Rankers
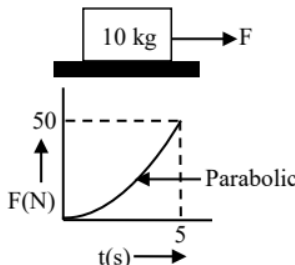
SAMPLE PAPER - 14

Physics

Section A

Q. 1. The r.m.s. speed of a certain gas is v at 127°C K. The temperature at which the r.m.s. speed becomes two times, will be :
(1) 527°C
(2) 1327°C
(3) 1227°C
(4) None of these

Q. 2. A force vector applied on a mass is represented as $\vec{F} = 6\hat{i} - 8\hat{j} + 10\hat{k}$ N and accelerates the mass at 1 m s^{-2}. The mass of the body is :
(1) 10 kg
(2) 20 kg
(3) $2\sqrt{10}$ kg
(4) $10\sqrt{2}$ kg

Q. 3. The displacement s of a particle depends on time t according to the following relation $s = \frac{1}{3}t^3 - t^2 + t$. The velocity and displacement of the particle at the instant when its acceleration is zero, are respectively :
(1) $0, \frac{1}{3}$
(2) $\frac{1}{3}, 0$
(3) $\frac{1}{3}, \frac{1}{3}$
(4) None of the above

Q. 4. A person standing on a truck moving with a uniform velocity 14.7 ms^{-1} on a horizontal road throws a ball in such a way that it returns to him after 4s. Find the speed and angle of projection as seen by a man on the road :
(1) 19.6 ms^{-1}, vertical
(2) 24.5 ms^{-1}, vertical
(3) 19.6 ms^{-1}, 53° with the road
(4) 24.5 ms^{-1}, 53° with the road

Q. 5. A force F is applied to the initially stationary cart. The variation of force with time is shown in the figure. The speed of cart at $t = 5$ sec is :

(1) 10 m/s
(2) 8.33 m/s
(3) 2 m/s
(4) Zero

Q. 6. The coefficient of static friction between a car's tires and a level road is 0.80. If the car is to be stopped in a maximum time of 3.0 s, its speed cannot exceed
(1) 2.4 m/s
(2) 7.8 m/s
(3) 2.6 m/s
(4) 23.5 m/s

Q. 7. An earthen pitcher loses 1 gm of water per minute due to evaporation. If the water equivalent of pitcher is 0.5 kg and pitcher contains 9.5 kg of water, calculate the time required for the water in pitcher to cool to 28°C from original temperature of 30°C. Neglect radiation effects. Latent heat of

2vaporization in this range of temperature is 580 Cal/gm and specific heat of water is 1 Cal/gm°C.
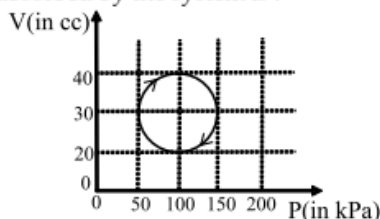
(1) 30.5 min   (2) 41.2 min
(3) 38.6 min   (4) 34.5 min

Q. 8. One mole of a gas expands obeying the relation as shown in P-V diagram. The maximum temperature in this process is equal to :
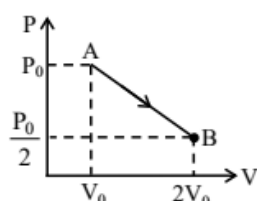
(1) $\dfrac{P_0 V_0}{R}$ (2) $\dfrac{3P_0 V_0}{R}$

(3) $\dfrac{9P_0 V_0}{8R}$ (4) None of these

Q. 9. A system is taken through a cyclic process represented by a circle as shown. The heat absorbed by the system is :

(1) $\pi \times 10^3$ J   (2) $\dfrac{\pi}{2}$ J
(3) $4\pi \times 10^2$ J   (4) π J

Q. 10. A metal ball immersed in water weighs w_1 at 0°C and w_2 at 50°C. The coefficient of cubical expansion of metal is less than that of water. Then :

(1) $w_1 > w_2$ (2) $w_1 < w_2$
(3) $w_1 = w_2$ (4) data is insufficient

Q. 11. Two perfectly identical wires kept under tension are in unison. When the tension in wire is increased by 1% then on sounding them together 3 beats are heard in 2 seconds. What is the frequency of each wire?

