TECHNO INDIA GROUP PUBLIC SCHOOL
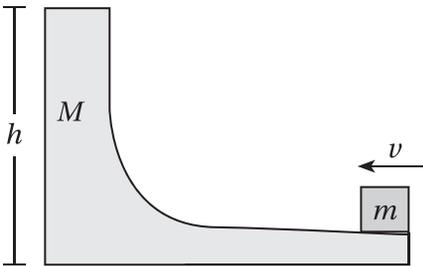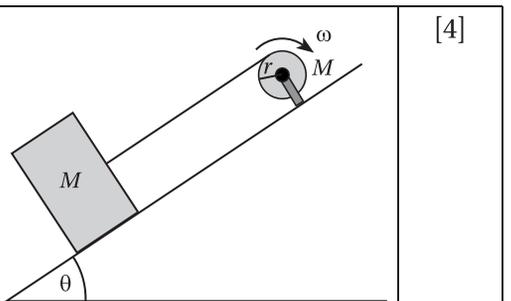
JEE Mock Test (Series-II)
Mock Paper Part-5 (2025)

Time Allowed: **3 hours**   Maximum Marks: **300**

General Instructions:

1. There are three subjects in the question paper consisting of Physics (Q. no. 1 to 25), Chemistry (Q, no. 26 to 50), and Mathematics (Q. no. 51 to 75).

2. Each subject is divided into two sections. Section A consists of 20 multiple-choice questions & Section B consists of 5 numerical value-type questions.

3. There will be only one correct choice in the given four choices in Section A. For each question for Section A, 4 marks will be awarded for correct choice, 1 mark will be deducted for incorrect choice questions and zero marks will be awarded for not attempted questions.

4. For Section B questions, 4 marks will be awarded for correct choice, 1 mark will be deducted for incorrect choice questions and zero marks will be awarded for not attempted questions.

5. Any textual, printed, or written material, mobile phones, calculator etc. is not allowed for the students appearing for the test.

6. All calculations/written work should be done in the rough sheet, provided with the Question Paper.

Physics

SECTION A

Section A: consists of 20 questions of 4 mark each.

1.	Let x and a stand for distance $\int \dfrac{dx}{\sqrt{a^2 - x^2}} = \dfrac{1}{a}\sin^{-1}\left(\dfrac{a}{x}\right)$ is ① dimensionally correct ② may be dimensionally correct ③ dimensionally incorrect ④ $a\left[\sin^{-1}\left(\dfrac{a}{x}\right)\right]$ is dimensionless	[4]
2.	Suppose a small ball is moving inside a long tube at a speed 3 m/s and tube itself is moving in the room at a speed 4 m/s along a direction perpendicular to its length. ① Value of velocity of ball is 5 m/s only ② Velocity of ball is 53° from the tube ③ Both ① and ② are correct ④ ① is correct but ② is wrong	[4]
3.	A particle moves in x–y plane with a constant acceleration of 1.5 m/s^2 in the direction making an angle of 37° with the x axis. At $t = 0$ s the particle is at the origin and its velocity is 8.0 m/s along the x-axis. The position of particle $\vec{r}$ at $t = 4$ s is ① $\left(41.6\hat{i} + 7.2\hat{j}\right)\text{m}$ ② $\left(35\hat{i} + 7.2\hat{j}\right)\text{m}$ ③ $\left(41.6\hat{i} + 5\hat{j}\right)\text{m}$ ④ $\left(41.6\hat{i} + 7.2\hat{j}\right)\text{m}$	[4]
4.	Three blocks of masses m_1, m_2 and m_3 are connected as shown in figure. All the surfaces are frictionless and string, pulleys are light. Suppose the acceleration of m_1 is a_0 towards right. Then ① the upward acceleration of m_2 with respect to B is same as downward acceleration of m_3 with respect to B. ② if upward acceleration of m_2 with respect to B be a, then acceleration of m_2 with respect to ground is $(a_0 - a)$ (down ward). ③ if downward acceleration of m_3 with respect to B be a, then acceleration of m_3 is $(a_0 + a)$ (downward) ④ All of the above are correct.	[4]

