



TECHNO INDIA GROUP PUBLIC SCHOOL

Dt. 16-01-2026

JEE Mock Test (Series-I) Mock Paper Part-1 (2026)

Time Allowed: **3 hours**

Maximum Marks: **300**

General Instructions:

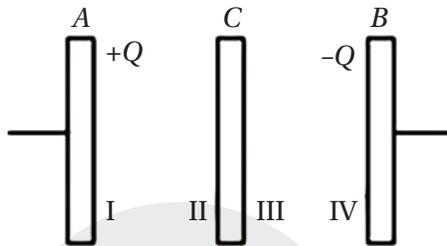
1. There are three subjects in the question paper consisting of Physics (Q. no. 1 to 25), Chemistry (Q. no. 26 to 50), and Mathematics (Q. no. 51 to 75).
2. Each subject is divided into two sections. Section A consists of 20 multiple-choice questions & Section B consists of 5 numerical value-type questions.
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 marks each.

1.	<p>In a Wheatstone's bridge, three resistances P, Q and R connected in the three arms and the fourth arm is formed by two resistances S_1 and S_2 connected in parallel. The condition for the bridge to be balanced will be</p> <p> ① $\frac{P}{Q} = \frac{2R}{S_1 + S_2}$ ② $\frac{P}{Q} = \frac{R(S_1 + S_2)}{S_1 S_2}$ ③ $\frac{P}{Q} = \frac{R(S_1 + S_2)}{2S_1 S_2}$ ④ $\frac{P}{Q} = \frac{R}{S_1 + S_2}$ </p>	[4]
2.	<p>Equipotential surfaces are shown in figure. Then the electric field strength will be</p> <div style="text-align: center;"> </div> <p> ① 200 Vm^{-1} at an angle 60° with X-axis ② 50 Vm^{-1} at an angle 60° with X-axis ③ 200 Vm^{-1} at an angle 120° with X-axis ④ 50 Vm^{-1} at an angle 120° with X-axis </p>	[4]
3.	<p>Assertion (A): A bar magnet dropped through a metallic cylindrical pipe takes more time to come down compared to a non-magnetic bar with same geometry and mass.</p> <p>Reason (R): For the magnetic bar, eddy currents are produced in the metallic pipe which oppose the motion of the magnetic bar.</p> <p> ① Both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion. ② Both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion. ③ Assertion is correct but Reason is incorrect. ④ Assertion is incorrect and Reason is correct. </p>	[4]
4.	<p>A goods train accelerating uniformly on a straight railway track, approaches an electric pole standing on the side of track. Its engine passes the pole with velocity u and guard's room passes with velocity v. The middle wagon of the train passes the pole with a velocity.</p> <p> ① $\frac{u+v}{2}$ ② $\frac{1}{2}\sqrt{u^2+v^2}$ ③ \sqrt{uv} ④ $\sqrt{\left(\frac{u^2+v^2}{2}\right)}$ </p>	[4]
5.	<p>A particle is projected with a velocity v such that its range on the horizontal plane is twice the greatest height attained by it. The range of the projectile is (where g is acceleration due to gravity)</p> <p> ① $\frac{4v^2}{5g}$ ② $\frac{5v^2}{4g}$ ③ $\frac{v^2}{g}$ ④ $\frac{4v^2}{\sqrt{5}g}$ </p>	[4]
6.	<p>A wind-powered generator converts wind energy into electrical energy. Assume that the generator converts a fixed fraction of the wind energy intercepted by its blades into electrical energy. For wind speed v, the electrical power output will be proportional to</p> <p> ① v ② v^2 ③ v^3 ④ v^4 </p>	[4]
7.	<p>In a cyclic process $a \rightarrow b$ and $c \rightarrow d$ are two isothermals; $b \rightarrow c$ and $d \rightarrow a$ are two adiabatics. If $V_a = 4 \text{ m}^3$, $V_b = 10 \text{ m}^3$ and $V_c = 25 \text{ m}^3$. Then V_d will be</p> <p> ① 20 m^3 ② 10 m^3 ③ 16 m^3 ④ 8 m^3 </p>	[4]

