Competishun

52/6, Opposite Metro Mas Hospital, Shipra Path, Mansarovar

Date: 28/11/2024

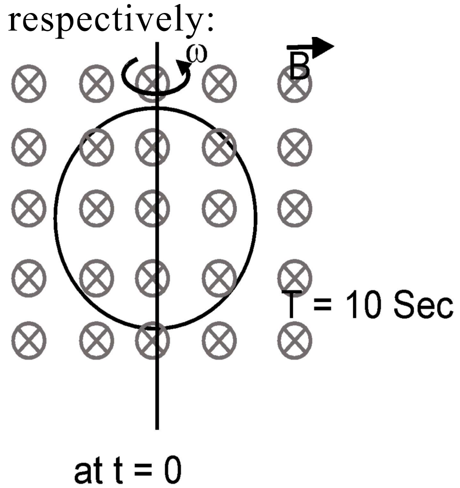
Time: 3 hours **Max. Marks:** 30

UTS-1_MT-5 (24-25)

Physics

Single Choice Question

Q1 A ring is rotated about diametric axis in a uniform magnetic field perpendicular to the plane of the ring. If initially the plane of the ring is perpendicular to the magnetic field. Find the instant of time at which EMF will be maximum & minimum respectively:



a) 2.5 sec, 5 sec **b)** 5 sec, 7.5 sec **c)** 2.5 sec, 7.5 sec **d)** 10 sec, 5 sec

Q2 A plate, of uniform thickness and uniform density, has shape in the x-y plane defined by the lines x = 0, y = 2, and curve $y = \frac{1}{2}x^2$. The plate lies in first quadrant of x-y plane. Then the x-coordinate of centre of mass of this plate is:

a) $\frac{1}{2}$ **b)** $\frac{3}{2}$ **c)** $\frac{4}{3}$ **d)** $\frac{3}{4}$

Q3 A nucleus with mass number 184 initially at rest emits an α-particle. If the Q value of the reaction is 5.5 MeV, calculate the kinetic energy of the α-particle.

a) 5.0 MeV **b)** 5.5 MeV **c)** 0.12 MeV **d)** 5.38 MeV

Q4 A plane electromagnetic wave is propagating along the direction $\frac{\hat{i}+\hat{j}}{\sqrt{2}}$, with its polarization along the direction $\hat{k}$. The correct form of the magnetic field of the wave would be (here B_0 is an appropriate constant)

a) $B_0\frac{\hat{i}-\hat{j}}{\sqrt{2}}cos\left(\omega t-k\frac{\hat{i}+\hat{j}}{\sqrt{2}}\right)$

b) $B_0\hat{k}cos\left(\omega t-k\frac{\hat{i}+\hat{j}}{\sqrt{2}}\right)$

c) $B_0\frac{\hat{i}+\hat{j}}{\sqrt{2}}cos\left(\omega t-k\frac{\hat{i}+\hat{j}}{\sqrt{2}}\right)$

d) $B_0\frac{\hat{i}-\hat{j}}{\sqrt{2}}cos\left(\omega t+k\frac{\hat{i}+\hat{j}}{\sqrt{2}}\right)$

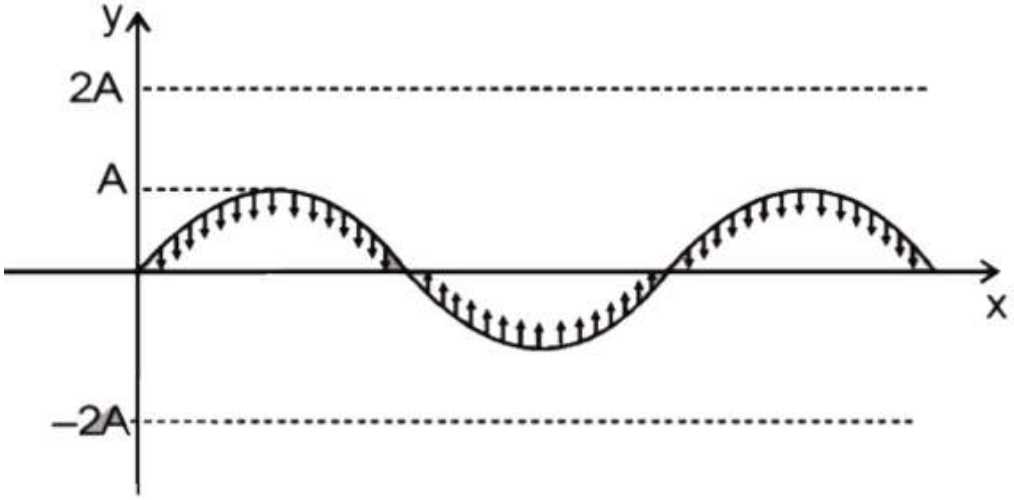
Q5 When photon of energy 4.0 eV strikes the surface of a metal A, the ejected photoelectrons have maximum kinetic energy T_A eV and de-Broglie wavelength λ_A. The maximum kinetic energy of photoelectrons liberated from another metal B by photon of energy 4.50 eV is $T_B = (T_A - 1.5)$ eV. If the de-Broglie waelength of these photoelectrons $\lambda_B = 2\lambda_A$, then the work function of metal B is :

a) 1.5 eV **b)** 4 eV **c)** 3 eV **d)** 2 eV

Q6 $\vec{F} = a\hat{i} + 3\hat{j} + 6\hat{k}$ and $\vec{r} = 2\hat{i} - 6\hat{j} - 12\hat{k}$. The value of 'a' for which the angular momentum is conserved is

a) -1 **b)** 0 **c)** 1 **d)** 2

Q7 Figure shows the standing waves pattern in a string at t = 0. Find out the equation of the standing wave where the amplitude of antinode is 2 A .



