. the speed of sound is 330m/s. The frequency heard by the observer is a) 550 Hz b) 458.3Hz c) 530Hz d) 545 Hz |
| 2) Which of the following alkyl halides shows higher reactivity? a) R-F b) R-Cl c) R-Br d) RI | 13) If the area of hysteresis loop of a material is large the hysteresis loss in this material will be a) Zero b) small c) large d) none of the above |
| 3) For a reversible reaction, the catalyst increases the speed of a) Forward reaction b) Backward reaction c) Both forward and backward reactions equally d) Forward reaction to a larger extent than backward reaction | 14) In Young's slit experiment, the separation between the slits is halved and distance between the slits and screen is doubled the fringe width is a) Unchanged b) halved c) double d) quadrupled |
| 4) $2N_2O_5 \rightarrow 4NO_2 + O_2$ this reaction is an example of _____ order reaction a) 1 st b) 2 nd c) 3 rd d) zero | 15) An object at the surface of the earth weighs 90N its weight at a distance 3R from the center of earth is a) 8N b) 9N c) 12N d) 10N |
| 5) Diamond and graphite are a) Isomers b) isomorphs c) allotropes d) both b and c | 16) Capacitance of parallel plate capacitors independent of a) Area of plates of capacitor b) Medium between plates of capacitor c) Potential difference between plates d) Distance between plates of capacitor |
| 6) Metal sulfate that is comparatively more soluble in water is a) $MgSO_4$ b) $CaSO_4$ c) $BaSO_4$ d) $SrSO_4$ | 17) The emf of a battery is equal to its terminal potential difference: a) Under all condition b) Only when the battery is being charged c) When a large current is in the battery d) Only when there is no current in the external circuit |
| 7) CO_2 is a gas at room temperature but SiO_2 is solid. The reason is that a) SiO is ionic b) bonds in SiO_2 are very strong c) SiO_2 is polymorphic d) Si makes double bonds with O | 18) A laser must be pumped to achieve a) A metastable state b) fast response c) stimulated emission d) population inversion |
| 8) Mr. Saad _____ his teeth before breakfast every morning a) Will cleaned b) is cleaning c) cleans d) clean | 19) Your best friend in going on a near light speed trip. When at rest you measure her spaceship to be 100 feet long. Now she is in flight and you are on the earth, and you measure her spacecraft to be a) Exactly 100 feet long b) less than a 100 feet long c) more than 100 feet long d) none of the above |
| 9) I plan to take my vacation _____ in June _____ July a) Whether/or b) either/or c) as it d) if as | 20) The maclaurin's expansion of $\cosh x$ is: |
| 10) _____ many times every winter in Skardu. a) It snows b) it showed c) it is snowing d) it is snow | |
| 11) $\int_1^2 (\sqrt{x} + \frac{1}{\sqrt{x}}) \sqrt{x} dx$: a) 5/2 b) $2^{3/2} - 1$ c) $\frac{1}{2}$ d) 2 | |