5.	The friction coefficient between the board and the floor is μ. The maximum force that the man can exert on the rope so that the board does not slip on the floor.	[4]
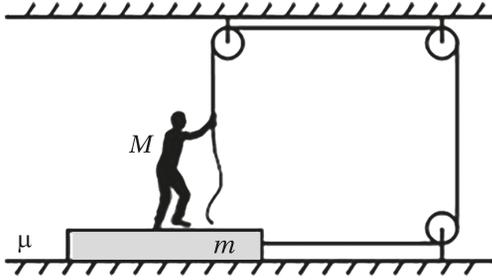
① $\mu(M+m)g$ ② $\dfrac{(M+m)g}{1+\mu}$ ③ $\dfrac{\mu(M+m)g}{1+\mu}$ ④ $(M+m)g$

6.	A table with smooth horizontal surface is turning at an angular speed ω about its axis. A groove is made on the surface along a radius and a particle is gently placed inside the groove at a distance a from the centre. The speed of the particle as its distance from the centre becomes L.	[4]

① $\omega\sqrt{L^2+a^2}$ ② $\omega\sqrt{L-a}$ ③ $\omega\left(L^2-a^2\right)$ ④ $\omega\sqrt{\left(L^2-a^2\right)}$

7.	A uniform chain of length l and mass m overhangs a smooth table with its two third part lying on the table. The kinetic energy of the chain as it completely slips off the table.	[4]

① $\dfrac{mgl}{g}$ ② $\dfrac{mgl}{18}$ ③ $\dfrac{4mgl}{9}$ ④ $\dfrac{2mgl}{9}$

8.	The centre of mass of a uniform plate having semicircular inner and outer boundaries of radii R and $2R$ is	[4]
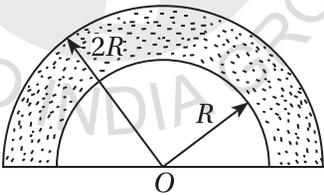
① $\dfrac{4R}{9\pi}$ ② $\dfrac{8R}{9\pi}$ ③ $\dfrac{16R}{3\pi}$ ④ $\dfrac{28R}{9\pi}$

9.	Figure shows a small body of mass m placed over a larger mass M whose surface is horizontal near the smaller mass and gradually curves to become vertical. The smaller mass is pushed on the longer one at a speed v and the system is left to itself. Assume that all the surfaces are frictionless. The speed of the smaller mass (m) when it breaks off the larger mass at height h.	[4]

① $\dfrac{mv}{m+M}$ ② $\left[\dfrac{\left(M^2+Mm+m^2\right)}{\left(m+M\right)^2}v^2-2gh\right]^{1/2}$

③ $\dfrac{Mv}{M+m}$ ④ $v/2$

10.	A wheel (disc, mass M) of radius r and moment of inertia I about its axis is fixed at the top of an smooth inclined plane of inclination θ. A string is wrapped round the wheel and its free end supports a block of mass M which can slide on the plane. Initially, the wheel is rotating at a speed ω in a direction such that the block slides up the plane. The stopping distance of the block is	[4]

① $\dfrac{\omega^2 r^2}{g\sin\theta}$ ② $\dfrac{1}{4}\cdot\dfrac{\omega^2 r^2}{g\sin\theta}$

③ $\dfrac{4}{3}\cdot\dfrac{\omega^2 r^2}{g\sin\theta}$ ④ $\dfrac{3}{4}\cdot\dfrac{\omega^2 r^2}{g\sin\theta}$

11.	The gravitational field due to a uniform disc of radius a and mass M at $\theta = 60°$, as shown point P in the figure is	[4]