a) $2A\sin Kx\sin wt$

b) $2A\sin Kx\sin(wt+\pi/3)$

c) $2A\sin Kx\sin\left(wt+\frac{5\pi}{6}\right)$

d) $2A\sin Kx\cos wt$

Q8 Electric potential at any point is V = – 5x + 3y + $\sqrt{15}z$; then the magnitude of electric field is –

a) $3\sqrt{2}$ **b)** $4\sqrt{2}$ **c)** $5\sqrt{2}$ **d)** 7

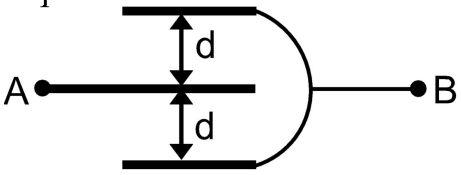
Q9 An organ pipe open at one end is vibrating in first overtone and is in resonance with another pipe open at both ends and vibrating in third harmonic. The ratio of length of two pipes is -

a) 3 : 8 **b)** 8 : 3 **c)** 1 : 2 **d)** 4 : 1

Q10 For a series RLC circuit $R = X_L = 2X_C$. The impedance of the circuit and phase difference (between) V and I will be :-

a) $\frac{\sqrt{5}R}{2}, tan^{-1}(2)$ **b)** $\frac{\sqrt{5}R}{2}, tan^{-1}(\frac{1}{2})$ **c)** $\sqrt{5}X_c, tan^{-1}(2)$ **d)** $\sqrt{5}R, tan^{-1}(\frac{1}{2})$

Q11 Three plates of common surfaces area A are connected as shown. The effective capacitance will be :-

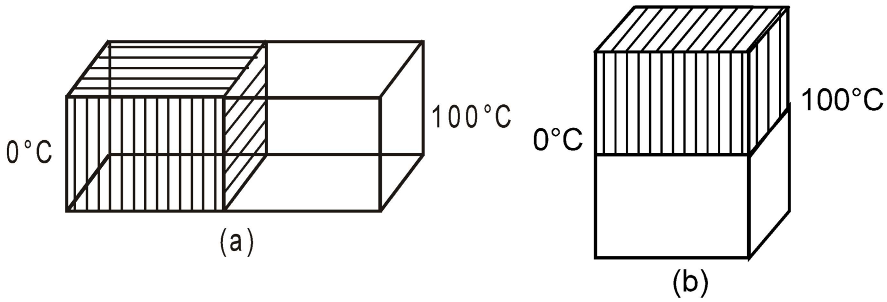


a) $\frac{\varepsilon_0 A}{d}$ **b)** $\frac{3\varepsilon_0 A}{d}$ **c)** $\frac{3}{2}\frac{\varepsilon_0 A}{d}$ **d)** $\frac{2\varepsilon_0 A}{d}$

Q12 A thin metal ring of radius r and mass m is resting on a liquid. Surface tension of the liquid is.

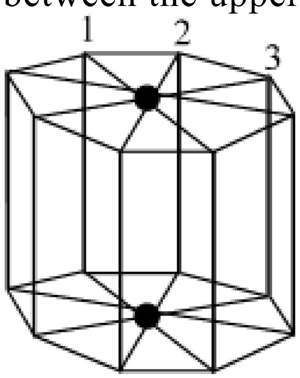
a) $\frac{mg}{4\pi r}$ b) $\frac{mg}{2\pi r}$ c) $\frac{mg}{\pi r}$ d) $\frac{mgr}{2\pi}$

Q13 Two identical square rods of metal are welded end to end as shown in figure (1). Assume that 10 cal of heat flows through the rods in 2 min. Now the rods are welded as shown in figure. (2) The time it would take for 10 cal to flow through the rods now is -



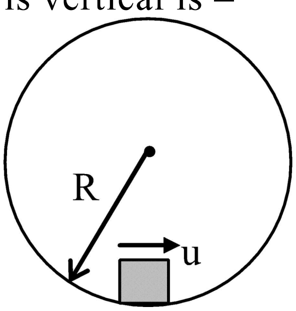
a) 0.75 min b) 0.5 min c) 1.5 min d) 1 min

Q14 In the diagram shown, all the wires have resistance R. The equivalent resistance between the upper and lower dots shown in the diagram is



a) R/8 b) R c) 2R/5 d) 3R/8

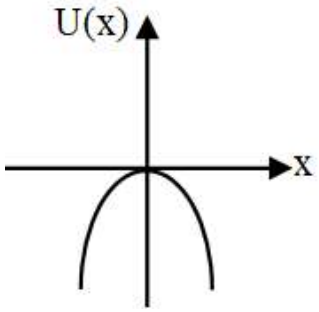
Q15 A particle is given an initial speed u inside a smooth spherical shell of radius R = 1 m that it is just able to complete the circle. Acceleration of the particle when its velocity is vertical is –



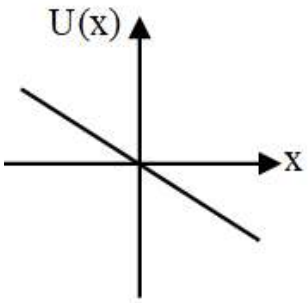
a) $g\sqrt{10}$ b) g c) $g\sqrt{2}$ d) 3g

Q16 A particle is placed at the origin and a force F = kx is acting on it (where k is a positive constant). If U (0) = 0, the graph of U (x) versus x will be: (where U is the potential energy function) –