(1) 300 Hz   (2) 400 Hz
(3) 256 Hz   (4) 288 Hz

Q. 12. A white light is incident at 20° on a material of silicate flint glass slab as shown. μ_{violet} = 1.66 and μ_r = 1.6. For what value of d will the separation be 1 mm in red and violet rays.
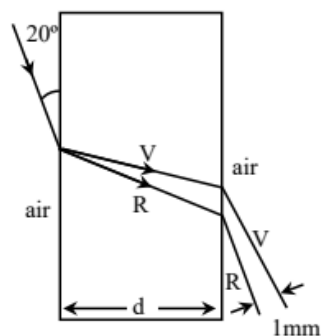
(1) $\dfrac{5}{3}$ cm   (2) $\dfrac{10}{3}$ cm
(3) 5 cm   (4) $\dfrac{20}{3}$ cm

Q. 13. Two concave refracting surfaces of equal radii of curvature face each other in air as shown in figure. A point object O is placed midway between the centre and one of the poles. Then the separation between the images of O formed by each refracting surfaces is :
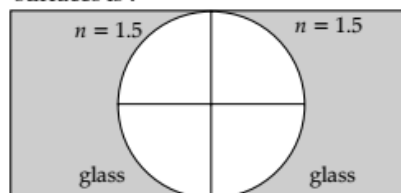
(1) 11.4 R   (2) 1.14 R
(3) 0.114 R   (4) 0.0114 R

Q. 14. In a young double slit apparatus the screen is rotated by 60° about an axis parallel to the slits. The slits separation is 3 mm, slit to screen distance (at central fringe) is 4 m, and wavelength of light is 450 nm. The separation between the third dark fringe on the either side of central fringe is :

(1) 6 mm   (2) 8 mm
(3) $4\sqrt{3}$ mm   (4) $2\sqrt{3}$ mm

Q. 15. An electron in H-atom makes a transition from $n = 3$ to $n = 1$. The recoil momentum of H-atom will be :

(1) 6.45×10^{-27} N s   (2) 6.8×10^{-27} N s
(3) 6.45×10^{-24} N s   (4) 6.8×10^{-24} N s

Q. 16. If 10% of a radioactive substance decays in every 5 years, then the percentage of the substance that will have decayed in 20 years will be :

(1) 40%   (2) 50%
(3) 65.6 %   (4) 34.4 %

Q. 17. Which of the following is true for X-rays :

(1) wavelength of continuous X-rays does not depend on potential difference

(2) wavelength of discrete X-rays does not depend on potential difference

(3) discrete X-rays have energy of the order of MeV

(4) continuous X-rays have energy of the order of MeV

Q. 18. We wish to observe an object which is $2.5\,\overset{\circ}{A}$ in size. The minimum energy photon that can be used :

(1) 5 KeV   (2) 8 KeV

(3) 10 KeV   (4) 12 KeV

Q. 19. Two students measure the weight of a 10 Kg mass using a spring balance and record these readings as :

A : 10Kg, 10Kg, 10.5Kg, 10.5Kg, 9.5Kg

B : 10Kg, 10.1Kg, 10.1Kg, 9.8Kg, 9.9Kg

Then

(1) A and B both are equally precise

(2) B is more accurate than A

(3) Neither A nor B is accurate

(4) B is more precise than A.

Q. 20. What should be the minimum length of a tower to propagate a signal of 300MH$_z$?

(1) 100 cm   (2) 50 cm

(3) 25 cm   (4) 12.5 cm

Section B

Q. 21. The potential energy of a particle under a conservative force field is given by $U = 10 + (x - 4)^2$, where x is in meter. At $x = 6$ m, K.E. of particle is 10 J. The maximum kinetic energy of particle is .... J.

Q. 22. Two blocks P and Q of masses 0.3 kg and 0.4 kg, respectively, are stuck to each other by some weak glue as shown in the figure. They hang together at the end of a spring with a spring constant $k = 200$ N/m. The block Q suddenly falls free due to failure of glue, then the maximum kinetic energy of the block P during subsequent motion will be .... mJ.
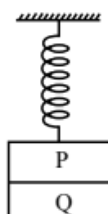
Q. 23. A disc is rotating freely about its axis. Percentage change in angular velocity of disc if temperapur decreases by 20°C is .... (coefficient of linear expansion of material of disc is 5×10^{-4}/°C)