- 21) If $f(x) = 16\sqrt{x}$ then $f^{-1}(4) =$
 a) $1/4$ b) $-1/4$
 c) $1/16$ d) $-1/2$
- 22) Maths
- 23) Maths
- 24) $\int \frac{1}{\cos^2 2x} dx =$
 a) $\frac{1}{2} \csc 2x + c$
 b) $\frac{1}{2} \ln[\sec 2x + \tan 2x] + c$
 c) $\frac{1}{2} \tan 2x + c$
 d) $\frac{1}{2} \ln[\cos(2x) - \cot(2x)] + c$
- 25) What happens to the half life of a radioactive substance as it decays?
 a) It remains constant
 b) it increases
 c) it decreases
 d) it could do any of these
- 26) The area of a book having length 1m and breadth 0.5m, in cm^2 is given by
 a) 5000 b) 5
 c) 500 d) 50
- 27) 2π rad/s is approximately equal to
 a) 30 revolutions b) 40 revolution
 c) 50 revolutions d) 60 revolutions
- 28) The equation of continuity can be derived from
 a) Law of conservation of energy
 b) Law of conservation of momentum
 c) Law of conservation of mass
 d) Law of conservation of charge
- 29) Lorentz force is based on
 a) Dot product
 b) cross product
 c) both dot and cross product
 d) independent of both
- 30) Which one of the following compounds produce the lowest amount of heat of combustion?
 a) 1-butene b) Trans-2-butene
 c) cis-2-butene d) Isobutylene
- 31) During SN^2 mechanism, the nucleophile attacks on the substrate;
 a) When C-X bond has broken
 b) Before C-X bond has broken
 c) When C-H bond has broken
 d) After the formation of carbocation
- 32) Carat is the unit of purity of gold. 18 carat gold contains ____ % gold
 a) 50-60 b) 70-75
 c) 90-95 d) 99
- 33) Which one of the following reagents is used to distinguish between primary, secondary and tertiary alcohols?
 a) Baeyer's reagent b) Tollen's reagent
 c) Lucas reagent d) Nessler's reagent
- 34) As the attraction between the nucleus and the foreign electron increases, the potential energy of the system
 a) Increases
 b) unaffected
 c) decreases
 d) first decrease then starts increase
- 35) The formation of but-2-ene always takes place through
 a) SP^2 hybridization
 b) SP^3 hybridization
 c) SP^2, SP^3 both
 d) SP, SP^3 both
- 36) Pentane C_5H_{12} at room temperature does not obey
 a) Charles's law b) boyle's law
 c) Avogadro's law d) all of the above
- 37) $20 \text{ cm}^3 \text{ CH}_4$ gas was burnt in $10 \text{ cm}^3 \text{ O}_2$ to produce CO_2 as
 $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$
 The limiting reagent in this reaction is
 a) O b) CH
 c) CO_2 d) None of the above
- 38) Work hard _____ you should fail
 a) Or b)) lest
 c) that d) none of the above
- 39) $\frac{\text{volt}}{\text{ampere}}$ farad, expected dimension is
 a) $\text{M}^0 \text{L}^0 \text{T}^{-1} \text{A}^{-2}$ b) $\text{M}^1 \text{L}^1 \text{T}^{-2} \text{A}^{-2}$
 c) $\text{M}^0 \text{L}^0 \text{T}^1 \text{A}^2$ d) None
- 40) In Compton scattering from stationary particles the maximum shift in wavelength can be made smaller by using
 a) Higher frequency radiation
 b) More massive particles
 c) Lower frequency radiation
 d) Less frequency radiation
- 41) Which of the following system below are not inertial reference frames?
 a) A person standing still
 b) An airplane in mid flight
 c) A merry-go-round rotating at constant rate
 d) All of the above are IFRs
- 42) A wire carrying current 10mA experiences a force of 2N in a uniform field. What is the force on it when current rises to 30mA?
 a) 2N b) 4N
 c) 6N d) 8N
- 43) Citizens are _____ stricter immigration laws.
 a) Asking for b) recommending
 c) demanding d) none of the above
- 44) Nadia doesn't like to drive, _____ she takes the bus everywhere
 a) But b) yet
 c) so d) if

- 45) NO_2 gas shows maximum absorption at about _____ nm
 a) 400 b) 700
 c) 200 d) 120
- 46) Color of the hair dye is mainly due to
 a) Substituted alcohols
 b) stearalkonium hectorite
 c) meta substituted aniline
 d) acetone
- 47) She insisted _____ helping me with the dishes
 a) On b) with
 c) for d) about
- 48) A large sum of money ____ stolen.
 a) Were b) was
 c) have d) had
- 49) Think not of it
 [Choose the correct passive voice]
 a) It should not be thought.
 b) Let it not be thought of.
 c) It must not be thought.
 d) Let not be think of it-
- 50) Limit
- 51) For a function $f(x) = x^2 - 5x + 2$. Newton's-Raphson method fails for
 a) $x_0 = 2/5$ b) $x_0 = -5/2$
 c) $x_0 = 5/2$ d) $x_0 = -2/5$
- 52) $\frac{d}{dx} x^a = ?$
 a) ax^{-1} b) 0
 c) $x^a \log_e a$ d) x^a
- 53) $\frac{d}{dx} \left(\frac{1}{x}\right) =$
 a) x^2 b) $-x^2$
 c) $\frac{1}{x^2}$ d) $\frac{1}{x^2}$
- 54) The sign of the tangent to the curve $y = x^3 + 5$ at the point (1,2) is:
 a) 6 b) 2
 c) 5 d) 3
- 55) Which one of the following produces an NMR spectrum with more than one peak?
 a) Ethane b) methane
 c) butane d) cyclobutane
- 56) Which one of the following gases is the major contributor greenhouse effect?
 a) Ozone b) CO_2
 c) CH_4 d) NO_2
- 57) Oxidation number of Nickel in tetra carbonyl nickel $\text{Ni}(\text{CO})_4$ is
 a) +4 b) +3
 c) 0 d) -2
- 58) Addition of HCN to acetone forms cyanohydrin. It is an example of
 a) Electrophilic addition reaction
 b) Nucleophilic addition reaction
 c) Electrophilic substitution reaction
 d) Nucleophilic substitution reaction
- 59) In ice there are H-Bonds and covalent bonds. What type of solid is it?
 a) Ionic b) covalent
 c) molecular d) metallic
- 60) We are very excited _____ our trip to Karachi next week
 a) At b) with
 c) about d) over
- 61) Choose the word opposite in meaning to "RETAIN"
 a) Reject b) spare
 c) renounce d) eject
- 62) I am looking forward _____ having meeting with you next week
 a) With b) at
 c) to d) from
- 63) Maths
- 64) A homogenous equation of degree two has parallel lines only, when :
- 65) Choose the correct sentence
 a) She is busy at the work and won't be home before 10:30
 b) She is busy at work and would not be home before 10:30
 c) She is busy at work and won't be home before 10:30
 d) She is busy in work and would not be home before 10:30
- 66) Choose the word nearest in meaning to "DEplete"
 a) Destroy b) finish
 c) exhaust d) vanish
- 67) The order of equation $(2x - y + 3)dx - (y - 2x - 2)dy = 0$
 a) 0 b) 1
 c) 2 d) 3
- 68) Which one of the following function are homogenous?
 a) $x \sin y + y \sin x$
 b) $x e^{1/x} + y e^{x/y}$
 c) $x^2 - x^2 y$
 d) $\arcsin xy$
- 69) Find f_0 of $f(x,y) = \frac{\sin^{-1} xy}{x}$
 a) $\frac{x}{\sqrt{1-x^2y^2}}$ b) $\frac{x}{\sqrt{1-x-y^2}}$
 c) $\frac{-y}{\sqrt{1-x^2y^2}}$ d) $\frac{-y}{1-x^2y^2}$
- 70) For non linear function $f(x) = 0$, Newton- Raphson method is
 a) b) c) d)
- 71) The accuracy of the approximation can be