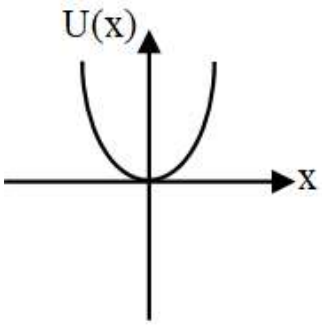
a)



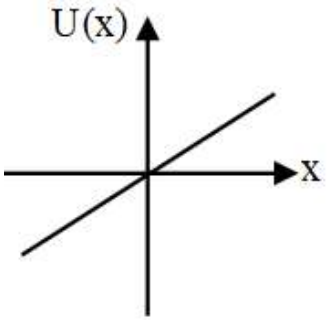
b)



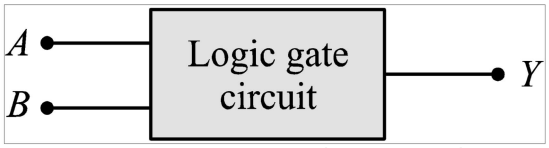
c)



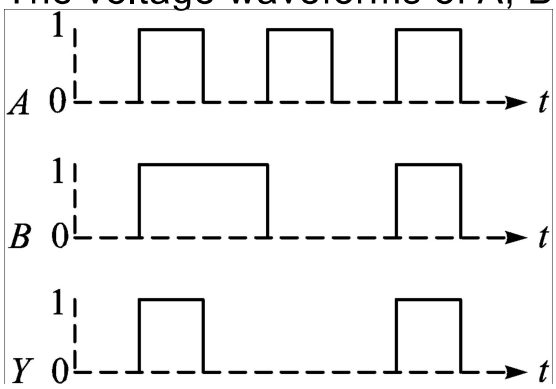
d)



Q17 The following figure shows a logic gate circuit with two inputs A and B and the output Y.

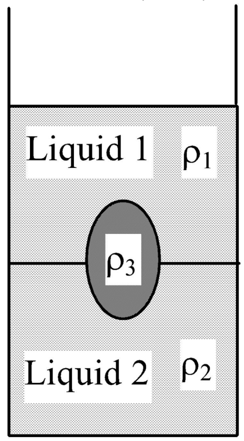


The voltage waveforms of A, B and Y are as shown.



a) AND gate **b)** NAND gate **c)** NOR gate **d)** OR gate

Q18 A jar is filled with two non-mixing liquids 1 and 2 having densities ρ_1 and ρ_2, respectively. A solid ball, made of a material of density ρ_3, is dropped in the jar. It comes to equilibrium in the position shown in the figure. Which of the following is true for ρ_1, ρ_2 and ρ_3?



a) $\rho_1 > \rho_3 > \rho_2$ b) $\rho_1 < \rho_2 < \rho_3$ c) $\rho_1 < \rho_3 < \rho_2$ d) $\rho_3 < \rho_1 < \rho_2$

Q19 An ideal gas with $\frac{C_p}{Cv} = r$, undergoes the process V = kP where k is a constant. The molar heat capacity of the gas for this process is

a) $R\left[\frac{r-1}{r+1}\right]$ b) $R\left[\frac{r+1}{r-1}\right]$ c) $\frac{R}{2}\left[\frac{r+1}{r-1}\right]$ d) $\frac{R}{2}\left[\frac{r-1}{r+1}\right]$

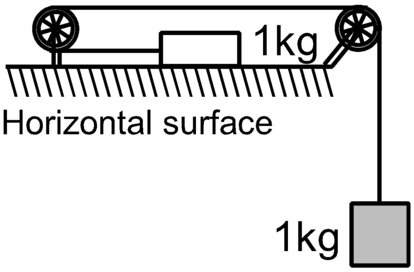
Q20 Suppose the gravitational force varies inversely as the nth power of distance. Then, the time period of a planet in circular orbit of radius R around the sun will be proportional to

a) R^n b) $R^{\frac{n+1}{2}}$ c) $R^{\frac{n-1}{2}}$ d) R^{-n}

Numerical

Q21 A point object in air is in front of the curved surface of a plano-convex lens. The radius of curvature of the curved surface is 30 cm and the refractive index of the lens material is 1.5, then the focal length of the lens (in cm) is______.

Q22 Consider the system as shown in the figure. The pulley and the string are light and all the surfaces are frictionless. The tension (in N) in the string is ($g = 10\ m/s^2$)



Q23 A hydrogen like atom has one electron revolving around a stationary nucleus. The energy required to excite the electron from the second orbit to the third orbit is 47.2 eV. The atomic number of the atom is _____.

Q24 The area of cross - section of a railway track is $0.01\ m^2$. The temperature variation is $10°C$. Coefficient of linear expansion of material of track is $10^{-5}/°C$. The energy stored per metre in the track is ___ J/m
(Take, Young's modulus of material of track is $10^{11}\ Nm^{-2}$)

Q25 A charged particle enters into a uniform magnetic field with velocity v_0 perpendicular to it, the length of magnetic field is $x = \frac{\sqrt{3}}{2}R$, where R is the radius of the circular path of the particle in the field. The magnitude of change in velocity of the particle when it comes out of the field is nv_0. Find the value of n.

