FIITJEE

ALL INDIA TEST SERIES

FULL TEST – III

JEE (Main)-2025

TEST DATE: 09-01-2025

Time Allotted: 3 Hours **Maximum Marks: 300**

General Instructions:

- The test consists of total 75 questions.
- Each subject (PCM) has 25 questions.
- This question paper contains **Three Parts.**
- **Part-A** is Physics, **Part-B** is Chemistry and **Part-C** is Mathematics.
- Each part has only two sections: **Section-A and Section-B**.

  Section-A (01 – 20, 26 – 45, 51 – 70) *contains 60 multiple choice questions which have* ***only one correct answer****. Each question carries* ***+4 marks*** *for correct answer and* ***–1 mark*** *for wrong answer.*

  Section-B (21 – 25, 46 – 50, 71 – 75) *contains 15 Numerical based questions. The answer to each question is rounded off to the nearest integer value. Each question carries* ***+4 marks*** *for correct answer and* ***–1 mark*** *for wrong answer.*

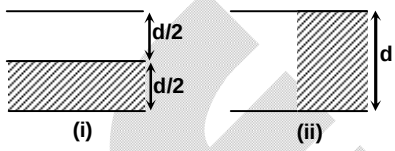
Physics

PART – A

SECTION – A
(One Options Correct Type)

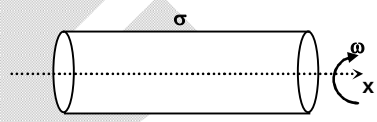
*This section contains **20 multiple choice questions**. Each question has **four choices** (A), (B), (C) and (D), out of which **ONLY ONE** option is correct.*

1. Two identical parallel plate capacitors with plate area 'A' and separation between the plates 'd' are shown in the figure-(i) and figure-(ii). Half of the volume of the space between the plates, if each capacitor is filled with same dielectric but in different ways. Both are charged to the same potential difference, then



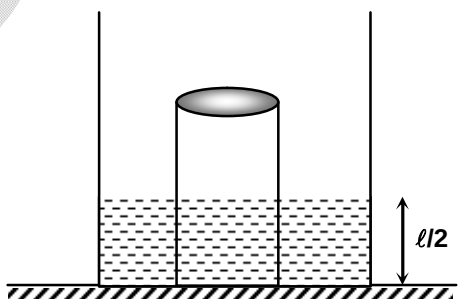
(A) Energy stored in capacitor in figure-(i) is more than that in figure-(ii).
(B) Charge on the capacitor in figure-(i) is less than that on the capacitor in the figure-(ii)
(C) Energy stored in both capacitors is same
(D) Charge on both capacitors is same.

2. A very long non conducting cylindrical shell of radius R carries uniform surface charge density σ. The cylinder is made to rotate about its axis with angular velocity ω.



(A) If ω is constant only uniform magnetic field exists inside the cylinder.
(B) Both electric and magnetic field exist inside the cylinder whether ω is constant or variable
(C) Electric field always exists inside the conductor whether ω is constant or variable.
(D) Sum of magnetic field energy and electrostatic field energy varies with time as $E = a + bt^2$, where a and b are positive constants.

3. In the figure, a solid cylinder of radius 'R' and length 'ℓ' is kept on the bottom of container in vertical position. There is no gap between the bottom surfaces of the cylinder and the container. The container is filled with a liquid of density ρ so that the length of the cylinder inside the liquid is $\frac{\ell}{2}$. Choose the correct option.

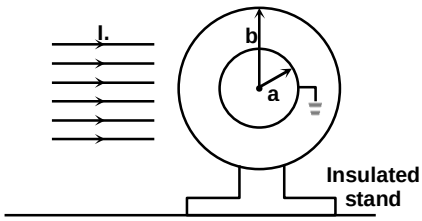


(A) Force on the cylinder by liquid is $\pi R^2\left(\frac{\ell}{2}\right)\rho g$ in the downward direction.

(B) Force on the cylinder by liquid is $2\pi R^2\left(\frac{\ell}{2}\right)\rho g$ in the downward direction.

(C) Force on the cylinder by the liquid is zero.
(D) Force on the cylinder by the bottom of the container is less than its weight.