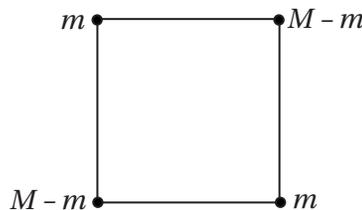
15.	The least count of the main scale of a screw gauge is 1 mm. The minimum number of divisions on its circular scale required to measure 5 μ m diameter of a wire is ① 50 ② 200 ③ 100 ④ 500	[4]
16.	Two identical metal wires of thermal conductivities K_1 and K_2 respectively are connected in series. The effective thermal conductivity of the combination is ① $\frac{2K_1K_2}{K_1+K_2}$ ② $\frac{K_1K_2}{2K_1+K_2}$ ③ $\frac{K_1+K_2}{K_1K_2}$ ④ $\frac{K_1K_2}{K_1+K_2}$	[4]
17.	Plates A and B constitute an isolated, charged parallel-plate capacitor. The inner surfaces (I and IV) of A and B have charges $+Q$ and $-Q$ respectively. A third plate C with charge $+Q$ is now introduced midway between A and B. Which of the following statements is not correct?  ① The surfaces I and II will have equal and opposite charges ② The surfaces III and IV will have equal and opposite charges ③ The charge of surface II will be greater than Q ④ The potential difference between A and C will be equal to the potential difference between C and B	[4]
18.	From a solid sphere of mass M and radius R a cube of maximum possible volume is cut. Moment of inertia of cube about an axis passing through its centre and perpendicular to one of its faces is ① $\frac{4MR^2}{9\sqrt{3}\pi}$ ② $\frac{4MR^2}{3\sqrt{3}\pi}$ ③ $\frac{MR^2}{32\sqrt{2}\pi}$ ④ $\frac{MR^2}{16\sqrt{2}\pi}$	[4]
19.	Two travelling waves $y_1 = A\sin[k(x-ct)]$ and $y_2 = A\sin[k(x+ct)]$ are superimposed on a string. The distance between adjacent nodes is ① $\frac{ct}{\pi}$ ② $\frac{ct}{2\pi}$ ③ $\frac{\pi}{2k}$ ④ $\frac{\pi}{k}$	[4]
20.	The electric potential at a point (x, y) in the x - y plane is given by $V = -kxy$. The field intensity at x - y plane and at a distance r from the origin varies as ① r^2 ② r ③ $\frac{1}{r}$ ④ $\frac{1}{r^2}$	[4]

SECTION B

Section B consists of 5 questions of 4 marks each.

21.	The potential energy of a particle of mass 1 kg in motion along the x -axis is given by $U = 4(1 - \cos 4x)$ J. The time period of the particle for small oscillation ($\sin \theta = \theta$) is $\left(\frac{\pi}{K}\right)$ s. The value of K is	[4]
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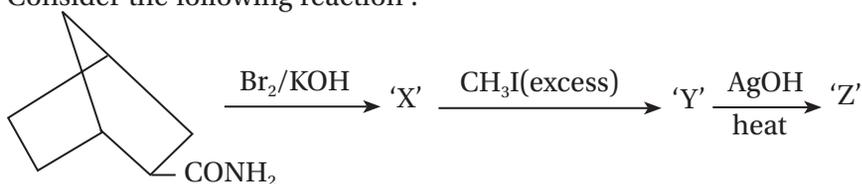
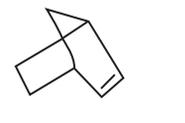
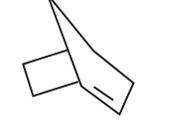
22.	The frequencies at which the current amplitude in an LCR series circuit becomes $\frac{1}{\sqrt{2}}$ times its maximum value, are 212 rad s^{-1} and 232 rad^{-1} . The value of resistance in the circuit $R = 5 \Omega$. The self inductance in the circuit is _____ mH.	[4]
23.	When an object is kept at a distance of 30 cm from a concave mirror, the image is formed at a distance of 10 cm from the mirror. If the object is moved with a speed of 9 cm s^{-1} , the speed (in cm s^{-1}) with which the image moves at that instant is _____.	[4]
24.	The angular speed of truck wheel is increased from 900 rpm to 2460 rpm in 26 seconds. The number of revolutions of the wheel during this time is _____.	[4]
25.	A body of mass $2M$ splits into four masses $\{m, M - m, m, M - m\}$, which are placed at the four vertices of a square as shown in the figure. The ratio of $\frac{M}{m}$ for which, the gravitation potential energy of the system becomes minimum is x . The value of x is _____.	[4]