Chemistry

Single Choice Question

Q26 $[Pd(F)(Cl)(Br)(I)]^{2-}$ has n number of geometrical isomers. Then, the spin-only magnetic moment and crystal field stabilisation energy [CFSE] of $[Fe(CN)_6]^{n-6}$, respectively, are [Note : Ignore the pairing energy]

a) 0 BM and $-2.4\ \Delta_0$

b) 5.92 BM and 0

c) 1.73 BM and $-2.0\ \Delta_0$

d) 2.84 BM and $-1.6\ \Delta_0$

Q27 If enthalpy of atomisation for $Br_{2(l)}$ is x kJ/mol and bond enthalpy for Br_2 is y kJ/mol, the relation between them

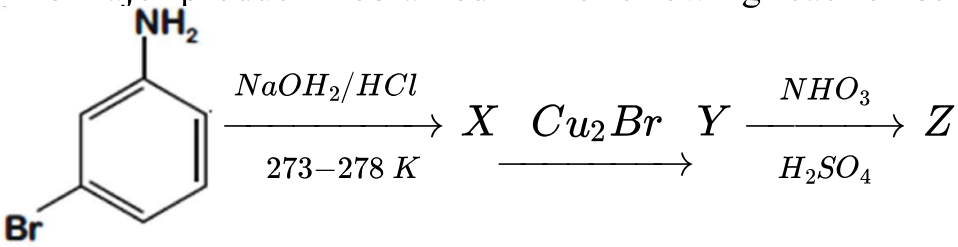
a) is x > y

b) does not exist

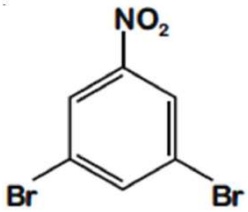
c) is x = y

d) is x < y

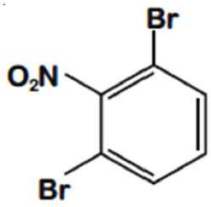
Q28 The major product Z obtained in the following reaction scheme is :



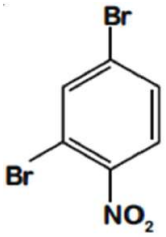
a)



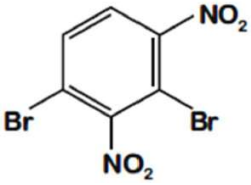
b)



c)

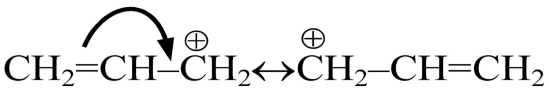


d)

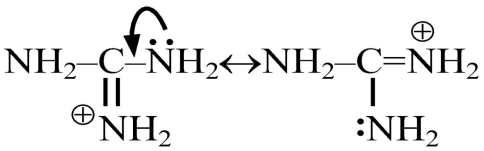


Q29 Which resonating structure is not correct -

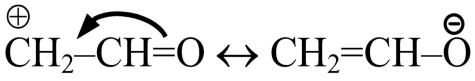
a)



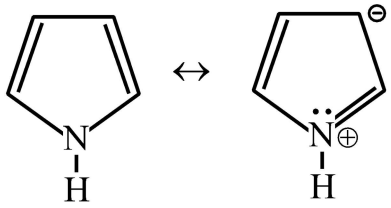
b)



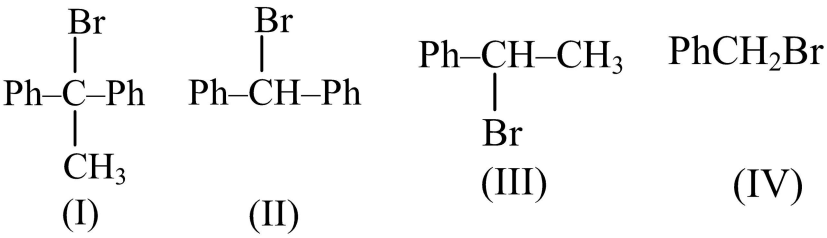
c)



d)

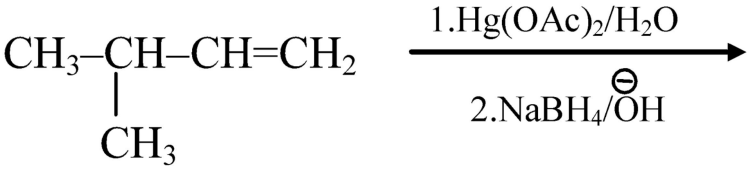


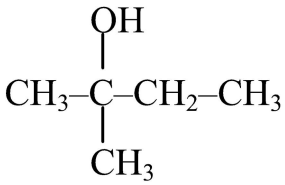
Q30 The decreasing order of rate of S_N1 reaction is -

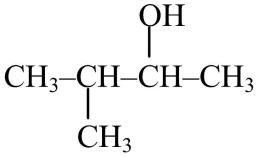


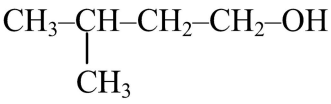
a) (I) > (II) > (III) > (IV)
b) (II) > (I) > (III) > (IV)
c) (IV) > (III) > (II) > (I)
d) (III) > (IV) > (II) > (I)

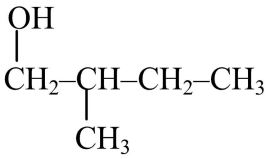
Q31 What is the major product of the following reaction?