① $\dfrac{GM}{a^2}$ ② $\dfrac{2GM}{a^2}$ ③ $\dfrac{GM}{2a^2}$ ④ $\dfrac{4GM}{a^2}$
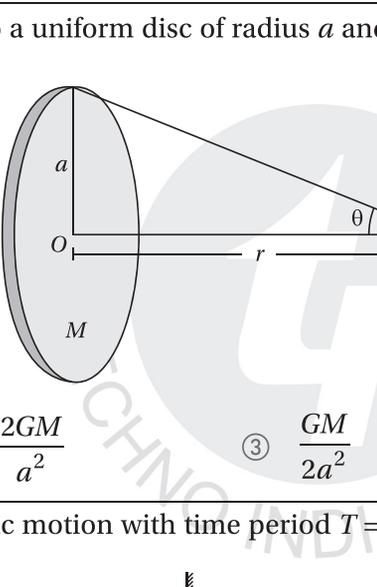
12.	The block undergoes periodic motion with time period $T =$ (The walls and the block are elastic)	[4]
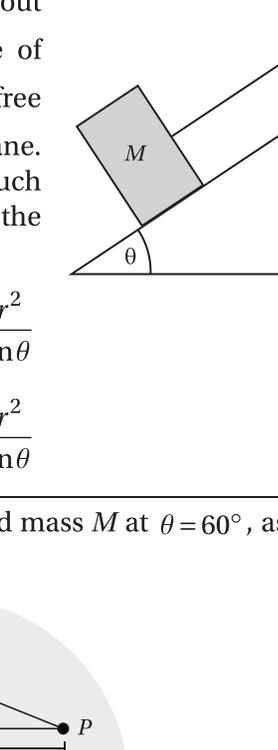
① $2\pi\sqrt{m/k}+\dfrac{L}{v}$ ② $\pi\sqrt{m/k}+\dfrac{L}{v}$ ③ $\pi\sqrt{m/k}+\dfrac{2L}{v}$ ④ $2\pi\sqrt{m/k}+\dfrac{2L}{v}$

13.	If a liquid (density, ρ) placed in an elevator which is accelerating upward with a_0, as shown in the figure, ① If p_1 is pressure at A, and p_2 is pressure at B, then $p_1 - p_2 = z\rho(g + a_0)$ ② In the above case, the Buoyant force is given by volume of displaced liquid × density of liquid $(\rho) \times (g + a_0)$ ③ The fraction immersed of a body remains same even if $a_0 = 0$ ④ All of the above	[4]

14.	If we have an air bubble inside a liquid, a single surface is formed. There is air on concave side and liquid on the convex side.	[4]
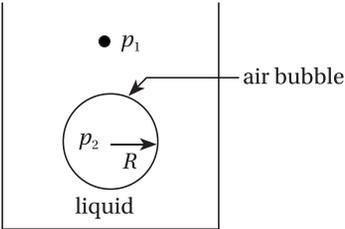
The pressure (p_2) in the concave side (that is in the air) is greater the pressure in the convex side (that is in the liquid) by an amount (S : is surface tension)

① $2S/R$ ② S/R ③ $S/2R$ ④ $4S/R$

15.	Figure shows a string of linear mass density $1.0\,\mathrm{g\,cm^{-1}}$ on which a wave pulse is travelling. The time taken by the pulse in travelling through a distance of 50 cm on the string. ($g = 10$ m/s²)	[4]
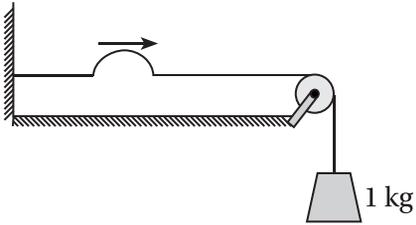
① 5 s ② 0.5 s
③ 0.05 s ④ 10 s

16.	A narrow slit S transmitting light of wavelength λ is placed a distanced d above a large plane mirror as shown in the figure. The light directly coming from the slit and that coming after the reflection interfere at a screen placed at a distance D from the slit. The distance from O does the first maximum occur?	[4]

① $\dfrac{\lambda D}{d}$ ② $\dfrac{\lambda D}{2d}$ ③ $\dfrac{\lambda D}{4d}$ ④ $\dfrac{\lambda D}{8d}$

17.		[4]
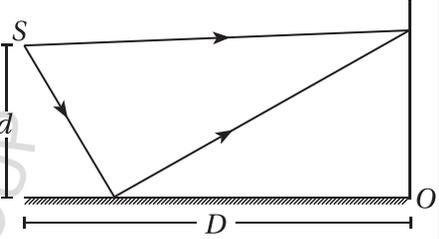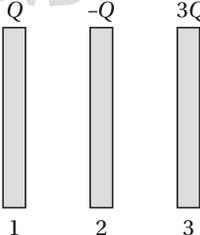
The charges given to plates are as shown above. The capacitance between the adjacent plates is C. The potential difference between plates 1 and 2

① $\dfrac{Q}{C}$ ② $\dfrac{Q}{2C}$ ③ $\dfrac{Q}{3C}$ ④ $\dfrac{2Q}{C}$

18.	A current i flows along a thin wire shaped as a regular polygon with n sides, which can be inscribed into a circle of radius R. The magnetic induction at the centre of the polygon as $n \to \infty$	[4]

① $\dfrac{\mu_0 i}{R}$ ② $\dfrac{2\mu_0 i}{R}$ ③ $\dfrac{\mu_0 i}{4R}$ ④ $\dfrac{\mu_0 i}{2R}$

19.