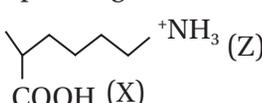


Chemistry

SECTION A

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

26.	25 g of a metal is deposited on cathode during the electrolysis of metal nitrate solution by a current of 5 amp passing for 4 hours. If atomic weight of the metal is 100. The valency of metal in metal nitrate is : ① 1 ② 2 ③ 3 ④ 4	[4]
27.	EMF of the cell $\text{Ni}/\text{Ni}^{2+}(0.1\text{M}) \parallel \text{Au}^{3+}(1.0\text{M})/\text{Au}$ will be [$E^\circ_{\text{Ni}/\text{Ni}^{2+}} = 0.25 \text{ v}$; $E^\circ_{\text{Au}/\text{Au}^{3+}} = -1.5 \text{ v}$] ① 1.75 v ② -1.779 v ③ +1.779 v ④ +0.7795 v	[4]
28.	A mixture of ethylalcohol and propyl alcohol has a vapour pressure 290 mm at 300 k. The vapour pressure of propyl alcohol 200 mm. If the mole fraction of ethyl alcohol is 0.6, its vapour pressure (in mm) at the same temperature will be : ① 350 ② 300 ③ 700 ④ 360	[4]
29.	Consider the following reaction :  The final product 'Z' is : ①  ②  ③  ④ 	[4]

30.	A compound 'A' on treatment with excess NH_3 gives 'B' in the presence of ZnCl_2 at 300°C . 'B' on treatment with CHCl_3 & KOH gives phenyl isocyanide. The diazonium salt from 'B' gives 'c' with ethanol. The incorrect option is : ① $\text{A} = \text{pH}_3\text{OH}$ ② $\text{B} = \text{pH}_3\text{NH}_2$ ③ $\text{C} = \text{C}_6\text{H}_6$ ④ None of these	[4]
31.	In the compound given below the correct order of the acidity of the positions X_1Y & Z (Y) H_3N^+  $^+\text{NH}_3$ (Z) COOH (X) ① $\text{X} > \text{Y} > \text{Z}$ ② $\text{Z} > \text{X} > \text{Y}$ ③ $\text{X} > \text{Z} > \text{Y}$ ④ $\text{Y} > \text{X} > \text{Z}$	[4]
32.	Considering the basic strength of amines in aqueous solution ; which one has the smallest pK_b value ? ① $(\text{CH}_3)_2\text{NH}$ ② CH_3NH_2 ③ $(\text{CH}_3)_3\text{N}$ ④ $\text{C}_6\text{H}_5\text{NH}_2$	[4]
33.	The vitamin which is soluble neither in water nor in fat is : ① Biotin ② phyloquinone ③ Thiamine ④ Ergocalciferol	[4]
34.	The beta and alpha-glucose have different specific rotations. When ether is dissolved in water, their rotation changes until the same fixed value results. This is called : ① Epimerization ② Racemization ③ Anomerisation ④ Mutarotation	[4]
35.	At $\text{pH} = 4$, glycine exists as : ① $\text{H}_3\text{N}^\oplus - \text{CH}_2\text{COO}^\ominus$ ② $\text{H}_3\text{N}^\oplus - \text{CH}_2\text{COOH}$ ③ $\text{H}_2\text{N} - \text{CH}_2\text{COOH}$ ④ $\text{H}_3\text{N} - \text{CH}_2\text{COO}^\ominus$	[4]
36.	Which of the following statements is true for protein synthesis (translation) ? ① Amino acids are directly recognized by m-RNA ② The third base of the codon is less specific. ③ One one codon codes for an amino acid ④ Every t-RNA molecules has more than one amino acid attachment.	
37.	Assuming that water vapour is an ideal gas, the internal energy change (ΔE), when 1 mole of water is vapourised at 1 bar pressure and 100°C (Given molar enthalpy of vapourisation of water at 1 bar and $373\text{K} = 41\text{KJ}(\text{mol})^{-1}$ and $R = 8.3\text{J}(\text{mol})^{-1}(\text{K})^{-1}$ will be : ① $4.10\text{KJ}(\text{mol})^{-1}$ ② $3.7904\text{KJ}(\text{mol})^{-1}$ ③ $37.904\text{KJ}(\text{mol})^{-1}$ ④ $41.00\text{KJ}(\text{mol})^{-1}$	[4]
38.	An aldose is converted into its next higher homologue by : ① Ruff's Method ② Amadori Rearrangement ③ Kilain's synthesis ④ None of the above	[4]
39.	Insulin production and its action in human body are responsible for the level of diabetes. This compound belongs to which of the following categories ? ① A peptide hormone ② A vitamin ③ A steroid hormone ④ An autotrophic	[4]
40.	Sucrose is not a reducing sugar since ① It is chemically stable ② It is built up of a fructose unit ③ It contains no free $-\text{CHO}$ or $-\text{>C}=\text{O}$ group adjacent to a >CHOH group ④ It is optically active	[4]