4. A parallel beam of light of monochromatic radiation of cross-section area A ($<\pi b^2$), intensity I and frequency ν is incident on a solid, perfectly absorbing conducting sphere of work function ϕ_0 ($h\nu > \phi_0$) and radius b. The inner sphere of radius a is grounded by a conducting wire. Assume that for each incident photon one photoelectron is ejected. Current through the conducting wire when light starts falling on the outer sphere is (e = charge on the electron)



(A) $\frac{IAe}{h\nu}\frac{b}{a}$ (B) $\frac{IAe}{2h\nu}$

(C) $\frac{2IAe}{h\nu}$ (D) $\frac{IAe}{h\nu}\frac{a}{b}$

5. At a place on the earth the plane of a dip circle is kept vertical at an angle of 60° with the magnetic meridian at that place. The magnetic needle aligns it self in that plane at an angle of $\tan^{-1}\left(\frac{2}{\sqrt{3}}\right)$ with the horizontal. The dip angle of that place is

(A) 60° (B) 45°

(C) 30° (D) 0°

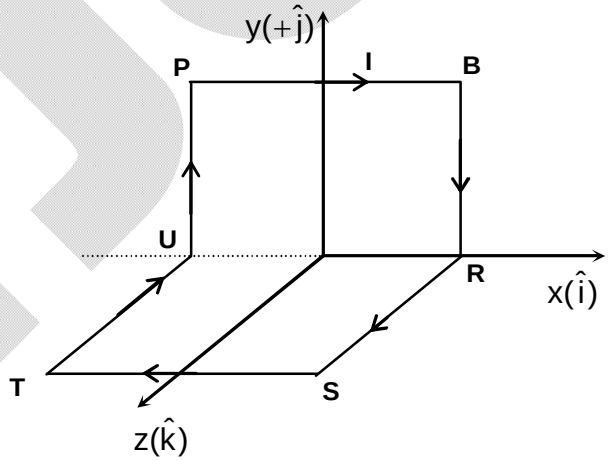
6. PQRSTU is conducting loop carrying a steady current I. Length of each side of the loop 'ℓ'. The direction of the magnetic field of the current in the loop at the origin is

(A) $\frac{1}{\sqrt{2}}\left(\hat{i}+\hat{j}\right)$

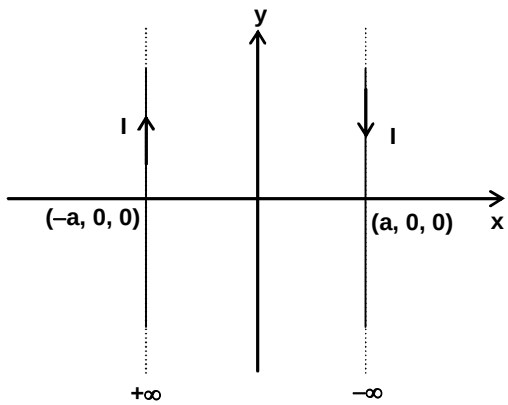
(B) $\frac{1}{\sqrt{2}}\left(-\hat{j}-\hat{k}\right)$

(C) $\frac{1}{\sqrt{2}}\left(\hat{j}+\hat{k}\right)$

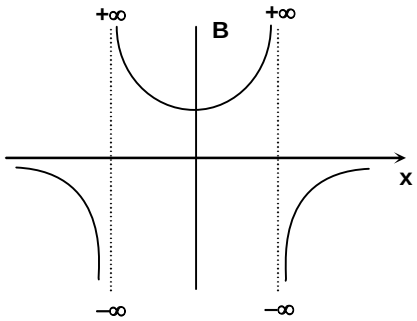
(D) $\frac{1}{\sqrt{2}}\left(-\hat{j}+\hat{k}\right)$



7. Which of the following graph best represent the magnetic field of the currents shown in the figure.



(A)



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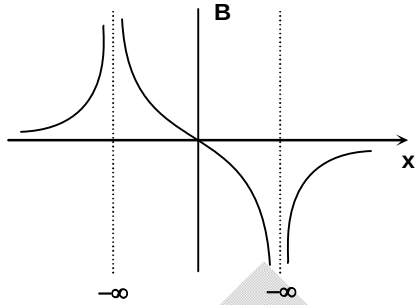

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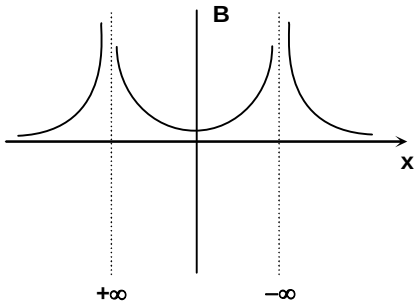
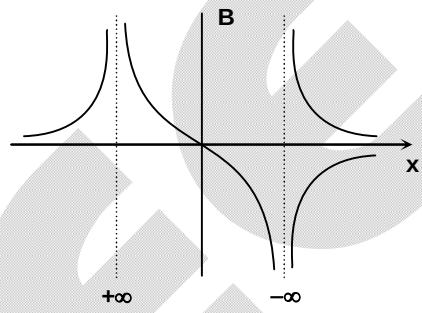
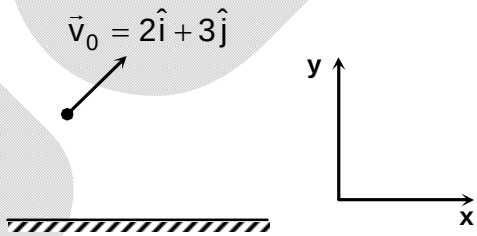