improved when approximating strip has:

- a) parabolic arc
b) squares
c) trapezoids
d) rectangles
- 72) A vector can be multiplied by a number, the number may be
a) Dimensionless
b) dimension scalar
c) negative
d) all a, b and c are correct
- 73) Equations having a common solution are called.
a) Linear equations
b) homogeneous equations
c) simultaneous equations
d) none of the above
- 74) Which one of the following liquids is more volatile?
a) Chloroform b) ethanol
c) water d) Glycerin
- 75) If the equilibrium constant K_c value for a certain reaction is very small, then
a) Reactants are in large amount
b) Products are in appreciable amounts
c) Reactants and products both are in appreciable amounts
d) In such a situation equilibrium cannot be obtained.
- 76) Which one of the following form acidic solution when dissolved in water?
a) Na_2CO_3 b) CH_3COONa
c) NH_4Cl d) K_2CO_3
- 77) Zinc and copper electrodes are connected for galvanic cell and salt bridge is also immersed in both the half-cell, the salt bridge will give cation to
a) Copper half cell
b) zinc half cell
c) both a and
d) None of the above
- 78) When $\text{K}_4[\text{Fe}(\text{CN})_6]$ is dissolved in water. It will furnish ___ ions per molecule.
a) 10 b) 2
c) 6 d) 5
- 79) Choose the alkyne that on catalytic hydrolysis form an aldehyde
a) $\text{CH}_3\text{-C}\equiv\text{CH}$
b) 
c) $\text{CH}_3\text{-C}\equiv\text{C-CH}_3$
d) None of the above
- 80) The compound which you can say ester is
A) CH_3CONH_2
B) $\text{CH}_3\text{-}\overset{\text{O}}{\parallel}\text{C}\text{-O-COCH}_3$
C) $\text{CH}_3\text{O-}\overset{\text{O}}{\parallel}\text{C}\text{-OCH}_3$
D) $\text{CH}_3\text{OCOCH}_3$
- 81) The efficiency of electric heater is
a) 45% b) 60%
c) 75% d) 100%
- 82) The velocity of disc at the bottom of an inclined plane is independent of
a) Mass of disc
b) radius of disc
c) height of inclined plane
d) both a and b
- 83) Water flows through a 1cm diameter pipe with speed of 1m/s. what should be the diameter of the nozzle if the water is to emerge at 4m/s?
a) 2.1cm b) 1.6cm
c) 1cm d) 0.5cm
- 84) The ratio of P.E and total energy at extreme position in SHM will be equal to
a) 1 b) $\frac{1}{2}$
c) $\frac{1}{4}$ d) zero
- 85) The speed of sound in air is 334m/s at a pressure P. what will be the speed of sound if the pressure becomes 4P?
a) 167m/s b) 334m/s
c) 668m/s d) 1336 m/s
- 86) In monochromatic red light a blue book will probably appear to be
a) Purple b) green
c) black d) none of the above
- 87) Two identical heat engines "A" and "B" have their sources at 600k and 400k and their sinks at 300k and 250k respectively. What can you say about their efficiency?
a) A is more than B
b) A is less than B
c) both have equal efficiency
d) the data given is not sufficient
- 88) Which one is not endothermic process?
a) Atomization of I_2
b) electrolysis of water
c) condensation of vapors
d) both b and c
- 89) One mole of which of the following bucky ball will have more molecules?
a) C_{20} b) C_{50}
c) C_{60} d) all same