41.	The correct structure of the di-peptide gly- ala is : ① $\begin{array}{c} \text{CH}_3 \quad \text{O} \\ \quad \\ \text{H}_2\text{N} - \text{C} - \text{C} - \text{NH} - \text{CH}_2 - \text{COOH} \end{array}$ ② $\begin{array}{c} \text{CH}_2\text{SH} \quad \text{O} \\ \quad \\ \text{H}_2\text{N} - \text{CH} - \text{C} - \text{NH} - \text{CH}_2\text{COOH} \end{array}$ ③ $\begin{array}{c} \text{O} \\ \\ \text{H}_2\text{N} - \text{CH}_2 - \text{C} - \text{NH} - \text{CH} - \text{COOH} \\ \\ \text{CH}_3 \end{array}$ ④ $\begin{array}{c} \text{O} \\ \\ \text{H}_2\text{N} - \text{CH}_2 - \text{C} - \text{NH} - \text{CH} - \text{COOH} \\ \\ \text{CH}_2\text{SH} \end{array}$	[4]
42.	Which one of the following is not correct ? ① D (-) Fructose exists in furanose structure ② D (+) Glucose exists in pyranose structure ③ In sucrose the two monosaccharides are held together by peptide linkage. ④ Maltose is a reducing sugar.	[4]
43.	α - D(+) glucose and β D-(+) glucose are : ① epimers ② anomers ③ enantiomers ④ conformers	[4]
44.	The pyrimidine bases present in DNA are ① cytosine and adenine ② cytosine and guanine ③ cytosine and thymine ④ cytosine and uracil	[4]
45.	For a first order reaction ; $A \rightarrow \text{product(s)}$, the concentration of 'A' changes from 0.1(M) to 0.025(M) in 40 min. The rate of reaction when the concentration of 'A' 0.01(M) is : ① 1.73×10^{-5} M/min ② 3.47×10^{-4} M/min ③ 3.47×10^{-5} M/min ④ 1.73×10^{-4} M/min	[4]

SECTION B

Integer type Questions.

Section B consists of 5 questions of 4 marks each.

46.	5.6 litre of the gas have 1 g weight at S.T.P. Then atomic weight of the gas is _____ .	[4]
47.	What is the number of radial nodes in 4f orbital ?	[4]
48.	How many P-O-P bonds are present in P_4O_{10} ? _____ .	[4]
49.	Electronegativity of an element on Mulliken scale is 'x' times to that on Pauling scale. What is the value of 'x' ? _____ (nearest integer).	[4]
50.	When equal volume of two solutions having pH = 4 and pH = 6, are mixed together then the pH of the final solution (nearest integer) is _____ .	[4]

Mathematics

SECTION A

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

51.	$\int_{-4}^4 \frac{\sin^{-1}(\sin x) + \cos^{-1}(\cos x)}{(1+x^2)\left(1+\left[\frac{x^2}{17}\right]\right)} dx = \ln\left(\frac{(1+\pi^2)^2}{a}\right) + b\pi \tan^{-1}\left(\frac{c-\pi}{1+c\pi}\right)$ (where $[\cdot]$ is G.I.F.), then number of ways in which $(a - b - c)$ distinct objects can be distributed among $\frac{a-5}{c}$ persons equally is :	[4]
52.	Let $\frac{dy}{dx} = \frac{ax - by + a}{bx + cy + a}$, where a, b, c are constants, represent a circle passing through the point $(2, 5)$. Then the shortest distance of the point $(11, 6)$ from this circle is -	[4]
53.	$\sum_{n=1}^{\infty} \tan^{-1}\left(\frac{4n}{n^4 + 5}\right) =$	[4]
54.	Let \vec{c} be the projection vector of $\vec{b} = \lambda \hat{i} + 4\hat{k}$, $\lambda > 0$, on the vector $\vec{a} = \hat{i} + 2\hat{j} + 2\hat{k}$. If $ \vec{a} + \vec{c} = 7$, then the area of the parallelogram formed by the vectors \vec{b} and \vec{c} is _____.	[4]
55.	Let the solution curve $x = x(y)$, $0 < y < \frac{\pi}{2}$, of the differential equation $(\log_e \cos y)^2 \cos y dx - (1 + 3x \log_e(\cos y)) \sin y dy = 0$ satisfy $x\left(\frac{\pi}{3}\right) = \frac{1}{2 \log_2 2}$. If $x\left(\frac{\pi}{6}\right) = \frac{1}{\log_2 m - \log_e n}$, where m and n are coprime, then mn is equal to	[4]
56.	Let f be a function satisfying the relation $f\left(\frac{x}{x-1}\right) + f\left(\frac{3x-4}{x-1}\right) = 4$, then $\int_{3/2}^{5/2} f(x) dx$ is equal to -	[4]
57.	The number of real roots of equation $x^4 - 4x^3 + 4x^2 - 9 = 0$ are/is equal to -	[4]