(D)



8. In the figure reflecting surface of a plane mirror is parallel to xz plane. A point object is moving with the velocity $\vec{v}_0 = 2\hat{i} + 3\hat{j}$ in m/s. Velocity of its image in m/s is (mirror is at rest)



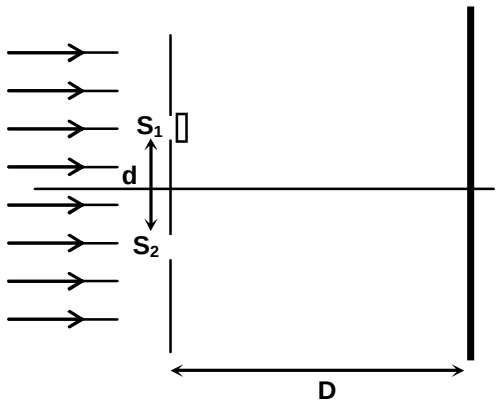
(A) $-2\hat{i} - 3\hat{j}$

(B) $-2\hat{i} + 3\hat{j}$

(C) $2\hat{i} - 3\hat{j}$

(D) $2\hat{i} + 3\hat{j}$

9. Figure shows the schematic diagram of YDSE. S is a screen at a distance D = 1m from the plane of the slits. Separation between the slits is d = 1 mm. A transparent film of thickness 2 μm and refractive index 1.5 is placed in front of the slit S_1. A monochromatic light of wavelength λ = 600 nm falls normally on the plane of the slits. The distance of the nearest maximum from 'O' is…. O is equidistant from S_1 and S_2.



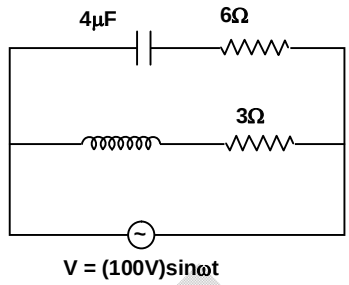
(A) 0.2 mm
(B) 0.4 mm
(C) 0.6 mm
(D) 0.3 mm

10. The dimensions of the mutual inductance of a coil is

(A) $\left[ML^2T^{-2}A^{-2}\right]$ (B) $\left[ML^2T^{-2}A^{-1}\right]$

(C) $\left[ML^2T^{-1}A^{-2}\right]$ (D) $\left[ML^2T^{-1}A^{-1}\right]$

11. For very high value of ω the impedance of the circuit is



(A) 2Ω
(B) 6Ω
(C) 9Ω
(D) 3Ω

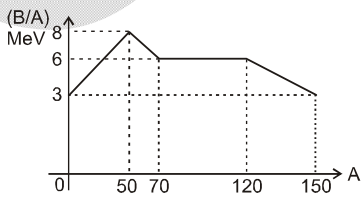
12. A disc of radius 2m is lying at rest on a horizontal surface with its plane horizontal. A small coin is placed on the disc at a distance of 1m from its centre. Now the disc starts rotating with constant angular acceleration of 1rad/s^2 about a fixed vertical axis passing through the centre of the disc. Calculate the time when the coin starts slipping on the disc. The coefficient of friction between the disc and the coin is $\mu = \sqrt{0.17}$. Take g=10ms^{-2}.

(A) 1s
(B) 2s
(C) 3s
(D) 1.5s

13. A proton and an α-particle are accelerated by the same potential difference. The ratio of the d-Broglie wavelength of the proton to that of the α-particle is,

(A) 1
(B) 1/4
(C) $2\sqrt{2}$
(D) 1/8

14. Assume that the nuclear binding energy per nucleon (B/A) versus mass number (A) is as shown in the figure. Consider a nucleus of A = 110. Fission of this nucleus results into 2 fragments. Possible mass number of the resulting nuclei may be



(A) 55 and 55
(B) 70 and 40
(C) 90 and 20
(D) 80 and 30

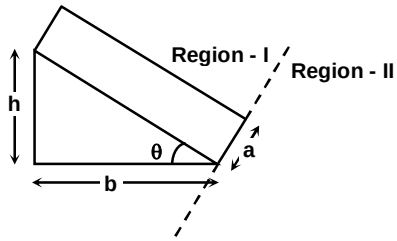
15. A lens with one surface concave and the other surface convex is made up of glass of refractive index 1.5. Radius of curvature of the concave surface is 50cm and that of the convex surface is 25cm. The convex surface is silvered. The silvered lens and an object are kept inside water of refractive index 4/3. If the object is placed at X cm, in front of the concave surface so that its image will coincide with the object then find the value of X.