Q. 24. A mercury pallet is trapped in a tube as shown in figure. The tube is slowly heated to expel all mercury inside it (Isothermal condition). Heat given to the tube is .... (ρHg $= 13.6$ gm/cc, Atmospheric pressure $= 10^5$ Pa, cross–section area of tube $= 2$ cm^2)
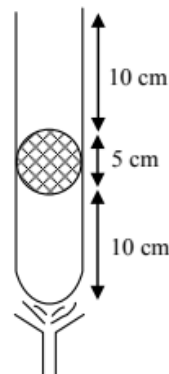
Q. 25. A straight infinitely long cylinder of radius $R_0 = 10$ cm is uniformly charged with a surface charge density $\sigma = + 10^{-12}$ C/m^2. The cylinder serves as a source of electrons, with the velocity of the emitted electrons perpendicular to its surface. Electron velocity must be .... $\times 10^5$ m/s to ensure that electrons can move away, from the axis of the cylinder to a distance greater than $r = 10^3$ m.

Q. 26. An isolated parallel plate capacitor is maintained at a certain potential difference. When a 3 mm thick slab is introduced between the plates, in order to maintain the same potential difference the distance between the plates is increased by 2.4 mm. The dielectric constant of slab will be ....

Q. 27. Each resistance is of $2\,\Omega$. Current in resistance R (R $= 2\,\Omega$) is ...... $+ 9.75$ A.
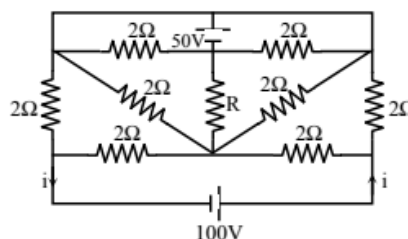
Q. 28. A charge particle of charge q and mass m is projected in a region which contains electric and magnetic field as shown in figure with velocity V at an angle 45° with x-direction. If V $= \sqrt{\dfrac{qE}{m}}$, then net deviation in particle motion will be (neglect the effect of gravity) in clockwise direction approx ....°.
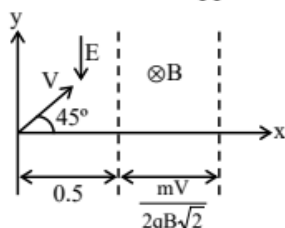
Q. 29. A light ray in medium (RI = 5/3) enters another medium at an angle 30°. The angle in other medium is $\sin^{-1}$ (5/6). The incident angle must be increased such that the ray is completely reflected at minimum degrees is ....

Q. 30. A point isotropic light source of power P = 12 watts is located on the axis of a circular mirror of radius R = 3 cm. If distance of source from the centre of mirror is a = 39 cm and reflection coefficient of mirror is α = 0.70 then the force exerted by light ray on the mirror is .... $\times 10^{-10}$ N.

Chemistry

Section A

Q. 31. $_{92}U^{235}$ is a member of VI B group. The new element formed by the emission of α-particle will be a member of .... group :

(1) I B   (2) II B

(3) III B   (4) IV B

Q. 32. $N_2 + 3H_2 \rightleftharpoons 2NH_3$

1 mole N_2 and 3 mole H_2 are present at start in 1L flask. At equilibrium NH_3 formed required 100mL of 5M HCl for neutralisation hence K_C is :

(1) $\dfrac{(0.5)^2}{(0.75)(2.25)^3}$ (2) $\dfrac{(0.5)^2}{(0.5)(2.5)^3}$

(3) $\dfrac{(0.5)L}{(0.75)(2.5)^3}$ (4) None of these

Q. 33. Which of the following salts undergoes anionic hydrolysis :

(1) $CuSO_4$ (2) NH_4Cl

(3) $AlCl_3$ (4) K_2CO_3

Q. 34. The dipole moments of the given molecules are such that :

(1) $BF_3 > NF_3 > NH_3$

(2) $NF_3 > BF_3 > NH_3$

(3) $NH_3 > NF_3 > BF_3$

(4) $NH_3 > BF_3 > NF_3$

Q. 35. The IUPAC name of

(1) ethoxy methanone

(2) ethyl-2-methyl propanoate

(3) ethoxypropanone

(4) 2-methyl ethoxy propanone

Q. 36. Which compound would exhibit optical isomers

Q. 37. When the same amount of zinc is treated separately with excess of sulphuric acid and excess of sodium hydroxide, the ratio of volumes of hydrogen evolved is :