- 90) The possible peaks (chemical shifts values) for 1 chloro-2-propanol molecules are
 3) 2 b) 3
 c) 4 d) 7
- 91) For a balanced wheat stone bridge, the current through the galvanometer is
 a) Maximum b) minimum
 c) zero d) 1 μ A
- 92) Two parallel conducting wires placed closer to each other carry current in the opposite direction will
 a) Attract each other
 b) repel each other
 c) no effect
 d) None of the above
- 93) If we increase the resistance of coil, the induced emf will
 a) Increase b) decrease
 c) remains same d) none
- 94) In a capacitive circuit, current and voltage phase relation is
 a) In phase
 b) current leads voltage by 90°
 c) voltage leads current by 90°
 d) None of the above
- 95) The ability of solids to resist bending is called
 a) Strength b) hardness
 c) toughness d) stiffness
- 96) Which one is known as antimatter or antiparticle?
 a) Proton b) electron
 c) neutron d) positron
- 97) Laser light is the result of
 a) Ordinary emission
 b) spontaneous emission
 c) stimulated emission
 d) all of the above
- 98) Radioactivity is affected by
 a) Temperature b) pressure
 c) humidity level d) None of the above
- 99) A car in motion hits and gets embedded in a tree trunk. What is conserved?
 a) Momentum and K.E
 b) Kinetic energy alone
 c) neither K.E nor momentum
 d) Momentum alone
- 100) A metallic carbide on treatment with water gives out a colorless gas, which burns in air readily and gives a red precipitate with CuCl_2 and NH_4OH Identify the gas.
 a) CH_4 b) C_2H_2
 c) C_2H_4 d) C_2H_6
- 101) Transpose of a rectangular matrix is a:
 a) rectangular matrix
 b) diagonal matrix
 c) square matrix
 d) scalar matrix
- 102) When a selection of objects is made without paying regard to order of selection, it is called the:
 a) permutation b) combination
 c) series d) sequence
- 103) Two factorization of $x^2 + x$ is:
 a) $(z+\sqrt{6})(x-\sqrt{6})$
 b) $(z+6)^2$
 c) $(z+\sqrt{6}t)(x+\sqrt{6}t)$
 d) $(z+\sqrt{6}t)(x-\sqrt{6}t)$
- 104) The work done by a magnetic field on a moving charge is
 a) $BqvL$ b) Bqv/L
 c) zero d) positive
- 105) Four wires meet at a junction. The first carries 4A into junction, the second carries 5A out of the junction and 3rd carries 2A out of the junction. The 4th carries
 a) 7A out of the junction
 b) 7A into the junction
 c) 3A out of the junction
 d) 3A into the junction
- 106) A 10 turn conducting loop spins at 60 revolutions per second in a magnetic field of 0.50T, the maximum emf generated is
 a) $200\pi^2 r^2$ b) $300\pi^2 r^2$
 c) $400\pi^2 r^2$ d) $600\pi^2 r^2$
- 107) According to the theory of relativity
 a) Moving clock runs fast
 b) Energy is not conserved in high speed collision
 c) The speed of light must be measured relative to the ether
 d) None of the above are true
- 108) Which one of the following has the greatest effect in decrease the oscillation frequency of an LC circuit using instead?
 a) $\frac{L}{2}$ and $\frac{C}{4}$ b) $\frac{L}{2}$ and $2C$
 c) $2L$ and $\frac{C}{2}$ d) $2L$ and $2C$
- 109) The relation between the disintegration constant λ and the half life T of a radioactive substance is
 a) $\lambda = 1/T$ b) $\lambda = 2/T$
 c) $\Delta t = \ln 2$ c) $\lambda T = \ln(1/2)$
- 110) if slope of a line is 2 then slope of the line perpendicular to this line is equal to
 a) -2 b) $-\frac{1}{2}$
 c) 2 d) 0
- 111) A line $x = B$ touch a circle $x^2 + y^2 - 6x - 4y - 12 = 0$ at:
 a) (2,8) b) (8,-2)
 c) (8,2) d) (-2,8)