(A) $\frac{100}{17}$
(B) $\frac{200}{17}$
(C) $\frac{300}{17}$
(D) $\frac{400}{17}$

16. At t = 0, light of intensity, I = 9.6×10^{-7} W/m^2 start falling on a plate with work function 2.5 eV. Energy of each incident photon is 6eV. If area of the plate is 2 × 10^{-4} m^2 and for every 10^5 photons one photoelectron is emitted, charge on the plate at t = 25 s is

(A) 8 × 10^{-15} C
(B) 4 × 10^{-15} C
(C) 12 × 10^{-15} C
(D) 16 × 10^{-15} C.

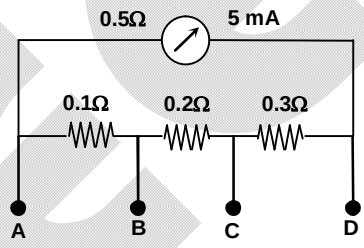
17. A wedge of mass M and dimensions as shown in the figure is lying completely inside a region (I) where pressure of the gas is negligible. The pressure inside region II is uniform and equal to 1 Pa. The surfaces are smooth. The wedge is imparted an initial velocity v_0 so that it just travels a distance b inside region II before coming to rest. The value of v_0 is



(A) $\sqrt{\frac{abh}{M}}$ (B) $\frac{3}{4}\sqrt{\frac{abh}{M}}$

(C) $\frac{4}{3}\sqrt{\frac{abh}{M}}$ (D) $\sqrt{\frac{4}{3}\frac{abh}{M}}$

18. A milli ammeter of range 5 mA and resistance $0.5\,\Omega$ is joined in a circuit as shown. Find the value of current for which meter gives full scale deflection when A & B are used as Terminal:



(A) 50 mA (B) 55 mA

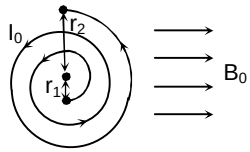
(C) 100 mA (D) 1 A

19. An x-ray tube is operating at 150 kV and 10 mA. If only 1% of the electric power supplied is converted into X-ray, the rate at which heat is produced in the target is

(A) 3.55 cal/sec (B) 35.5 cal/sec

(C) 355 cal/sec (D) 3550 cal/sec

20. Magnetic force on a spiral carrying current I_0 and placed in magnetic field B_0 parallel to the plane of spiral as shown in diagram, will be nearly (initial point, final point and centre lie on a line)



(A) Zero (B) $I_0B_0(r_2 - r_1)$

(C) $I_0B_0(r_2 + r_1)$ (D) $\frac{I_0B_0r_2}{r_1}$

SECTION – B

(Numerical Answer Type)

*This section contains **05** Numerical based questions. The answer to each question is rounded off to the nearest integer value.*

21. A rigid wire is stationary and inclined at an angle $\theta = 30°$ with the horizontal. A bead of mass M = 9 kg is free to slide along the length of the wire is held stationary on the wire at some height. A simple pendulum having small bob of mass m = 4 kg is suspended from the bead. Initially system is stationary, and string of the pendulum is vertical. The accelerations is $\frac{N}{2}$ m/s^2 of the bead as soon as system is set free. Then value of N is

22. In a helium ion an electron is orbiting the nucleus in the nth orbit. An EM wave of wave length 900Å ionises the atom. Find the value of n. Take $hc = 1224\text{eVnm}$

23. Two spheres A and B having radii 3 cm and 5 cm respectively are coated with carbon black on their outer surfaces. The wavelengths of maximum Intensity of emission of radiation are 300 nm and 500 nm respectively. The respective powers radiated by them are in the ratio of $\frac{25}{K}$. Find the value of K.

24. A body cools down in the open air as per Newton's law of cooling. Temperature of the body falls from 80^0C to 70^0C in 9minute. How long time (in minute) further will it take the body to fall its temperature from 70^0C to 60^0C. The temperature of the surrounding air is constant at 20^0C.