(1) 1 : 1   (2) 1 : 2

(3) 2 : 1   (4) 9 : 4

Q. 38. On small scale, boron is best isolated by reducing boron trioxide with :

(1) Metallic zinc

(2) Metallic aluminium

(3) Metallic copper

(4) Metallic magnesium

Q. 39. The pair of compounds which cannot exist together in solution is :

(1) $NaHCO_3$ and NaOH

(2) $NaHCO_3$ and H_2O

(3) $NaHCO_3$ and Na_2CO_3

(4) Na_2CO_3 and NaOH

Q. 40 Which of the following salts will turn water coloured when fumes evolved on treatment with conc. H_2SO_4 are passed in water :

(1) Nitrate   (2) Bromide

(3) Both   (4) None

Q. 41. Electrolytic reduction method is used for the extraction of

(1) Highly electro negative elements

(2) Highly electro positive elements

(3) Transition metals

(4) Metalloids

Q. 42. The number of geometrical isomers of $[Co(NH_3)_3(NO_3)_3]$ are :
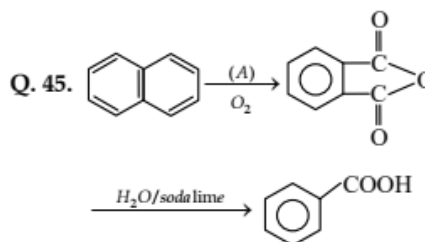
(1) 0   (2) 2

(3) 3   (4) 4

Q. 43. When SO_2 is passed through acidified $K_2Cr_2O_7$ solution :

(1) The solution turns blue

(2) The solution is decolourised

(3) SO_2 is reduced

(4) Green $Cr_2(SO_4)_3$ is formed

Q. 44. ? $\xrightarrow[\text{EtOH}, H_2O]{\Delta, CN^-}$ Benzoin.

The reactant is obtained by dry distillation of the calcium salts of the following pairs :

(1) $C_6H_5CH_2COOH$, HCOOH

(2) C_6H_5COOH, HCOOH

(3) C_6H_4 (OH)COOH, HCOOH

(4) C_6H_4 (NH_2)COOH, HCOOH

Q. 45.

Oxidizing agent (A) used is

(1) $K_2Cr_2O_7/H^+$ (2) AlK . $KMnO_4$

(3) Chromic Acid   (4) V_2O_5

Q. 46. The presence of primary amines can be confirmed by :

(1) Reaction with HNO_2

(2) Reaction with $CHCl_3$ and alc. KOH

(3) Reaction with Grignard reagent

(4) Reaction with Acetyl chloride

Q. 47. The monomer of PMMA is :

(1) Methyl methacrylate

(2) Ethyl acrylate

(3) Acrylonitrile

(4) Methyl acrylate

Q. 48. The activating nature of $-CH_3$ group linked to benzene ring can be explained with the help of

(1) Hyperconjugation

(2) Resonance effect

(3) Inductive effect

(4) Electromeric effect

Q. 49. In the above reaction if we take methylene chloride and isopropylidene chloride then products are :

(1) $CH_3 - \underset{\underset{CH_3}{|}}{C} = CH_2$

(2) $CH_2 = CH_2$

(3) $CH_3 - \underset{\underset{CH_3}{|}}{C} = \underset{\underset{CH_3}{|}}{C} - CH_3$

(4) All of the above

Q. 50. The compound that will not give iodoform on treatment with alkali and iodine is :

(1) Acetone

(2) Ethanol

(3) Diethyl ketone

(4) Isopropyl alcohol

Section B

Q. 51. A compound which contains one atom of X and two atoms of Y for each three atoms of Z is made by mixing 5.00 g of X, 1.15×10^{23} atoms of Y and 0.03 mole of Z atoms. Given that only 4.40 g of compound results. The atomic weight of Y is .... a.m.u. if the atomic weight of X and Z are 60 and 80 a.m.u. respectively.

Q. 52. The minimum uncertainity in velocity of a particle of mass 1.1×10^{-27} kg if uncertainity in its position is 3×10^{-10} cm will be .... $\times 10^{-4}$ ms^{-1}.

Q. 53. A current of 4 amp was passed for 2 hours through a solution of copper sulphate when 5.0 g of copper was deposited. The current efficiency is .... % (Cu = 63.5).

Q. 54. An element A (Atomic weight = 100) having *bcc* structure has unit cell edge length 400 pm. The number of atoms in 10 g of A is .... $\times 10^{22}$ unit cells.