- 112] The line $y = mx + c$ intersects the circle $x^2 + y^2 = a^2$ at the most of ___ points
 a) 1 b) 2
 c) 3 d) 4
- 113] The equation $(x+4)^2 + (y-1)^2 = b$ represents a circle with radius
 a) $\sqrt{6}$ b) 6
 c) 0 d) 1
- 114] A line $y = -x - c$, will touch a parabola $x^2 - \beta y$ only when
 a) $\frac{1}{2}$ b) -2
 c) 2 d) $-\frac{1}{2}$
- 115] The focus of the parabola $y^2 = -8(x-3)$ is?
 a) (0,1) b) (1,0)
 c) (0,1) d) (1,1)
- 116] A differential equation is considered to be ordinary if it has;
 a) more dependent variable
 b) more than one dependent variable
 c) one independent variable
 d) more than one independent variable
- 117] The differential equation $2\frac{dy}{dx} + x^2y = x+2$
 a) linear
 b) non linear
 c) linear with fixed points
 d) undeterminable to be linear or non linear
- 118] The dimensions of angular momentum are
 a) MLT^2 b) ML^2T^{-2}
 c) ML^2T^{-1} d) ML^3T^{-1}
- 119] Which one of the following statements is incorrect for vectors?
 a) $|\overline{AB}| = |\overline{BA}|$ b) $|\overline{AB}| = |\overline{AB}|$
 c) $\overline{AB} = -\overline{AB}$ d) \overline{AB} north = \overline{AB} south
- 120] Acetamide on hydrolysis gives
 a) Acetaldehyde b) acetic acid
 c) ethyl amine d) ethanol
- 121] Which one of the following does not have carboxylic acid group?
 a) Benzoic acid b) ethanoic acid
 c) picric acid d) adipic acid
- 122] He is quite deaf ___ my requests
 a) With b) about
 c) to d) of
- 123] He said to me, how long will you stay here?" [Choose the correct indirect speech
 a) He said to me how long I would stay here
 b) He asked me how long I will stay here
 c) He asked me how long I would stay there.
 d) He inquired for how long I will stay there.
- 124] The leader, as well as his brothers, ___ to the same tribe
 a) Belonging b) belongs
- c) belong d) belonged
- 125] The reciprocal of the number 'i' is
 a) 1 b) -1
 c) i d) -i
- 126] $a^2 + b^2 =$ _____
 a) $(a+b)(a-b)$ b) $(a+ib)(a-ib)$
 c) $(a+b)(a-ib)$ d) $(a+b^2)(a-b)$
- 127] If A is a symmetric matrix, then A^t is
 a) A b) |A|
 c) 0 d) Diagnol matrix
- 128] If A is a matrix of order $m \times n$ and B is matrix of order $n \times p$ then order of BA is:
 a) $p \times m$ b) $p \times n$
 c) $n \times p$ d) $m \times p$
- 129] On chlorination, benzene forms single monochlorobenzene without any isomer. It proves that
 a) Benzene is aromatic
 b) All C-C in benzene are identical
 c) All C-H bonds in benzene are identical
 d) Benzene sometimes behaves as non-aromatic
- 130] Avogadro's constant is the number of
 a) Atoms in 1g of He
 b) molecules in 35.5g of chlorine
 c) electrons present in 2g H
 d) atoms in 24g of Mg
- 131] A given sample of $AlCl_3$ contains 6.02×10^{20} Al^{3+} ions. The molecules of Cl⁻ will be
 a) 1×10^3 b) 3×10^3
 c) 3×10^4 d) 0.33×10^3
- 132] The angular momentum of the hydrogen atom in ground state is equal to
 a) $h/2\pi$ b) $2h/2\pi$
 c) $\pi/2h$ d) $2\pi/h$
- 133] which electronic level will allow the hydrogen atom to absorb a photon but not emit?
 a) 1s b) 2s2p3d
 c) 2p3d d) 3d
- 134] Which statement about the following molecules is incorrect?
 a) NH_3 has pyramidal shape
 b) CO_2 is linear
 c) H_2O is angular
 d) H_2S is linear
- 135] The molecule having zero dipole moment among the following
 a) NH_3 b) $SnCl_2$
 c) PH_3 d) CCl_4
- 136] For a gas when volume and pressure are 1 dm^3 and 2 atm respectively. What will be its new volume if the pressure is increased to 6 atm at constant temperature?
 a) $\frac{1}{2} \text{ dm}^3$ b) $\frac{1}{3} \text{ dm}^3$