For steady state of current flow, the potential difference across capacitor C is

① $\dfrac{2}{3}$ Volt ② $\dfrac{1}{2}$ Volt ③ $\dfrac{1}{3}$ Volt ④ $\dfrac{1}{4}$ Volt

[4]

20. Two long thin parallel conductors of the shape shown in the figure, carry direct currents i_1 and i_2. The separation between the conductors is a, the width of the right hand conductor is equal to b. With both magnetic interaction force between them reduced to a unit of their lengths is
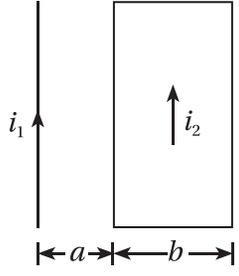
① $\dfrac{\mu_0 i_1 i_2}{2\pi b}$

② $\dfrac{\mu_0 i_1 i_2}{2\pi a}$

③ $\dfrac{\mu_0}{4\pi}\dfrac{i_1 i_2}{b}\log_e\left(1-\dfrac{b}{a}\right)$

④ $\dfrac{\mu_0}{2\pi b}i_1 i_2 \log_e\left(1+\dfrac{b}{a}\right)$

[4]

SECTION B

Section B consists of 5 questions of 4 marks each.

21. A solenoid having 5000 turns/m, carries a current of 2 A. An aluminium ring at temperature 300 K inside the solenoid provides the core. The magnetisation $I = 5 \times 10^{-2}$ A/m (Aluminum is paramagnetic substance). The susceptibility of aluminum at 300 K is $n \times 10^{-6}$ unit. Then n is _____.

[4]

22. The magnetic flux passing perpendicular to the plane of the coil directed into the paper is varying according to the relation $\varphi = 6t^2 + 8t + 10$, where φ is in weber and t in second.
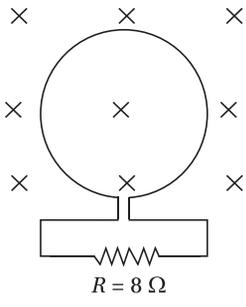
The induced current at $t = 2$ s is _____.

[4]

23. When the Sun is directly overhead, the surface of the earth receives 1.4×10^3 W/m² of Sunlight. Assume that the light is monochromatic with average wavelength 500 nm and that no light is absorbed in between the Sun and the earth's surface. The distance between the Sun and the earth is 1.5×10^{11} m. The number of photons falling per second on each square meter of earth's surface directly below the Sun is $n \times 10^{20}$. The n is _____.

[4]

24.	The radius of H-atom in its ground state is 5.3×10^{-11} m. After collision with an electron it is found to have a radius of 21.2×10^{-11} m. The principal quantum number of the final state of the atom is _____.	[4]
25.	90% of active nuclei present in a radio active sample are found to remain undecayed after 1 day. The percentage of undecayed nuclei left after two days will be _____%.	[4]

Chemistry

SECTION A

Section A: consists of 20 questions of 1 mark each.

26.		[4]
27.		[4]
28.		[4]