25. A sonometer wire resonates with frequency f_0 in its fundamental mode. If length of the wire is decreased to the value 0.95m, the resonating frequency increases by 5Hz and if length is increased to the value 1.0m, the resonating frequency decreases by 5Hz. Find the length (in cm) of the wire for the resonating frequency f_0. The speed of the wave in the wire is 382.2m/s.

Chemistry

PART – B

SECTION – A
(One Options Correct Type)

*This section contains **20 multiple choice questions**. Each question has **four choices** (A), (B), (C) and (D), out of which **ONLY ONE** option is correct.*

26. The maximum different spectral lines that will be emitted when sample of 2 amu H_2 has electron in 4^{th} excited state and makes transition to ground state is:
(A) 10 (B) 6
(C) 8 (D) 4

27. The volume of CO_2 gas released at STP when 15.8 g $KMnO_4$ is treated with sufficient amount of FeC_2O_4 in acidic medium is: (At. mass of K = 39, Mn = 55, O = 16)
(A) 22.4 L (B) 7.47 L
(C) 15 L (D) 35 L

28. The work done when 1 mol of an ideal gas undergo free expansion from 2 L to 10 L under isothermal condition is:
(A) 800 J (B) 8 J
(C) 0 (D) 8 kJ

29. The amount of silver deposited when 0.1 A current is passed through a solution of $AgNO_3$ for 965 sec. using inert electrode is:
(A) 1.08 g (B) 0.108 g
(C) 0.0108 g (D) 2.16 g

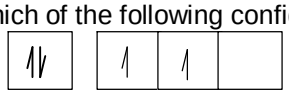
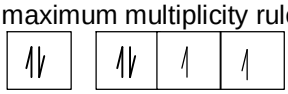
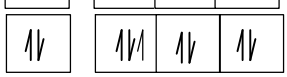
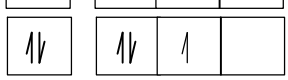
30. The osmotic pressure exerted by 0.1 M $CaCl_2$ solution at 300 K undergoing 70% dissociation is:
(A) 5.9 mm Hg (B) 5.9 atm
(C) 590 mm Hg (D) None of these

31. Which of the following species is paramagnetic:
(A) HNO_3 (B) N_2
(C) $\bar{C}N$ (D) O_2

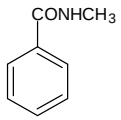
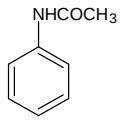
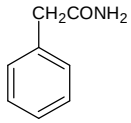
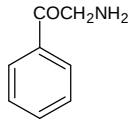
32. Which of the following pair will give same osazone on treatment with phenyl hydrazine?
(A) Fructose and glucose (B) Glucose and galactose
(C) Fructose and iodose (D) Fructose and galactose

33. Number of stereoisomers possible for the following compound are:
$\left[Co(en)(NH_3)(H_2O)BrCl\right]Cl$
(A) 4 (B) 6
(C) 8 (D) 12

34. On decreasing the pH from 7 to 3, the solubility of a sparingly soluble salt (MX) of a weak acid (HX) increased from 10^{-4} to 10^{-3} mol/L . The pK_a of HX is:
(A) 3 (B) 4
(C) 5 (D) 6

35. Which of the following configuration violates Hund's maximum multiplicity rule:
(A)  (B) 
(C)  (D) 

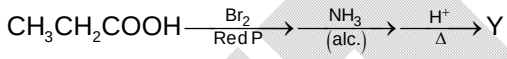
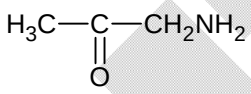
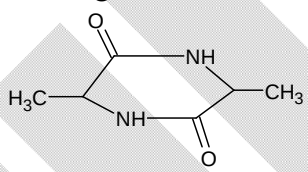
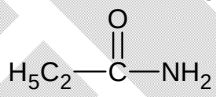
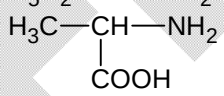
36. Which of the following is a correct order:
(A) $H_2O < H_2S < H_2Se < H_2Te < H_2Po$ (Thermal stability)
(B) $SO_2 < SeO_2 < TeO_2$ (Reducing nature)
(C) $H_3PO_2 < H_3PO_3 < (HPO_3)_3 < H_4P_2O_6$ (Number of $\angle$OPO bond angles)
(D) $H_2S_2O_4 < H_2S_2O_6 < H_2S_2O_7$ (Oxidation state of sulphur)