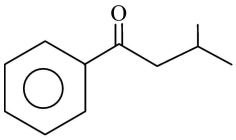
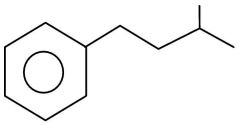


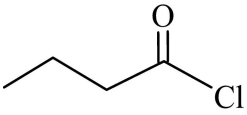
a) 

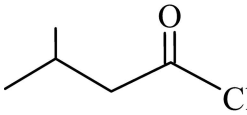
b) 

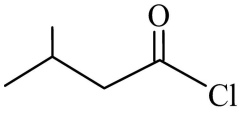
c) 

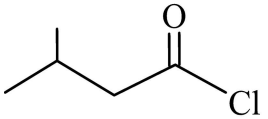
d) 

Q32 Benzene on reaction with 'A' forms  which on reaction with 'B' forms  'A' and 'B' are -

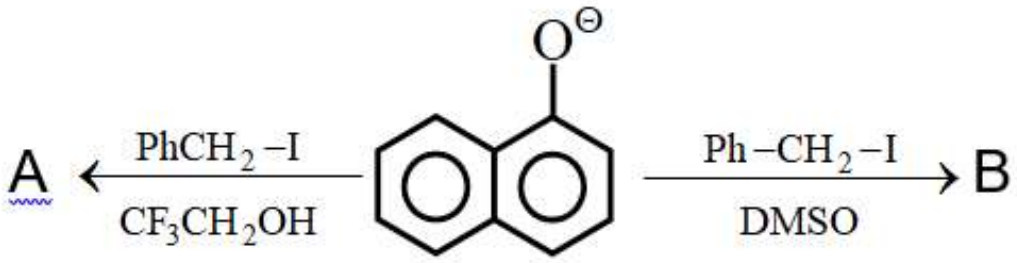
a) Zn (Hg) + conc. HCl, 

b)  , $LiAlH_4$

c)  , $NaBH_4$

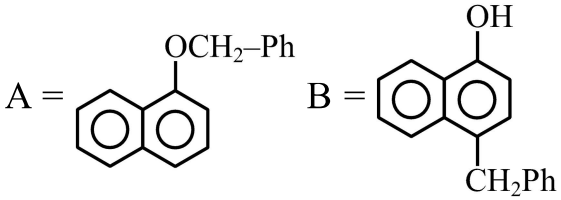
d)  , Zn (Hg) + conc. HCl

Q33

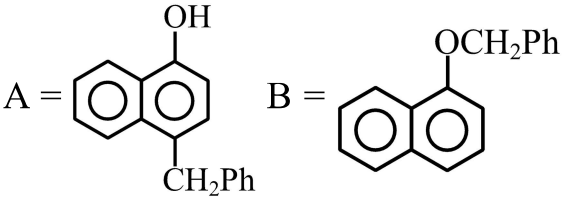


'A' and 'B' respectively are -

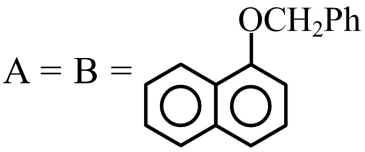
a)



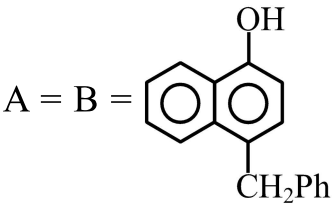
b)



c)



d)



Q34 Consider the following pairs of electrons

(A) (a) $n = 3, \ell = 1, m_1 = 1, m_s = +\frac{1}{2}$

(b) $n = 3, \ell = 2, m_1 = 1, m_s = +\frac{1}{2}$

(B) (a) $n = 3, \ell = 2, m_1 = -2, m_s = -\frac{1}{2}$

(b) $n = 3, \ell = 2, m_1 = -1, m_s = -\frac{1}{2}$

(C) (a) $n = 4, \ell = 2, m_1 = 2, m_s = +\frac{1}{2}$

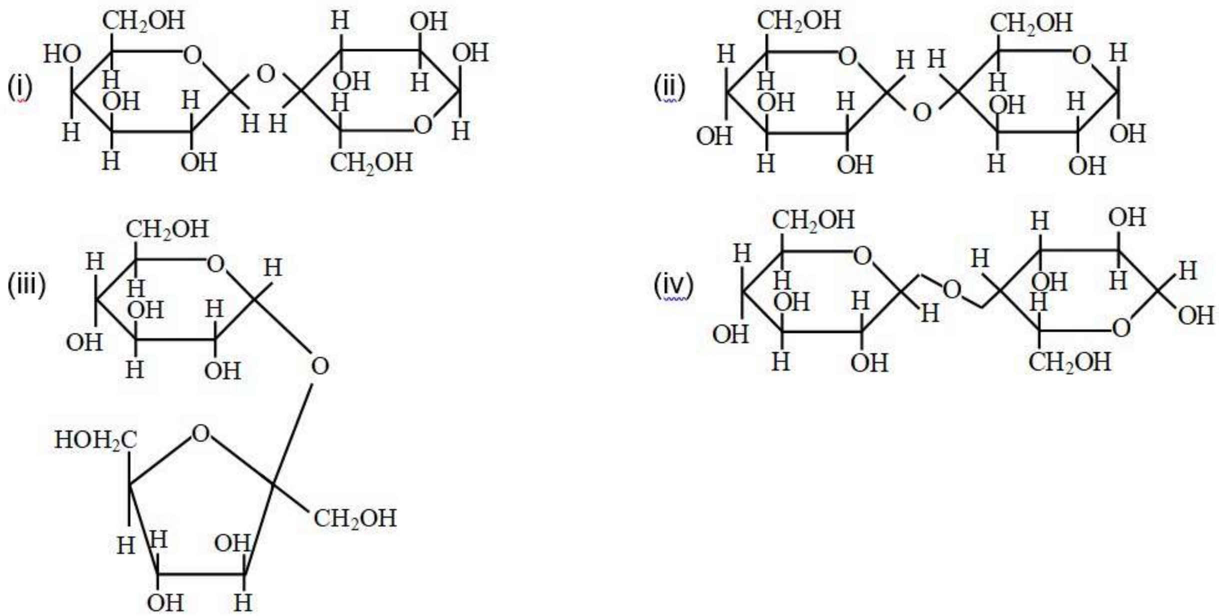
(b) $n = 3, \ell = 2, m_1 = 2, m_s = +\frac{1}{2}$