c) $1/4 \text{ dm}^3$ d) $2/3 \text{ dm}^3$

- 137] Vapor pressure of a liquid does not depend on
 a) Temperature
 b) intermolecular forces
 c) amount of liquid
 d) amount of solid dissolved in liquid
- 138] Instead of beating _____ the brush, straightaway come to the point
 a) Away b) out
 c) about d) on
- 139] A small block oscillates back and forth on a smooth concave surface of radius R. the time period of small oscillation is
 a) $T = 2\pi \sqrt{\frac{R}{g}}$ b) $T = 2\pi \sqrt{\frac{2R}{g}}$
 c) $T = 2\pi \sqrt{\frac{R}{2g}}$ d) None of the above
- 140] The process or systems that do not involve exchange of heat are called
 a) Isothermal process
 b) equilibrium process
 c) thermal process
 d) adiabatic process
- 141] When NH_4Cl is added to a solution of $(\text{NH}_4)_2\text{CO}_3$, there will be?
 a) Decrease in (NH_4^+) ions concentration
 b) Decrease in CO_3^{2-} ions
 c) No change in CO_3^{2-} concentration
 d) No change in concentration of any specie
- 142] The strongest base among the following is
 a) Cl^- b) Br^-
 c) I^- d) CH_3COO^-
- 143] During the discharge of lead acid battery
 a) Pb is dissolved at the cathode
 b) Pb is deposited at the cathode
 c) PbSO_4 is formed at both anode and cathode
 d) Concentration of H_2SO_4 increases
- 144] Acidic KMnO_4 can't be used for the estimation of
 a) Ferrous ions b) oxalic acid
 c) Potassium iodide d) Ferric ions
- 145] A compound X is orange red in color, when KOH is added to it, lemon yellow coloration is obtained, compound X is
 a) K_2CrO_7 b) $\text{K}_2\text{Cr}_2\text{O}_7$
 c) KMnO_4 d) PbS
- 146] Ozonolysis of 2-Methyl-2-butene yields
 a) Only aldehyde
 b) only ketone
 c) both aldehyde and ketone
 d) aldehyde and alcohol
- 147] Alkyl halides are reactive towards nucleophilic attack because
 a) They are ionic in nature
 b) The C-X bond is non-polar
 c) They have nucleophilic carbon and bad leaving group
 d) They have electrophilic carbon and good leaving group
- 148] Methyl alcohol on oxidation with acidified $\text{K}_2\text{Cr}_2\text{O}_7$, gives
 a) CH_3COCH_3 b) CH_3CHO
 c) HCOOH d) CH_3COOH
- 149] The scalar triple product of $\vec{i}, \vec{j}, \vec{k}$ and $\vec{k}, \vec{i}, \vec{j}$ is?
 a) 1 b) 0
 c) -1 d) 3
- 150] For three vectors a, b, c, $d(\vec{b}+\vec{c}) = \vec{b}(d+\vec{c})$, then ?
 a) $\vec{a}(\vec{b}+\vec{c}) = 0$ b) $\vec{c}(\vec{a}+\vec{b}) = 0$
 c) $\vec{b}(\vec{a}+\vec{c}) = 0$ d) $\vec{c}(\vec{a}+\vec{b}) = 0$
- 151] For non-collinear vector A and B, the correct result is
 a) $p\vec{A} + q\vec{B} = 0, p \neq 0, q \neq 0$
 b) $p\vec{A} + q\vec{B} = 0, p = 0, q = 0$
 c) $p\vec{A} + q\vec{B} \neq 0, p = 0, q = 0$
 d) $p\vec{A} + q\vec{B} \neq 0, p \neq 0, q \neq 0$
- 152] Arithmetic mean between $2 + \sqrt{2}$ and $2 - \sqrt{2}$ is:
 a) 2 b) $\sqrt{2}$
 c) 0 d) 4
- 153] A function whose domain is the set of natural numbers is called
 a) identity function
 b) series
 c) sequence
 d) onto function
- 154] If sum of five arithmetic mean b/w a and b is 50, then their arithmetic mean is;
 a) 25 b) 50
 c) 10 d) 20
- 155] The dimension of pressure is
 a) $\text{ML}^{-1} \text{T}^{-2}$ b) $\text{ML}^{-2} \text{T}^{-2}$
 c) $[\text{MLT}^{-2}]$ d) $\text{ML}^{-1} \text{T}^{-1}$
- 156] The magnitude of two forces each of them is 10N are added together such that the magnitude of their resultants is also 10N. then the angle between the forces is
 a) 30° b) 60°
 c) 90° d) 120°
- 157] Two railway trucks of masses m and 5m move towards each other in opposite direction with speed 3v and v respectively. These trucks collide and stuck together. What is the speed of the truck after collision?
 a) $v/3$ b) $v/2$
 c) v d) $5v/4$