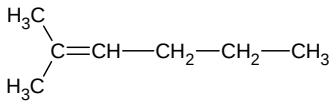
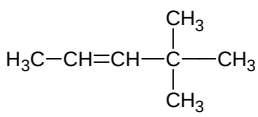
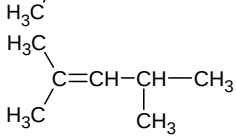
37. Which of following is most basic compound:
(A) 
(B) 
(C) 
(D) 

38. The equilibrium constant will not depend on temperature if (E is energy of activation). E_f and E_b are activation energy for forward and backward reaction:
(A) $E_f = E_b$
(B) $E_f > E_b$
(C) $E_b > E_f$
(D) $\Delta H_{reaction} \neq 0$

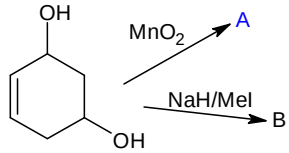
39. How many lone pairs of electrons are present in $(HPO_3)_3$:
(A) 10
(B) 18
(C) 14
(D) 20

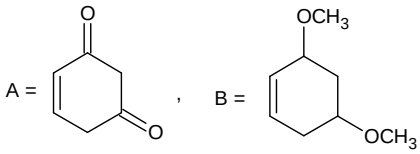
40. Transition metals are less reactive because of their:
(A) High I.E and low melting point
(B) High I.E and high melting point
(C) Low I.E. and low melting point
(D) Low I.E. and high melting point

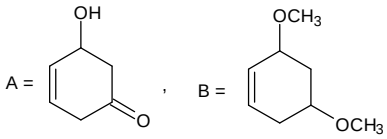
41. The product Y is:

(A) 
(B) 
(C) 
(D) 

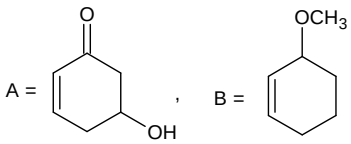
42. Correct order of heat of combustion of given compounds is:
(I) $CH_3 - CH_2 - CH = CH - CH_2 - CH_2 - CH_3$
(II) 
(III) 
(IV) 
(A) IV > I > II > III
(B) I > II > III > IV
(C) III > I > IV > II
(D) I > III > IV > II

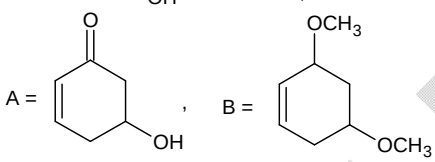
43. Predict the major products:



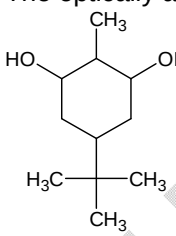
(A) 

(B) 

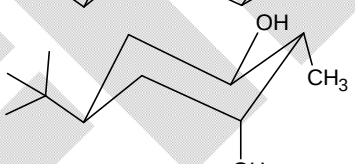
(C) 

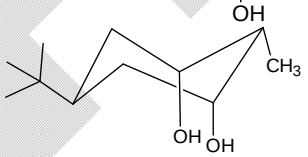
(D) 

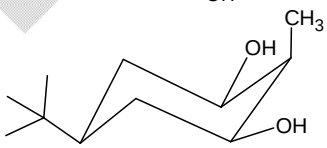
44. The optically active stereoisomer of the following compound is

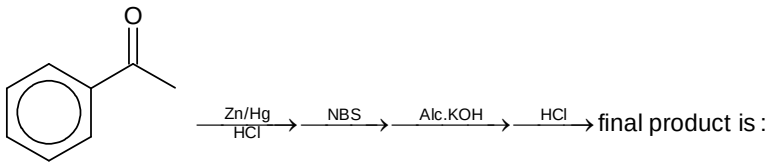


(A) 

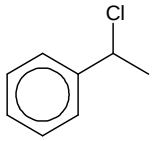
(B) 

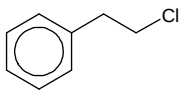
(C) 

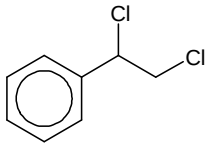
(D) 

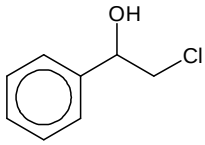
45. 

final product is :

(A) 

(B) 

(C) 

(D) 

SECTION – B

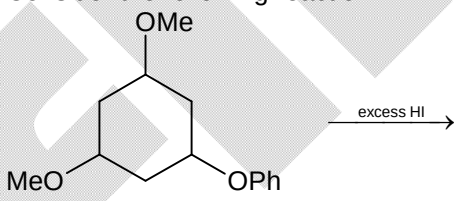
(Numerical Answer Type)

*This section contains **05** Numerical based questions. The answer to each question is rounded off to the nearest integer value.*

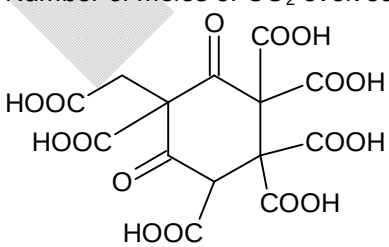
46. If the number of d-orbitals used for bonding in XeO_2F_2 is 'x', then the value of 11x is…..