29.	In the given reaction , [X] will be : $SeO_2 \longrightarrow$ [X] ① (cyclohexanone with CHO)　② (diketone with CH₃)　③ (triketone with CH₃)　④ (1,3-diketone with CH₃)	[4]
30.	Conductometric titration curve of a equimolar mixture of a HCl and HCN with NaOH (aq) is : ① Λ_m vs Volume of NaOH ② Λ_m vs Volume of NaOH ③ Λ_m vs Volume of NaOH ④ Λ_m vs Volume of NaOH	[4]
31.	When a hydrogen atom emits a photon of energy 12.1 ev, the orbit angular momentum changes by : ① 1.05×10^{-34} J.S.　② 2.11×10^{-34} J.S.　③ 3.16×10^{-34} J.S.　④ 4.22×10^{-34} J.S.	[4]
32.	Which of the following is true ? ① (cyclooctatetraene) is anti aromatic　② p–Anisidine is weaker base than aniline. ③ Pyrrole is more basic than Pyridine.　④ N_3^- (azide) ion is a weaker base than $NH_2^{\ominus}$	[4]
33.	(cyclopropane with CH₂OH and two OH) $\xrightarrow[\Delta]{H^+(Excess)}$ Product 'A' is : ①　②　③　④	[4]
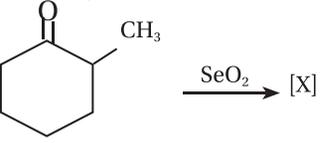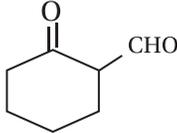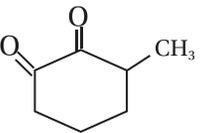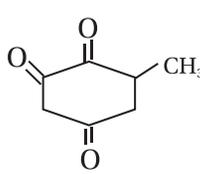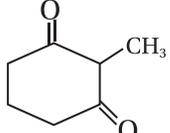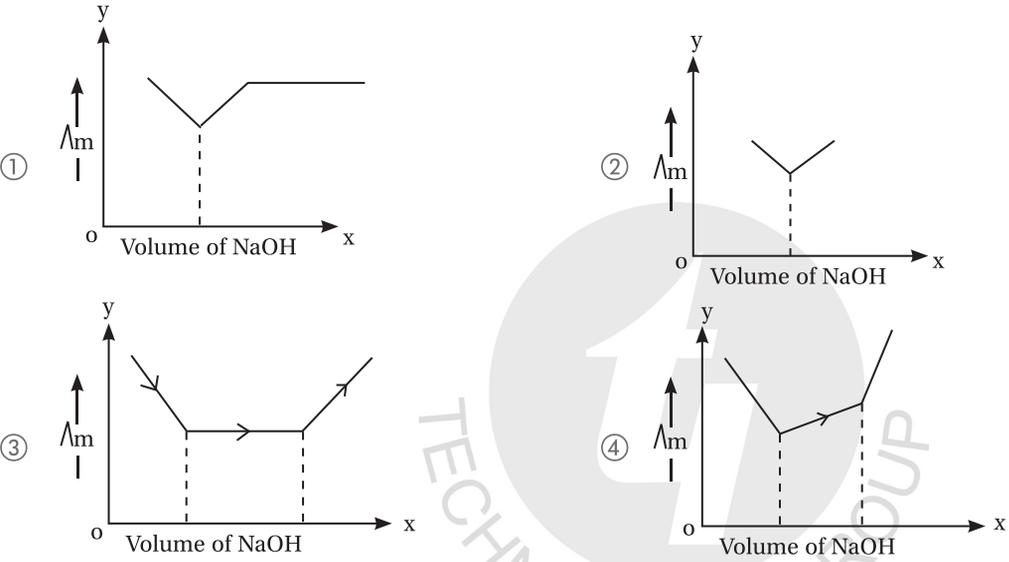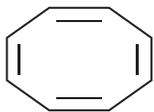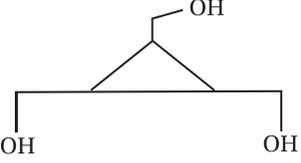
34.	What should be the product of the following reaction ?	[4]
35.	The formattion of PH_4^+ is difficult compared to NH_4^+ because : ① Lone pair of p is optically inert ② Lone pair of p–resides in almost pure p-orbital. ③ Lone pair of p resides at sp^3 orbital ④ Lone pair of 'p' resides at almost pure s-orbital.	[4]
36.	Aqueous solution of boric acid is treated with salicylic acid. Which of the following statement is correct for the product formed in above reaction? ① No product will be formed because both are acid. ② Product is 4-coordinated complex and optically resolvable. ③ Product is 4-coordinated complex and optically non-resolvable. ④ There are two rings only which are five membered.	[4]
37.	Which of the following reagent can not be used for the following conversion ? (Camphor) → (Camphane) ① Red P + HI ② Zn–Hg / Cone . HCl ③ N_2H_4 / C_2H_5O/glycol ④ Pd / $BaSO_4$	[4]
38.	Which of the following complex/complexes exhibit geomerical isomerism ? ① $[Pt(NH_3)_2Cl_2]$ ② $[Co(en)_2Cl_2]^+$ ③ Both (1) and (2) ④ $[ZnCl_2Br_2]^{2-}$	[4]
39.	Two consecutive irreversible first order reaction can be represented by $A \xrightarrow{K_1} B \xrightarrow{K_2} C$ $[A]_t \longrightarrow [A.] \cdot e^{-K_1 t}$ $[B]_t \longrightarrow \frac{K[A.]_O}{K_2 - K_1} \cdot e^{-K_1 t} - e^{-K_2 t}$ At what time will B be present in greatest concentration ? ① $\frac{K_1}{K_2 - K_1}$ ② $\frac{1}{(K_1 - K_2)} \log_e \left(\frac{K_1}{K_2}\right)$ ③ $\frac{1}{K_2 - K_1} \log_e \frac{K_1}{K_2}$ ④ $\frac{K_1}{K_2}$	[4]