The pairs of electron present in degenerate orbitals is/are:

a) Only A **b)** Only B **c)** Only C **d)** (B) and (C)

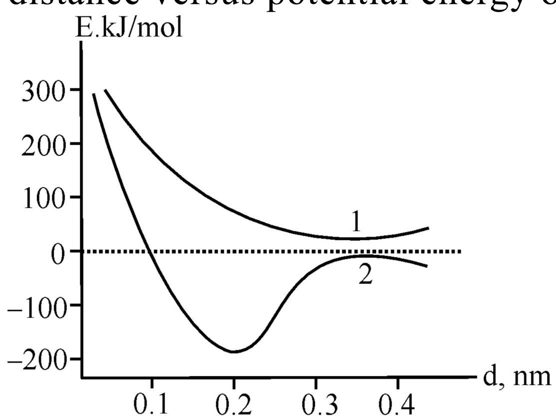
Q35

Which of the following are non reducing sugars-



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

Q36 Consider the given figure showing the formation of H_2^+ ion depending on internuclear distance versus potential energy of the system.



Which is correct statement:

a) Curve-1 represents the most stable state of the system for H_2^+ ion

b) Curve-2 represents the most stable state of the system for H_2^+ ion

c) Curve-1 indicates that the molecular hydrogen ion is formed

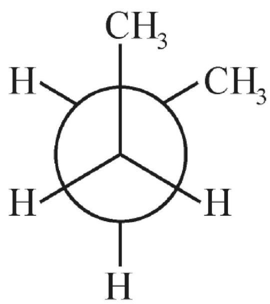
d) Curve-2 represents the energy level of the antibonding region

Q37 Which is the most acidic oxide ?

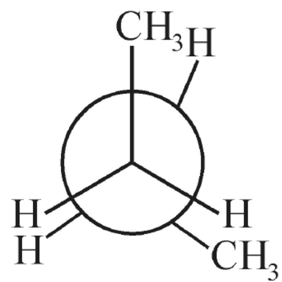
a) Cl_2O b) Cl_2O_3 c) Cl_2O_5 d) Cl_2O_7

Q38 In the following structures, which one is having staggered conformation with maximum dihedral angle?

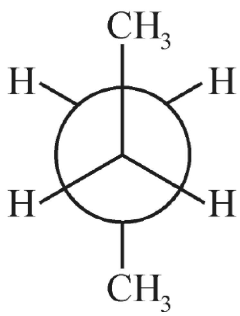
a)



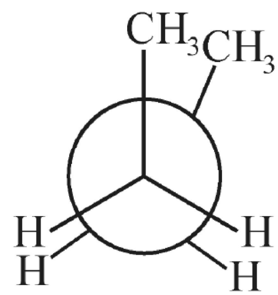
b)



c)



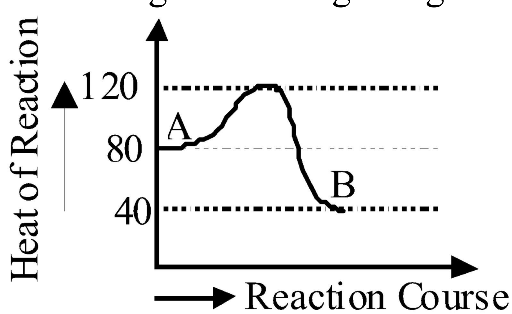
d)



Q39 Equivalent weight of H_3PO_2 when it disproportionates into PH_3 and H_3PO_3 is (mol. wt. of H_3PO_2 = M)

a) M **b)** $\frac{3M}{4}$ **c)** $\frac{M}{2}$ **d)** $\frac{M}{4}$

Q40 According to the diagram given below, the value of ΔH for conversion of A to B is -



a) – 40 **b)** +40 **c)** –120 **d)** +120

Q41 Graphite is good conductor of current but diamond is non-conductor because :

a) Diamond is hard and graphite is soft

b) graphite and diamond have different atomic configuration

c) Graphite is composed of positively charged carbon ions

d) Graphite has hexagonal layer structure with mobile -electrons while diamond has continuous tetrahedral covalent structure with no free electrons

Q42 The acidic solution of a salt produces blue colour with KI starch solution. The reaction indicates the presence of :

a) Sulphite **b)** Bromide **c)** Nitrite **d)** Chloride

Q43 The number of 2-centre-2-electron and 3-centre-2-electron bonds in B_2H_6 respectively are :

a) 4 and 2 **b)** 2 and 2 **c)** 2 and 4 **d)** 2 and 1

Q44 The same amount of electricity was passed through two cells containing molten Al_2O_3 and molten NaCl. If 1.8g of Al were liberated in one cell, the amount of Na liberated in the other cell is-

a) 4.6 g **b)** 2.3 g **c)** 6.4 g **d)** 3.2 g

Q45 The f-block of the periodic table contains those elements in which :

a) only 4f orbitals are progressively filled in 6th period.

b) only 5f orbitals are progressively filled in 7th period.

c) 4f and 5f orbitals are progressively filled in 6th and 7th periods respectively.

d) none

Numerical

Q46 The molarity of HNO_3 in a sample which has density 1.4 g/mL and mass percentage of 63% is ___. (Molecular Weight of HNO_3 = 63)