- 158] passengers _____ to smoke in the train
 a) Was not allowed b) had not allowed
 c) will not allow d) are not allowed
- 159] Can you _____ a few lines from wordsworth to prove that he is a poet of nature?
 a) Side b) site
 c) site d) cite
- 160] $\frac{\cos 2x}{\cos x} = \frac{\cos 2x}{\cos x}$
 a) $\tan x$ b) _____
 c) _____ d) _____
- 161] $\frac{\cos \theta - \tan \theta}{\sin \theta - \sin \theta} = \frac{\cos \theta - \tan \theta}{\sin \theta - \sin \theta}$
 a) $\tan \left(\frac{\theta - \varphi}{2}\right)$ b) $\tan(\theta - \varphi)$
 c) $\tan \left(\frac{\theta - \varphi}{2}\right)$ d) $\tan(\theta - \varphi)$
- 162] The expression $\tan(3\theta) = \frac{1 - \tan^3 \theta}{1 - 3\tan^2 \theta}$
 a) $\frac{1 - \tan^3 \theta}{1 - 3\tan^2 \theta}$
 b) $\frac{3 \tan \theta - \tan^3 \theta}{1 + 3 \tan^2 \theta}$
 c) $\frac{3 \tan \theta - \tan^3 \theta}{1 - 3 \tan^2 \theta}$
 d) $\frac{1 - \tan^3 \theta}{1 - 3 \tan^2 \theta}$
- 163] Law of cosine states that :
 a) $a^2 = b^2 + c^2 - 2bc \cos \gamma$
 b) $b^2 = a^2 + c^2 + 2bc \cos \beta$
 c) $c^2 = a^2 + b^2 - 2bc \cos \gamma$
 d) $a^2 = b^2 + c^2 - 2bc \cos \alpha$
- 164] Numerical integration for single function is also called
 a) area b) volume
 c) numerical quadrature d) both A and C
- 165] Domain of $\sec(x)$ is ;
 a) $[-1, 1]$
 b) \mathbb{R}
 c) $\mathbb{R} \rightarrow \{x \mid x = (2n+1)\pi/2, n \in \mathbb{Z}\}$
 d) $\mathbb{R} \rightarrow \{x \mid x = n\pi, n \in \mathbb{Z}\}$
- 166] Principle value of $\cos^{-1}[\cos(5)]$ is
 a) 5 b) $\pi - 5$
 c) $5 - \pi$ d) $2\pi - 5$
- 167] The relation $\sec[\arctan x] = ?$
 a) $\sqrt{x^2 - 1}$ b) $\frac{1}{\sqrt{1+x^2}}$
 c) $\sqrt{x^2 + 1}$ d) $\frac{1}{\sqrt{1-x^2}}$
- 168] $\int x^2 dx =$
 a) $x^2 + c$ b) $\pi^2 + c$
 c) $\frac{x^{2+1}}{2+1} + c$ d) $\pi x^{2+1} + c$
- 169] An emf of 16 volts is induced in a coil of inductance 4 H. The rate of change of current must be
 a) 64 A/s b) 32 A/s
 c) 16 A/s d) 4 A/s
- 170] In an RLC series phasor, we start drawing the phasor from which quantity?
 a) Voltage b) resistance
 c) impedance d) current
- 171] What is the average value of sinusoidal voltage that has a peak value of 15 volts?
 a) 0V b) 9.56V
 c) 10.6V d) 19.1V
- 172] Which of the following has the largest kinetic energy?
 a) 2M and 3V b) 5M and 2V
 c) 3M and 4V d) M and V
- 173] The SI unit of electric charge is
 a) AS^{-1} b) VS^{-1}
 c) A d) S
- 174] Aldehydes are reducing agents, in the reaction with Fehling's solution they reduce
 a) Cu^{+2} ions b) Ag^+ ions
 c) NaOH d) Na
- 175] In ice the water molecules are bounded by
 a) ionic bonds b) hydrogen bonds
 c) covalent bonds d) metallic bonds
- 176] The property of crystalline solid necessary to maintain habit of crystal is called
 a) Crystal lattice b) lattice site
 c) geometrical shape d) Polymorphism
- 177] The dispersion phase and dispersion medium for soap lather is respectively
 a) Gas and solid b) gas and liquid
 c) liquid and liquid d) solid and liquid
- 178] Which one is not correct for the stability of colloidal solution?
 a) Greater charge density on colloid
 b) Less solvation energy
 c) More Brownian motion
 d) None of the above
- 179] The n^{th} term of arithmetic geometric mean is
 a) $[a+(n-1d)]r^n$ b) $[a+(n-1d)]r^{n-1}$
 c) $[a+(n-1d)]r$ d) $[a+nd]r^{n-1}$
- 180] ${}^2C_2 + {}^5C_3 =$
 a) 5C_3 b) 4C_1
 c) 5C_2 d) 4C_1
- 181] For independent events A and B, $P(A \cap B) = ?$
 a) $P(A)P(B/A)$ b) $P(A) \cup P(B)$
 c) $P(A)P(B)$ d) $P(A) \cap P(B)$
- 182] For a random experiment, all possible outcome are
 a) numerical space b) sample space
 c) event space d) both b and c
- 183] If x is so small that square and higher powers can be neglected then $(1+3x)^{-2} =$
 a) $1+9x$ b) $1-9x$
 c) $1+6x$ d) $1-6x$
- 184] The last term of the expansion of $(3x+3y)^{-2}$ is

| | |
|--|---|
| <p>a) $7y^7$ b) $3^7 y^7$ c) $21y^7$ d) y^7</p> | <p>a) 0.61cm/s b) 6.1cm/s c) 61cm/s d) 61m/s</p> |
| <p>185] Which one of the following equations is not a function of y with respect to x/ a) $2x+3y = 6$ b) $x^2 - y = 6x-5$ c) $x^2 + y^2 = 16$ d) $y = 4x^3 - 5x^3 + 3x - 7$</p> | <p>194] Fringe spacing is a function of (young's double slit Exp) a) Separation between slits b) Wavelength of light c) Distance between slits and screen d) All of the above</p> |
| <p>186] The inverse function for the following functions $f(x) = \frac{x}{x+1}$ is: a) $f^{-1}(x) = \frac{x}{x+1}$ b) $f^{-1}(x) = xy+x$ c) $f^{-1}(x) = -x-1$ d) $f^{-1}(x) = -\frac{x}{x+1}$</p> | <p>195] Which one of the following properties is common between sound and light? a) Nature of sound and light b) Polarization c) medium d) diffraction</p> |
| <p>187] Ther e may be ____ feasible solution of the feasible region. a) infinite b) limited c) finitne d) defined</p> | <p>196] In isothermal process the internal energy of the system a) Remains constant b) increases c) decreases d) none of the above</p> |
| <p>188] In linear programing, objective function and objective constants are a) solved b) linear c) quadric d) adjacent</p> | <p>197] 197. An isolated charged point particle produced an electric field with magnitude E at point $2m$ away a point m from the particle the magnitude of the field is a) $2E$ b) $4E$ c) $E/2$ d) E</p> |
| <p>189] If two charges experience a force of 10N when medium is air. If medium is change whose relative permittivity is 2 then force will be a) 3N b) 5N c) 10N d) 0.2N</p> | <p>198] Which one of the following has highest melting point? a) NaCl b) MgCl_2 c) AlCl_3 d) SiCl_4</p> |
| <p>190] The time rate of change of linear momentum is a) Force b) tension c) inertia d) impulse</p> | <p>199] The main product obtained when acetic acid reacts with PCl_5? a) CH_3COCl b) CCl_3CHO c) CH_3Cl d) CH_3OH</p> |
| <p>191] A body moving in a circle of radius 1m transverses an angle of 57.3°. The distance covered by the body along circle is a) 1 m b) 57.3m c) πm d) $\pi/2\text{m}$.</p> | <p>200] Hydrolysis of an ester in the presence of alkali is called a) Esterification b) Transesterification c) saponification d) Decarboxylation</p> |
| <p>192] The restoring force in the simple pendulum of mass m is a) $mg \cos\theta$ b) $mg \sin\theta$ c) $mg \tan\theta$ d) mg</p> | |
| <p>193] if temperature of medium increases by 1°C then speed of sound will rise</p> | |