40.	In the cell $Pt(s)\mid H_2(g,1\ bar)\mid HCl\ (aq)/Ag\ Cl(s)\mid Ag(s)\mid Pt(s)$ the cell potential is 0.92 v when a 10^{-6} molal HCl solution is used. The standard electric potential of $(AgCl\ /\ Ag_1Cl^-)$ electrode is : $\left(\text{Given}\ ;\ \dfrac{2.303\ RT}{F}=0.06\ \text{v at}\ 298\ k\right)$ ① 0.94 v. ② 0.20 v. ③ 0.76 v. ④ 0.40 v.	[4]
41.	m-Bromoaniline can be prepared by : ① $C_6H_6 \xrightarrow[H_2SO_4]{HNO_3} \xrightarrow[\text{(ii) NaOH, }H_2O]{\text{(i) Sn–HCl}}\ .\ \xrightarrow[H_2O]{Br_2}$ ② $C_6H_6 \xrightarrow[FeBr_3]{Br_2} \xrightarrow[H_2SO_4]{HNO_3}\ .\ \xrightarrow{H_2/Pt}$ ③ $m – Br\ C_6H_4COOH\ .\ \xrightarrow{SOCl_2} \xrightarrow{NH_3}\ .\ \xrightarrow{Br_2/NaOH}$ ④ $C_6H_5\ NH_2 \xrightarrow[Cu_2Br_2]{NaNO_2;\ HCl}\ .\ \xrightarrow{NaNH_2}$	[4]
42.	Statement I : Ethyl-pent –4–yn – oate on reaction with CH_3MgBr gives a 3° alcohol. Statement II : In this reaction one mol of ethylpent–4–yn–oate utilizes two moles of CH_3MgBr . ① Both statement I and Statement II are correct ② Statement I is correct but statement II is incorrect. ③ Both statment I and statement II are incorrect ④ Statement I is incorrect but statement II is correct.	[4]
43.	The mass of a non-volatile, non-electrolyte solute (molar mass = 50 g mol^{-1}) needed to be dissolved in 114g octane to reduce its vapour pressure to 75% , is ① 50 g ② 12.5 g ③ 75 g ④ 150 g	[4]
44.	Match the list-I with list II and select the correct option : (see table below) ① A – R, B – S, C – Q, D – P ② A – P, B – Q, C – R, D – S ③ A – S, B – P, C – Q, D – R ④ A – R, B – Q, C – P, D – S	[4]

Question 44 table:

	List-I		List-II
A.	Sp^2	P.	ICl_4^-
B.	dSp^2	Q.	$Fe(CO)_5$
C.	Sp^3d	R.	$SnCl_2$
D.	Sp^3d^2	S.	$[Ni(CN)_4]^{2-}$

45.	Which of the following will reduce Tollen's Reagent ? ① ② ③ Both (1) & (2) ④ None of these .	[4]

SECTION B

Integer type Questions.

Section B consists of 5 questions of 4 marks each.

46.	In 200 ml of 0.1 (M) CH_3COOH, 100 ml 0.1(M) NaOH solution was mixed and volume of mixture is increased upto 750 ml, pH of resulting solution is x. The value of 'x' is _____ . (pka of for CH_3COOH = 5)	[4]
47.	When vapours of chromyl chloride are passed through NaOH solution, it becomes yellow. Oxidation of chromium in the compound formed is _____ .	[4]
48.	The number of $e^{\ominus}$ lost when one mole of Fe_2S_3 is converted to $FeSO_4$ and SO_2 is 4x ; The value of x is _____ .	[4]
49.	 Number of chiral carbon present in the given compound is _____ .	[4]
50.	In absence of any nucleophile benzyre dimerizes to give a structure having unsaturation index _____ .	[4]

Mathematics

SECTION A

Section A: consists of 20 questions of 1 mark each.