Q47 If O_2 gas is bubbled through water at 303 K, the number of millimoles of O_2 gas that dissolve in 1 litre of water is _____. (Nearest Integer)
(Given : Henry's Law constant for O_2 at 303 K is 46.82 k bar and partial pressure of O_2 = 0.920 bar)
(Assume solubility of O_2 in water is too small, nearly negligible)

Q48 At $25^{\circ}C$ dissociation constant of acid HA and base BOH in aqueous solution is same The pH of 0.01 M solution of HA is 5. The pH of 0.1 M solution of BOH at the same temperatue is (Report your answer by multiplying 10)

Q49 If the lowest energy x-rays have $\lambda = 4.0 \times 10^{-8}$ m, at what z (minimum) would a transition from the second energy level to the first result in the emission of X-ray ? (Assuming that the electrons in other shells exert no influence)

Q50 For gaseous homogeneous reaction
$2A(g) + B(g) \rightleftharpoons 2C(g) + 2D(g)$
ΔG^o = 0.693 RT at TK. Find Kp for the reaction in k Pa [1 k Pa = 10^3 Pa] [Nearest integer]

Mathematics

Single Choice Question

Q51 If $\sum_{n=0}^{\infty} 2\cot^{-1}\left(\frac{n^2+n+4}{2}\right) = k\pi$, then find the value of k.

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

Q52 If $f(x) = \sqrt{\frac{1+\sin^{-1}x}{1-\tan^{-1}x}}$; then f′(0) is equal to :

a) 4 **b)** 3 **c)** 2 **d)** 1

Q53 From a pack of 52 well shuflled cards, cards are drawn one by one without replacement. If 4^{th} drawn card is found to be ace, then what is the probability, that there are no more aces left in the pack is :-

a) $\frac{1}{{}^{48}C_3 + 3\,{}^{49}C_2 + 1}$ **b)** $\frac{1}{{}^{48}C_3 + {}^{49}C_2 + 1}$

c) $\frac{1}{3\,{}^{48}C_3 + {}^{49}C_2 + 1}$ **d)** $\frac{1}{{}^{52}C_4 + 1}$

Q54 If $D = \begin{vmatrix} \frac{1}{z} & \frac{1}{z} & -\frac{(x+y)}{z^2} \\ -\frac{(y+z)}{x^2} & \frac{1}{x} & \frac{1}{x} \\ -\frac{y(y+z)}{x^2 z} & \frac{x+2y+z}{xz} & -\frac{y(x+y)}{xz^2} \end{vmatrix}$ then, the incorrect statement is -

a) D is independent of x **b)** D is independent of y

c) D is independent of Z **d)** D is dependent on x, y, z

Q55 Let $f(x) = \int_0^x e^{x-y} f'(y)\,dy - (x^2 - x + 1)e^x$ Find the number of roots of the equation f(x) = 0.

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

Q56 if $a^2 + b^2 + c^2 = 0$ and matrix $A = \begin{vmatrix} b^2+c^2 & ab & ac \\ ab & c^2+a^2 & bc \\ ac & bc & a^2+b^2 \end{vmatrix}$ and if $|adj(adjA)| = 32\lambda a^8b^8c^8$, (a, b, c $\neq$ 0), then λ =

a) 8 b) 16 c) 32 d) 4

Q57 If $2a + 2b + 3c = \frac{1}{5}$ and a, b, c $\in R^+$, then maximum value of term independent of x in the expansion of $(abx^{1/2} + cx^{-1/3})^{25}$ is -

a) $^{25}C_{10}$ b) $^{25}C_{10}(35)^{25}$ c) $^{25}C_{15}\left(\frac{1}{35}\right)^{35}$ d) None of these

Q58 If α, β are the roots of equation $x^2 - 2x + 5 = 0$, then equation, whose roots are : $\alpha^3 + \alpha^2 - \alpha + 22, \beta^3 + 4\beta^2 - 7\beta + 35$ is :

a) $x^2 - 57x + 770 = 0$ b) $x^2 - 12x + 35 = 0$
c) $x^2 - 2x + 5 = 0$ d) $x^2 - 11x + 25 = 0$

Q59 Complex number z_1 and z_2 satisfy $z + \overline{z} = 2|z-1|$ and $\arg(z_1 - z_2) = \frac{\pi}{4}$. Then the value of $Im(z_1 + z_2)$ is: (where z_1 & z_2 are none zero complex number)

a) 2 b) 4 c) 6 d) 8

Q60 Let f(–1, ∞) $\rightarrow$ R be defined by f(0) = 1 and $f(x) = \frac{1}{x}\log_e(1+x), x \neq 0$. Then the function f

a) decreases in (–1, 0) and increases in (0,∞)
b) increases in (–1, ∞)
c) increases in (–1, 0) and decreases in (0,∞)
d) decreases in (–1, ∞)

Q61 Let $f(x) = 3x^{10} - 7x^8 + 5x^6 - 21x^3 + 3x^2 - 7$ then find

$$265\left(\lim_{h\to 0}\frac{h^4 + 3h^2}{(f(1-h) - f(1))\sin 5h}\right) =$$

a) 1 **b)** 2 **c)** 3 **d)** -3

Q62 Given that for a, b, c, d ∈ R, if a sec (200°) – c tan (200°) = d and b sec (200°) + d tan (200°) = c, then find the value of $\left(\frac{a^2 + b^2 + c^2 + d^2}{bd - ac}\right)\sin 20°$.