47. The pH of a solution obtained by mixing 0.1 M – NH_3 and 0.1 M $(NH_4)_2SO_4$ at 25^oC is 'Z', then the value of 100Z is….
$\left(pK_b \text{ of } NH_3 = 4.76, \log 2 = 0.30\right)$

48. 3 mols of $PCl_5(g)$ dissociates to $PCl_3(g)$ and $Cl_2(g)$ in a flask of 4 L. If at equilibrium 40% of $PCl_5(g)$ is dissociated and the equilibrium constant is K_C then the value of 1000 K_C is……

49. Consider the following reaction


How many moles of HI will react with one mole of reactant.

50. Number of moles of CO_2 evolved on heating one mole of the following molecule is_____


Mathematics

PART – C

SECTION – A
(One Options Correct Type)

*This section contains **20 multiple choice questions**. Each question has **four choices** (A), (B), (C) and (D), out of which **ONLY ONE** option is correct.*

51. The value of $4\cos\left(\frac{\pi}{10}\right)-3\sec\left(\frac{\pi}{10}\right)-2\tan\left(\frac{\pi}{10}\right)$ is equal to

(A) $\sqrt{5}-1$ (B) $\sqrt{5}+1$
(C) 0 (D) 1

52. The value of x in $\left(0,\frac{\pi}{2}\right)$ satisfying equation $\frac{\sqrt{5}-1}{\sin x}+\frac{\sqrt{10+2\sqrt{5}}}{\cos x}=8$ is

(A) $\frac{\pi}{40}$ (B) $\frac{3\pi}{10}$
(C) $\frac{2\pi}{10}$ (D) $\frac{4\pi}{10}$

53. The value of $\sum_{r=2}^{\infty}\cot^{-1}\left(r^2-5r+7\right)$ is

(A) $\frac{\pi}{4}$ (B) $\frac{\pi}{2}$
(C) $\frac{3\pi}{4}$ (D) $\frac{5\pi}{4}$

54. The perpendicular distance of a corner of a unit cube from a diagonal not passing through it is

(A) $\sqrt{\frac{5}{3}}$ (B) $\sqrt{\frac{1}{3}}$
(C) $\sqrt{\frac{2}{3}}$ (D) $\sqrt{2}$

55. The distance between the line $\vec{r}=2\hat{i}-2\hat{j}+3\hat{k}+\lambda\left(\hat{i}-\hat{j}+4\hat{k}\right)$ and the plane $\vec{r}\left(\hat{i}+5\hat{j}+\hat{k}\right)=5$ is

(A) $\frac{10}{9}$ (B) $\frac{10}{3\sqrt{3}}$
(C) $\frac{10}{3}$ (D) $\frac{5}{3}$

56. Let $\vec{a},\vec{b}$ be two vectors perpendicular to each other and $|\vec{a}|=2,|\vec{b}|=3$ and $\vec{c}\times\vec{a}=\vec{b}$, then the least value of $|\vec{c}-\vec{a}|$ is

(A) 1 (B) $\frac{1}{2}$
(C) $\frac{1}{4}$ (D) $\frac{3}{2}$

57. If $\sum_{r=1}^{n} T_r = \frac{n(n+1)(n+2)(n+3)}{12}$ where T_r denotes the r^{th} term of the series, then the value of $\lim_{n\to\infty} \sum_{r=1}^{n} \frac{1}{T_r}$

(A) $\frac{1}{4}$ (B) $\frac{1}{2}$

(C) $\frac{3}{4}$ (D) 1

58. If $x = \log_\lambda a = \log_a b = \frac{1}{2}\log_b c$ and $\log_\lambda c = n(x)^{n+1}$, then the value of n is

(A) $\frac{1}{2}$ (B) 2

(C) 3 (D) none of these

59. The sum of the odd divisors of 10! is

(A) 28008 (B) 29008

(C) 30008 (D) 32008

60. The term independent of x in $(1 + x + x^{-2} + x^{-3})^{10}$ is n then the last digit of $(n + 2)^n$ is

(A) 1 (B) 3

(C) 7 (D) 9

61. If $f(x) = \begin{vmatrix} \cos x & e^{x^2} & 2x\cos^2\left(\frac{x}{2}\right) \\ x^2 & \sec x & \sin x + x^3 \\ 1 & 2 & x + \tan x \end{vmatrix}$ and if $\int_{-\pi/2}^{\pi/2} (1+x^4)(f(x)+f''(x))dx = 2\lambda + 3$, then the value of λ is