Q. 55. Phenol associates in benzene to a certain extent to form a dimmer. A solution containing 20×10^{-3} kg phenol in 1 kg of benzene has its freezing point depressed by 0.69 K. The fraction of phenol is .... mm that has dimerised. K_f for benzene = 5.12 kg mol^{-1} K.

Q. 56. Two gases A and B having molecular weights 60 and 45 respectively are enclosed in a vessel. The wt. of A is 0.50 g and that of B is 0.2 g. The total pressure of the mixture is 750 mm. The partial pressure of the gases B is .... mm Hg.

Q. 57. 3.5 g of a fuel (with molecular weight 28), was burnt in a calorimeter and raised the temperature of 1 g water from 25° C to 67.3° C. If all the heat generated was used in heating water, the heat of combustion of fuel is – (..........) k cal.

Q. 58. The weight of CO is required to form $Re_2(CO)_{10}$ will be .... g, from 2.50 g of Re_2O_7 according to given reaction

$$Re_2O_7 + CO \rightarrow Re_2(CO)_{10} + CO_2$$

Atomic weight of Re = 186.2; C = 12 and O = 16.

Q. 59. 6.84 g $Al_2(SO_4)_3$ is needed to coagulate 2.5L of As_2S_3 sol completely in 2.0 hrs. The coagulation value of $Al_2(SO_4)_3$ is ....

Q. 60. 1 mole of an ideal monoatomic gas initially at 1 atm and 300 K experiences a process by which pressure is doubled. The nature of the process is unspecified but $\Delta U = 900$ cal. The final volume will be .... *l*.

[Given : R = 0.08 atm lit. / mol/K

= 2 Cal / K/ mol J

Mathematics

Section A

Q. 61. The ratio in which the segment joining the points (2, 4, 5), (3, 5, – 4) is divided by the *yz*-plane is :

(1) – 2 : 3
(2) 2 : 3
(3) 3 : 2
(4) – 3 : 2

Q. 62. For any three vectors $\vec{a}$, $\vec{b}$ and $\vec{c}$,

$(\vec{a} - \vec{b}) \cdot (\vec{b} - \vec{c}) \times (\vec{c} - \vec{a}) =$

(1) 0
(2) $\vec{a} \cdot \vec{b} \times \vec{c}$
(3) $2\vec{a} \cdot \vec{b} \times \vec{c}$
(4) $\vec{a} \cdot \vec{c} \times \vec{b}$

Q. 63. If A and B are square matrices of order 3×3 and $|A| = -1$, $|B| = 3$, then $|3AB|$ equals :

(1) 81
(2) – 81
(3) – 27
(4) – 9

Q. 64. If *a*, *b*, *c* are positive and are the pth, q^{th} and r^{th} terms respectively of a G.P., then the

value of $\begin{vmatrix} \log a & p & 1 \\ \log b & q & 1 \\ \log c & r & 1 \end{vmatrix}$ is :

(1) 0
(2) *p*
(3) *q*
(4) *r*

Q. 65. A coin is tossed twice and the four possible outcomes are assumed to be equally likely. If A is the event, 'both head and tail have appeared' and B the event,' at most one tail is observed,' then the value of P(B/A) is :

(1) 1
(2) 2
(3) 1/2
(4) 1/4

Q. 66. If $\arg(z) < 0$, then $\arg(-z) - \arg(z) =$
(1) π
(2) $-\pi$
(3) $-\dfrac{\pi}{2}$
(4) $\dfrac{\pi}{2}$

Q. 67. The value of $\displaystyle\int \frac{\sin x}{\sin x - \cos x}\,dx$ equals :
(1) $\dfrac{1}{2}x + \dfrac{1}{2}\log(\sin x - \cos x) + C$
(2) $\dfrac{1}{2}x - \dfrac{1}{2}\log(\sin x - \cos x) + C$
(3) $x + \log(\sin x + \cos x) + C$
(4) $x - \log(\sin x + \cos x) + C$

Q. 68. If $f(x) = \begin{cases} x^2, & \text{when } 0 \le x < 1 \\ \sqrt{x}, & \text{when } 1 \le x < 2 \end{cases}$, then $\displaystyle\int_0^2 f(x)\,dx$ equals :
(1) $\dfrac{1}{3}(4\sqrt{2} - 1)$
(2) $\dfrac{1}{3}(4\sqrt{2} + 1)$
(3) 0
(4) does not exist