a) 2 **b)** 1 **c)** 0 **d)** None of these

Q63 Let f(x) = min. $\left(x+1, \sqrt{1-x}\right)$ for all x ≤ 1. Then the area bounded by y = f(x) and the x-axis is :-

a) $\frac{7}{3}$ sq. units **b)** $\frac{1}{6}$ sq. units **c)** $\frac{11}{6}$ sq. units **d)** $\frac{7}{6}$ sq. units

Q64 If the mean and variance of the frequency distribution.

x_i	2	4	6	8	10	12	14	16
f_i	4	4	α	15	8	β	4	5

are 9 and 15.08 respectively, then the value of $\alpha^2 + \beta^2 - \alpha\beta$ is ______________.

a) 24 **b)** 25 **c)** 28 **d)** None of these

Q65 The general solution of differential equation, $\sin 2x\left(\frac{dy}{dx} - \sqrt{\tan x}\right) - y = 0$ is

a) $y\sqrt{\cot x} = \tan x + C$ **b)** $y\sqrt{\cot x} = x + C$

c) $y\sqrt{\tan x} = \cot x + C$ **d)** $y\sqrt{\tan x} = x + C$

Q66 The set of values of k for which the circle C : $4x^2 + 4y^2 - 12x + 8y + k = 0$ lies inside the fourth quadrant and the point $\left(1, -\frac{1}{3}\right)$ lies on or inside the circle C is :

a) An empty **b)** $\left(6, \frac{95}{9}\right]$ **c)** $\left[\frac{80}{9}, 10\right)$ **d)** $\left(9, \frac{92}{9}\right]$

Q67 The vertex C of a triangle ABC is (4, –1). The equation of altitude AD and Median AE are 2x – 3y + 12 = 0 and 2x + 3y = 0 respectively then slope of side AB is :

a) $-\frac{3}{7}$ **b)** $-\frac{3}{2}$ **c)** $-\frac{9}{11}$ **d)** None of these

Q68 The foci of a hyperbola lie at the vertices of the ellipse $\frac{x^2}{100}+\frac{y^2}{64}=1$ and its directrixes pass through the foci of the ellipse. The equation of the hyperbola must be :-

a) $\frac{x^2}{100}-\frac{y^2}{64}=1$ **b)** $\frac{x^2}{40}-\frac{y^2}{60}=1$ **c)** $\frac{x^2}{60}-\frac{y^2}{40}=1$ **d)** None of these

Q69 The adjacent side vectors $\overrightarrow{OA}$ and $\overrightarrow{OB}$ of a rectangle OACB are $\vec{a}$ and $\vec{b}$ respectively where O is the origin. If $16|\vec{a}\times\vec{b}| = 3(|\vec{a}|+|\vec{b}|)^2$ and θ be the acute angle between the diagonals OC and AB then the value of tan(θ/2) is :

a) $\frac{1}{\sqrt{2}}$ **b)** $\frac{1}{2}$ **c)** $\frac{1}{\sqrt{3}}$ **d)** $\frac{1}{3}$

Q70 A batsman can score 0, 1, 2, 3, 4 or 6 runs from a ball. The number of different sequences in which he can score exactly 30 runs in an over of six balls :

a) 4 **b)** 72 **c)** 56 **d)** 71

Numerical

Q71 If $f(x)=\int\frac{5x^8+7x^6}{(x^2+1+2x^7)^2}dx$, $(x\geq 0), f(0)=0$ and $f(1)=\frac{1}{K}$, then the value of K is

Q72 Let A = {2, 3, 4} and B = {8, 9, 12}. Then the number of elements in the relation R = $\{((a_1, b_1), (a_2, b_2)) \in (A\times B, A\times B) : a_1$ divides b_2 and a_2 divides $b_1\}$ is :

Q73 Let the image of the point P(1, 2, 3) in the line L : $\frac{x-6}{3}=\frac{y-1}{2}=\frac{z-2}{3}$ be Q. let R(α, β, γ) be a point that divides internally the line segment PQ in the ratio 1 : 3. Then the value of 22(α + β + γ) is equal to

Q74 The parabola $y = 4 - x^2$ has vertex P. It intersects x-axis at A and B. If the parabola is translated from its initial position to a new position by moving its vertex along the line y = x + 4, so that it intersects x–axis at B and C, then abscissa of C will be :

Q75 The numbers $\frac{1}{3}, \frac{1}{3}\log_x y, \frac{1}{3}\log_y z, \frac{1}{7}\log_z x$ are in H.P. If $y = x^r$ and $z = x^s$, then 4(r + s) =

Answer Key

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	**A**	**D**	**D**	**A**	**B**	**A**	**C**	**D**	**C**	**B**
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	**D**	**A**	**B**	**D**	**A**	**A**	**A**	**C**	**C**	**B**
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	**60**	**5**	**5**	**5**	**1**	**C**	**A**	**C**	**C**	**A**
Que.	31	32	33	34	35	36	37	38	39	40
Ans.	**B**	**D**	**B**	**B**	**C**	**B**	**D**	**C**	**B**	**A**
Que.	41	42	43	44	45	46	47	48	49	50
Ans.	**D**	**C**	**A**	**A**	**C**	**14**	**1**	**95**	**2**	**50**
Que.	51	52	53	54	55	56	57	58	59	60
Ans.	**C**	**D**	**A**	**D**	**C**	**A**	**C**	**B**	**A**	**D**
Que.	61	62	63	64	65	66	67	68	69	70
Ans.	**C**	**A**	**D**	**B**	**B**	**D**	**C**	**C**	**D**	**D**
Que.	71	72	73	74	75					
Ans.	**4**	**36**	**125**	**25**	**6**					