| | |
|-----|---|
| 1. | B |
| 2. | D |
| 3. | C |
| 4. | A |
| 5. | C |
| 6. | A |
| 7. | C |
| 8. | C |
| 9. | B |
| 10. | A |
| 11. | |
| 12. | A |
| 13. | C |
| 14. | D |
| 15. | D |
| 16. | C |
| 17. | D |
| 18. | D |
| 19. | B |
| 20. | |
| 21. | |
| 22. | |
| 23. | |
| 24. | |
| 25. | A |
| 26. | A |
| 27. | D |
| 28. | C |
| 29. | B |
| 30. | D |
| 31. | B |
| 32. | B |
| 33. | C |
| 34. | C |
| 35. | A |
| 36. | D |
| 37. | D |
| 38. | B |
| 39. | D |
| 40. | A |
| 41. | D |
| 42. | C |
| 43. | C |
| 44. | C |
| 45. | A |
| 46. | C |
| 47. | A |

| | |
|-----|---|
| 48. | B |
| 49. | B |
| 50. | |
| 51. | |
| 52. | |
| 53. | |
| 54. | |
| 55. | C |
| 56. | B |
| 57. | C |
| 58. | B |
| 59. | B |
| 60. | C |
| 61. | D |
| 62. | C |
| 63. | |
| 64. | |
| 65. | C |
| 66. | C |
| 67. | |
| 68. | |
| 69. | |
| 70. | |
| 71. | |
| 72. | D |
| 73. | |
| 74. | A |
| 75. | A |
| 76. | C |
| 77. | B |
| 78. | D |
| 79. | D |
| 80. | D |
| 81. | D |
| 82. | D |
| 83. | D |
| 84. | A |
| 85. | B |
| 86. | C |
| 87. | A |
| 88. | C |
| 89. | D |
| 90. | C |
| 91. | C |
| 92. | B |
| 93. | B |
| 94. | B |

| | |
|------|---|
| 95. | D |
| 96. | D |
| 97. | C |
| 98. | D |
| 99. | B |
| 100. | B |
| 101. | |
| 102. | |
| 103. | |
| 104. | C |
| 105. | D |
| 106. | D |
| 107. | D |
| 108. | D |
| 109. | C |
| 110. | |
| 111. | |
| 112. | |
| 113. | |
| 114. | |
| 115. | |
| 116. | |
| 117. | |
| 118. | C |
| 119. | C |
| 120. | B |
| 121. | C |
| 122. | C |
| 123. | C |
| 124. | B |
| 125. | |
| 126. | |
| 127. | |
| 128. | |
| 129. | B |
| 130. | D |
| 131. | |
| 132. | A |
| 133. | A |
| 134. | D |
| 135. | D |
| 136. | B |
| 137. | C |
| 138. | C |
| 139. | A |
| 140. | D |
| 141. | B |

| | |
|------|---|
| 142. | D |
| 143. | C |
| 144. | D |
| 145. | B |
| 146. | C |
| 147. | D |
| 148. | C |
| 149. | |
| 150. | |
| 151. | |
| 152. | |
| 153. | |
| 154. | |
| 155. | A |
| 156. | D |
| 157. | A |
| 158. | D |
| 159. | D |
| 160. | |
| 161. | |
| 162. | |
| 163. | |
| 164. | |
| 165. | |
| 166. | |
| 167. | |
| 168. | C |
| 169. | D |
| 170. | C |
| 171. | B |
| 172. | C |
| 173. | A |
| 174. | A |
| 175. | B |
| 176. | C |
| 177. | B |
| 178. | B |
| 179. | |
| 180. | |
| 181. | |
| 182. | |
| 183. | |
| 184. | |
| 185. | |
| 186. | |
| 187. | |
| 188. | |

| | |
|------|---|
| 189. | B |
| 190. | A |
| 191. | B |
| 192. | B |
| 193. | C |
| 194. | D |
| 195. | D |
| 196. | A |
| 197. | B |
| 198. | A |
| 199. | A |
| 200. | C |