Q. 69. The area bounded by the x-axis and the curve $y = 4x - x^2 - 3$ is :
(1) $\dfrac{1}{3}$
(2) $\dfrac{2}{3}$
(3) $\dfrac{4}{3}$
(4) $\dfrac{8}{3}$

Q. 70. The differential equation whose solution is $(x-h)^2 + (y-k)^2 = a^2$ is (where a is a constant) :
(1) $\left[1 + \left(\dfrac{dy}{dx}\right)^2\right]^3 = a^2\left(\dfrac{d^2 y}{dx^2}\right)^2$
(2) $\left[1 + \left(\dfrac{dy}{dx}\right)^2\right]^3 = a^2\dfrac{d^2 y}{dx^2}$
(3) $\left[1 + \left(\dfrac{dy}{dx}\right)\right]^3 = a^2\left(\dfrac{d^2 y}{dx^2}\right)^2$
(4) $\left(1 + \left(\dfrac{dy}{dx}\right)\right)^3 = a^2\dfrac{d^2 y}{dx^2}$

Q. 71. A particle is moving on a line, where its position S in meters is a function of time t in seconds given by $S = t^3 + at^2 + bt + c$ where a, b, c are constant. It is known that at $t = 1$ seconds, the position of the particle is given by $S = 7$ m. Velocity is 7 m/s and acceleration is 12 m/s^2. The values of a, b, c are
(1) $-3, 2, 7$
(2) $3, -2, 5$
(3) $3, 2, 1$
(4) $-3, 2, -1$

Q. 72. $y = \log x$ satisfies for $x > 1$, the inequality :
(1) $x - 1 > y$
(2) $x^2 + 1 > y$
(3) $y > x - 1$
(4) $(x+1)/x < y$

Q. 73. The lateral edge of a regular rectangular pyramid is 'a' cm long. The lateral edge makes an angle α with the plane of the base. The value of α for which the volume of the pyramid is greatest, is
(1) $\dfrac{\pi}{4}$
(2) $\sin^{-1}\sqrt{\dfrac{2}{3}}$
(3) $\cot^{-1}\sqrt{2}$
(4) $\dfrac{\pi}{3}$

Q. 74. The coordinates of the middle points of the sides of a triangle are (4, 2), (3, 3) and (2, 2) then the coordinates of its centroid are :
(1) $\left(3, \dfrac{7}{3}\right)$
(2) $(3, 3)$
(3) $(4, 3)$
(4) $(3, 4)$

Q. 75. The statement $p \to (q \to p)$ is equivalent to
(1) $p \to (p \to q)$
(2) $p \to (p \lor q)$
(3) $p \to (p \land q)$
(4) $p \to (p \leftrightarrow q)$

Q. 76. The normal to the ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ at a point P (x_1, y_1) on it, meets the x-axis in G. PN is perpendicular to OX, where O is origin. Then value of $\ell(OG)/\ell(ON)$ is :
(1) e
(2) e^2
(3) e^3
(4) $1 - e^2$

Q. 77. The number of points from where a pair of perpendicular tangents can be drawn to the hyperbola, $x^2 \sec^2\alpha - y^2 \csc^2\alpha = 1, \alpha \in (0, \pi/4)$ are :
(1) 0
(2) 1
(3) 2
(4) infinite

Q. 78. Let $x_1 = 97, x_2 = \dfrac{2}{x_1}, x_3 = \dfrac{3}{x_2}, x_4 = \dfrac{4}{x_3}, \ldots\ldots,$ $x_8 = \dfrac{8}{x_7}$ then $\log_{3\sqrt{2}}\left(\displaystyle\prod_{i=1}^{8} x_i - 60\right) =$
(1) $\dfrac{3}{2}$
(2) 4
(3) 6
(4) $\dfrac{5}{2}$

Q. 79. Let $\alpha, \beta, \gamma, \delta$ be the roots of $x^4 + x^2 + 1 = 0$. Then the equation whose roots are $\alpha^2, \beta^2, \gamma^2, \delta^2$ are :

(1) $(x^4 - x + 1) = 0$

(2) $(x^2 + x + 1)^2 = 0$

(3) $(x^4 - x^2 + 1) = 0$

(4) $(x^2 - x + 1)^2 = 0$

Q. 80. In usual notation a $\triangle ABC$, if A, A_1, A_2, A_3 be the area of the in-circle and ex-circles, then

$\dfrac{1}{\sqrt{A_1}} + \dfrac{1}{\sqrt{A_2}} + \dfrac{1}{\sqrt{A_3}}$ is equal to