(A) $\frac{1}{2}$ (B) $\frac{3}{2}$

(C) $-\frac{1}{2}$ (D) $-\frac{3}{2}$

62. If $A = \begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$ and B is adjoint of matrix A. Then the value of Det(AB + 2I) is (where I is 3×3 identify matrix)

(A) 27 (B) 8

(C) 64 (D) 125

63. Two positive real numbers x and y satisfying $x \le 1$ and $y \le 1$ are chosen at random. The probability that $x + y \le 1$, given that $x^2 + y^2 \ge \frac{1}{4}$ is

(A) $\frac{8-\pi}{16-\pi}$ (B) $\frac{4-\pi}{16-\pi}$

(C) $\frac{4-\pi}{8-\pi}$ (D) none of these

64. Coordinate of a point P on the line $3x + 2y + 10 = 0$ such that $|PA - PB|$ is maximum where A is (4, 2) and B is (2, 4) is

(A) (–22, 28) (B) (22, –28)

(C) (22, 28) (D) (–22, –28)

65. The radical centre of the circles described on the three sides $4x - 7y + 10 = 0$, $x + y = 5$ and $7x + 4y = 15$ of a triangle as diameters is
(A) $(-1, 2)$ (B) $(1, 2)$
(C) $(1, -2)$ (D) $(-1, -2)$

66. TP and TQ are tangents to a parabola and p_1, p_2, p_3 are the lengths of the perpendiculars from P, T, Q respectively on any tangent to the parabola, then p_1, p_2, p_3 are in
(A) A.P (B) G.P
(C) H.P (D) none of these

67. If $x\int_0^x f(t)\,dt = (x+1)\int_0^x t f(t)\,dt$, where $x > 0$, if $f(1) = \frac{1}{e}$, then $f(-1)$ is
(A) $\frac{-1}{(e)^{1/2}}$ (B) $-\frac{1}{e}$
(C) e (D) $-e$

68. The area of the region bounded by the curve $y = x^2$ and $y = \sec^{-1}[-\sin^2 x]$ where [.] is G.I.F.
(A) $\frac{4\pi\sqrt{\pi}}{3}$ (B) $\frac{2\pi\sqrt{\pi}}{3}$
(C) $\frac{\pi\sqrt{\pi}}{3}$ (D) $\frac{4\sqrt{\pi}}{3}$

69. If $x_1 = \sqrt{3}$ and $x_{n+1} = \frac{x_n}{1+\sqrt{1+x_n^2}}$, $\forall\ n \in N$, then $\lim_{n\to\infty} 2^n.x_n$ is equal to
(A) $\frac{3}{2\pi}$ (B) $\frac{2}{3\pi}$
(C) $\frac{2\pi}{3}$ (D) $\frac{3\pi}{2}$

70. The mean and variance of 7 observations are 8 and 16 respectively. If 5 of the observations are 2, 4, 10, 12,14, then remaining two observations are
(A) 5, 7 (B) 6, 8
(C) 8, 9 (D) 7, 8

SECTION – B

(Numerical Answer Type)

*This section contains **05** Numerical based questions. The answer to each question is rounded off to the nearest integer value.*

71. If $f(x) = \int x^{1/3}\left(x^{2/3} + x^{1/3} + 1\right)\left(2x^{2/3} + 3x^{1/3} + 6\right)^3\,dx$ if $f(0) = 0$, then $\frac{16}{11} f(1)$ is equal to

72. Number of complex numbers satisfying the equation $z^2 = \bar{z}(2)^{1-|z|}$ is

73. If a root of the equation $n^2\sin^2 x - 2\sin x - (2n + 1) = 0$ lies in $\left[\frac{\pi}{2}, \pi\right]$, then minimum positive integer value of n is

74. If a, b, c are in A.P. and if $(a + 2b - c)(2b + c - a)(c + a - b) = \lambda abc$, then the value of λ is

75. The number of solutions of (n_1, n_2) which satisfy $n_1n_2 = 2n_1 - n_2$ where $n_1, n_2 \in I$.