51.	Let A ≡ (2, –5), B ≡ (1, 2) Let P ≡ (3k–1, 3k + 1) be a variable point such that PA + PB is the minimum ① $\dfrac{5}{9}$ ② 0 ③ $\dfrac{5}{8}$ ④ none of these	[4]

52.	The value of $\text{sin}^{-1}(x^2 - 4x + 7) + \text{Cos}^{-1}(x^2 - 4x + 7)$ for all $x \in R$ is	[4]
	① $\dfrac{\pi}{2}$ ② π ③ 0 ④ none of these	
53.	The probability that in a family of four members exactly two members have birthday on Tuesday is	[4]
	① $\dfrac{12 \times 4^2}{7^4}$ ② $\dfrac{6^3}{7^4}$ ③ $\dfrac{2}{5}$ ④ $\dfrac{6^4}{7^4}$	
54.	If $y = 4 + |x| - |x - 2| - |x + 2|$, then $y'\left(-\dfrac{7}{2}\right) + y'\left(-\dfrac{1}{2}\right) + y'\left(\dfrac{3}{2}\right) + y'\left(\dfrac{5}{2}\right) = ?$	[4]
	① 0 ② 1 ③ -1 ④ -2	
55.	If $5\hat{i} + 7\hat{j} + 6\hat{k}$, $3\hat{i} + 11\hat{j} + 2\hat{k}$ and $3\hat{i} + 5\hat{j} + 7\hat{k}$ are the position vectors of the vertices A, B and C respectively, of triangle ABC, then the position vector of the point where the bisector of angle A meets BC is	[4]
	① $\dfrac{2}{3}(-9\hat{i} + 8\hat{j} - 6\hat{k})$ ② $\dfrac{2}{3}(9\hat{i} + 8\hat{j} + 6\hat{k})$ ③ $\dfrac{1}{3}(9\hat{i} + 21\hat{j} + 16\hat{k})$ ④ $\dfrac{1}{3}(5\hat{i} + 12\hat{k})$	
56.	If $f(x)$ is even function and $f(1) = a$ and $f(x + 3) = f(x) + f(3)$ then value of $f(4)$ is	[4]
	① $16a$ ② 0 ③ $9a$ ④ a	
57.	If $\int \dfrac{dx}{x + x^6} = f(x) + c$, then the value of $\int \dfrac{x^5}{x + x^6} dx$ is	[4]
	① $\log x - f(x) + c$ ② $f(x) + \log x + c$ ③ $f(x) - \log x + c$ ④ none of these	
58.	There are nine men and five women talking a dancne class. Number of different ways in which each woman is paired with a man partner, and the four remaining men are paired into two pairs each of two is	[4]
	① 360360 ② 720720 ③ 45360 ④ 3622880	
59.	If $z_1 = (4 + 2i)$, $z_2 = (3 + 2i)$ and $\arg\left(\dfrac{z - z_1}{z - z_2}\right) = \dfrac{\pi}{4}$, then z satisfies	[4]
	① $|z - 7 - 4i| = 1$ ② $|2z - 7 - 5i| = \sqrt{2}$ ③ $|z - 2i| = 4$ ④ $|2z - 7i| = \sqrt{18}$	
60.	If $p, q, r, s \in R$ then the equation $(x^2 + px + q)(x^2 - rx + 3q)(x^2 - sx + 2q) = 0$ has	[4]
	① 6 real roots ② at least 2 real roots ③ 4 real roots ④ 3 real roots	
61.	$\log_2(3 - x) + \log_{0.5}(3 + x) = \log_2(1 - x) + \log_{0.5}(2x + 1)$ has	[4]
	① Only one prime solution ② Two real solution ③ No real solution ④ Only one real solution	
62.	If $a_1, a_2, \ldots, a_n$ are in A.P. with common difference $d \neq 0$. Then sum of the series $\sin d \left| \sec a_1 \sec a_2 + \sec a_2 . \sec a_3 + \ldots + \sec a_n \sec a_{(n-1)} \right|$	[4]
	① $\sec a_n - \sec a_1$ ② $\text{cosec } a_n - \text{cosec } a_1$ ③ $\cot a_n - \cot a_1$ ④ $\tan a_n - \tan a_1$	
63.	The function $f(x) = \dfrac{(2^x - 1)^2}{\tan x \, ln(1 + x)}$, $x \neq 0$ is continuous at $x = 0$, then the value of $f(0)$ is	[4]
	① $2\log_e^2$ ② $(\log_e 2)^2$ ③ $\log_e^6$ ④ None of these	