58.	If $f(n) = \sum_{r=1}^n r^2 (n_{C_r} - n_{C_{r-1}}) + ((2r+1)n_{C_r})$, then $f(30)$ equals	[4]
	① 900 ② 930 ③ 960 ④ 980	
59.	If the angle between tangents drawn to $x^2 + y^2 - 2x - 4y + 1 = 0$ at the points where it is cut by the line $y = 2x + c$, is $\frac{\pi}{2}$, then -	[4]
	① $ c = \sqrt{5}$ ② $ c = 2\sqrt{5}$ ③ $ c = \sqrt{10}$ ④ $ c = 2\sqrt{10}$	
60.	Let \vec{a} and \vec{b} be unit vectors such that $ \vec{a} + \vec{b} = \sqrt{3}$, then the value of $(2\vec{a} + 5\vec{b}) \cdot (3\vec{a} + \vec{b} + \vec{a} \times \vec{b})$ is equal to -	[4]
	① $\frac{11}{2}$ ② $\frac{13}{2}$ ③ $\frac{39}{2}$ ④ $\frac{23}{2}$	
61.	$\lim_{x \rightarrow 2} \left(\sum_{n=1}^9 \frac{x}{n(n+1)x^2 + 2(2n+1)x + 4} \right)$ is equal to :	[4]
	① $\frac{5}{24}$ ② $\frac{1}{5}$ ③ $\frac{9}{44}$ ④ $\frac{7}{36}$	
62.	Mean and standard deviation of 10 observations x_1, x_2, \dots, x_{10} is \bar{X} and σ respectively. Let 10 is added in x_1, x_2, \dots, x_9 and 90 is subtracted in x_{10} . If still standard deviation is same then $(x_{10} - \bar{X})$ equals to -	[4]
	① 90 ② 75 ③ 60 ④ 45	
63.	The value of $\cos^{-1}\left(\cos\frac{8\pi}{7}\right) + \sin^{-1}\left(\sin\frac{9\pi}{7}\right) + \tan^{-1}\left(\tan\frac{11\pi}{7}\right)$ is equal to -	[4]
	① $\frac{5\pi}{7}$ ② $\frac{\pi}{7}$ ③ $\frac{11\pi}{7}$ ④ π	
64.	Point P is on circumference of circle. Chord QR is drawn parallel to tangent at P. Then maximum possible area of ΔPQR is	[4]
	① $\frac{\sqrt{3}}{4}r^2$ ② $\frac{3\sqrt{3}}{4}r^2$ ③ $\sqrt{3}r^2$ ④ $\frac{\sqrt{3}r^2}{4}$	
65.	If eccentricity of conjugate hyperbola of the hyperbola $ \sqrt{(x-1)^2 + (y-2)^2} - \sqrt{(x-5)^2 + (y-5)^2} = 3$ is e , then value of $8e$ is -	[4]
	① 12 ② 14 ③ 17 ④ 10	
66.	Let $\lambda \neq 0$ be a real number. Let α, β be the roots of the equation $14x^2 - 31x + 3\lambda = 0$ and α, γ be the roots of the equation $35x^2 - 53x + 4\lambda = 0$. Then $\frac{3\alpha}{\beta}$ and $\frac{4\alpha}{\gamma}$ are roots of the equation	[4]
	① $7x^2 + 245x - 250 = 0$ ② $49x^2 + 245x + 250 = 0$ ③ $49x^2 + 245x + 250 = 0$ ④ $7x^2 - 245x + 250 = 0$	
67.	If each term of a geometric progression a_1, a_2, a_3, \dots with $a_1 = \frac{1}{8}$ and $a_1 \neq a_2$, is the arithmetic mean of the next two terms and $S_n = a_1 + a_2 + \dots + a_n$, then $S_{20} - S_{18}$ is equal to	[4]
	① 2^{18} ② -2^{18} ③ 2^{15} ④ -2^{15}	