(1) $\dfrac{1}{\sqrt{A}}$

(2) $\dfrac{2}{\sqrt{A}}$

(3) $\dfrac{3}{\sqrt{A}}$

(4) $\dfrac{\sqrt{A}}{2}$

Section B

Q. 81. Let $f(x) = \log x + x^3$ and let $g(x)$ be the inverse of $f(x)$, then $|64g''(1)|$ is equal to ....

Q. 82. If $f(x) = \begin{cases} \dfrac{\log_{\sin|x|} \cos^2 x}{\log_{\sin|3x|} \cos \dfrac{x}{2}} & |x| < \dfrac{\pi}{3}; x \neq 0 \\ k & x = 0 \end{cases}$, then

value of k for which $f(x)$ is continuous at $x = 0$ is ....

Q. 83. If $\lim\limits_{n \to \infty} \sum\limits_{k=2}^{n} \cos^{-1}\left(\dfrac{1 + \sqrt{(k-1)(k+2)(k+1)k}}{k(k+1)}\right) = \dfrac{\pi}{\lambda}$,

then the value of λ is ....

Q. 84. If $f(x) = 3\cos\left(x + \dfrac{5\pi}{6}\right) - 5\sin x + 2$, then maximum value of $f(x)$ is ....

Q. 85. Range of 'a' for which $x^3 - 12x + [a] = 0$ has exactly one real root is $(-\infty, p) \cup [q, \infty)$, then $||p| - |q||$ is ....

Q. 86. If $Q(x)$ is the quotient when $P(x) = 1111x^{1111} - 111x^{111} + 11x^{11} - 1011$ is divided by $x - 1$, then sum of the digits in the sum of coefficients of $Q(x)$ is

Q. 87. There are 12 persons seated in a line. Number of ways in which 3 persons can be selected such that atleast two of them are consecutive, is ....

Q. 88. If $a, b, c, d > 0$ such that $a + 2b + 3c + 4d = 50$, then the maximum value of $\left(\dfrac{a^2 b^4 c^3 d}{16}\right)^{1/10}$ is equal to ....

Q. 89. The distance between the point $P(u, v)$ and the curve $x^2 + 4x + y^2 = 0$ is same as the distance between the points $P(u, v)$ and $M(2, 0)$.

If u and v satisfy the relation $u^2 - \dfrac{v^2}{q} = 1$, then 'q' is ....

Q. 90. Through the vertex O of parabola $y^2 = 4x$, chords OP and OQ are drawn at right angles to one another, where P and Q are points on the parabola. If the locus of middle point of PQ is $y^2 = 2(x - l)$, then value of l is ....

Answers

Physics

Q. No.	Answer
1	(2)
2	(4)
3	(1)
4	(4)
5	(2)
6	(4)
7	(4)
8	(3)
9	(2)
10	(2)
11	(1)
12	(2)
13	(3)
14	(1)
15	(1)

Q. No.	Answer
16	(4)
17	(2)
18	(1)
19	(4)
20	(3)
21	14.00
22	40.00
23	2.00
24	2.136
25	4.00
26	5.00
27	9.00
28	75.00
29	7.00
30	1.00

Chemistry

Q. No.	Answer
31	(4)
32	(1)
33	(4)
34	(3)
35	(2)
36	(1)
37	(1)
38	(4)
39	(1)
40	(2)
41	(2)
42	(2)
43	(4)
44	(2)
45	(4)

Q. No.	Answer
46	(2)
47	(1)
48	(1)
49	(4)
50	(3)
51	70.00
52	1.50
53	52.76
54	3 .011
55	746.24
56	259.84
57	338.40
58	2.456
59	8.00
60	24.00

Mathematics

Q. No.	Answer
61	(1)
62	(1)
63	(2)
64	(1)
65	(1)
66	(1)
67	(1)
68	(1)
69	(3)
70	(1)
71	(2)
72	(1)
73	(3)
74	(1)
75	(2)

Q. No.	Answer
76	(2)
77	(4)
78	(2)
79	(2)
80	(1)
81	5.00
82	8.00
83	6.00
84	9.00
85	1.00
86	11.0
87	100
88	5.00
89	3.00
90	4.00