64.	One diagonal of a square is 5x – 12y + 8 = 0 and one vertex is (–2, 2), then the area of square is	[4]
	① 2 sq. units ② 4 sq. units ③ 6 sq. units ④ 8 sq. units	
65.	If in the expan of $\left(x^5 - \dfrac{2}{3\sqrt{x}}\right)^n$ a term like x^3 exists and n is a double digit number, then least value of n is	[4]
	① 21 ② 22 ③ 23 ④ none of these	
66.	The values of λ for which the system of equations x + y – 3 = 0, (1 + λ) x + (2 + λ) y – 8 = 0 and x – (1 + λ) y + (2 + λ) = 0 is consistent are	[4]
	① $-\dfrac{5}{3}, 1$ ② $\dfrac{2}{3}, -3$ ③ $-\dfrac{1}{3}, -3$ ④ 0, 1	
67.	Let $0 < x < \dfrac{\pi}{4}$, then (sec 2x – tan 2x) equals	[4]
	① $\tan\left(x - \dfrac{\pi}{4}\right)$ ② $\tan\left(\dfrac{\pi}{4} - x\right)$ ③ $\tan\left(x + \dfrac{\pi}{4}\right)$ ④ $\tan^2\left(x + \dfrac{\pi}{4}\right)$	
68.	If $f(x) = \dfrac{p + 5x - x^2}{x - 5}$, where p is a parameter for which f(x) has a minimum and maximum value then the range of values of p is	[4]
	① (0, 5) ② (0, ∞) ③ (–∞, 0) ④ (5, ∞)	
69.	The coordinates of the foot of the perpendicular drawn from point A (1, 0, 2) to the join of points B (5, 6, 1) and C (2, 3, 2) is	[4]
	① $\left(\dfrac{7}{11}, \dfrac{18}{11}, \dfrac{27}{11}\right)$ ② $\left(\dfrac{18}{11}, -\dfrac{7}{11}, \dfrac{25}{11}\right)$ ③ $\left(\dfrac{1}{11}, \dfrac{9}{11}, \dfrac{13}{11}\right)$ ④ $\left(\dfrac{2}{19}, \dfrac{21}{19}, \dfrac{50}{19}\right)$	
70.	Consider the statement P : 'Mumbai is a city'. Which of the following is not negation of P ?	[4]
	① Mumbai is not a city ② It is false that Mumbai is a city	
	③ It is not the case that Mumbai is a city ④ None of these	

SECTION B

Section B consists of 5 questions of 2 marks each. (Attempt any 5 out of 10)

71.	If $\displaystyle\sum_{i=1}^{10}(x_i - 7) = 10$ and $\displaystyle\sum_{i=1}^{10}(x_i - 7)^2 = 50$ then Standard deviation of 10 items $x_1, x_2, \ldots\ldots\ldots x_{10}$ is	[4]
72.	A vertical tower PQ subtends the same angle 60° at each of two places A and B, 60 m apart on the ground. AB subtends on angle 120° at the foot of the tower. If h is the height of the tower then $2h^2 + h + 1$ is equal to 137k, k = ?	[4]
73.	The value of $6\displaystyle\int_{4}^{8}\sqrt{x - 4\sqrt{x - 4}}\,dx$ is	[4]

74.	A point P lies on the ellipse $\dfrac{(y-3)^2}{81}+\dfrac{(x+4)^2}{36}=1$ If distance of P from one focus is 7, then its distance from other focus is	[4]
75.	$\displaystyle\lim_{x\to 0}\left[\min\left(y^2-4y+12\right)\dfrac{\sin x}{x}\right]$ (where [ ] $\to$ GIF) is	[4]