



TECHNO INDIA GROUP PUBLIC SCHOOL

Dt. 30-04-2025

JEE (ADVANCED) – 2025 Mock Test - 1

Time Allowed: **3 hours**

Maximum Marks: **180**

General Instructions:

1. All questions are of objective type having four answer options for each.
2. Follow the instructions given in each section accordingly.
3. Questions must be answered on OMR sheet by darkening the appropriate bubble marked A, B, C or D.
4. Use only **Black/Blue ink ball point pen** to mark the answer by filling up of the respective bubbles completely.
5. Write your name (in block letter), name of examination center and put your signature (as is appeared in Admit Card) in appropriate boxes in the **OMR Sheet**.
6. The OMR Sheet is liable to become invalid if there is any mistake in filling the correct bubbles for Question Booklet number/roll number or if there is any discrepancy in the name/signature of the candidate, name of the examination center. The OMR Sheet may also become invalid due to folding or putting stray marks on it or any damage to it. The consequence of such invalidation due to incorrect marking or careless handling by the candidate will be the sole responsibility of candidate.
7. Candidates are not allowed to carry any written or printed material, calculator, pen, log-table, wristwatch, any communication device like mobile phones, bluetooth device etc. inside the examination hall. Any candidate found with such prohibited items will be **reported against** and his/her candidature will be summarily cancelled.
8. Rough work must be done on the Question Booklet itself. Additional blank pages are given in the Question Booklet for rough work.
9. Hand over the OMR Sheet to the invigilator before leaving the Examination Hall.

MATHEMATICS

Paper-I

SECTION-1 (Maximum Marks: 12)

- This section contains **FOUR (04)** questions.
- Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.
- For each question, choose the option corresponding to the correct answer.
- Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +3 If **ONLY** the correct option is chosen;
Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);
Negative Marks : -1 In all other cases.

1. There are three coplanar parallel lines. If any p points are taken on each of the line, the maximum number of triangles with vertices at these points is
 (A) $3p^2(p-1)$ (B) $3p^2(p-1)+1$ (C) $p^2(4p-3)$ (D) none of these

2. Given $Z = f(x) + ig(x)$ where $f, g : (0, 1) \rightarrow (0, 1)$ are real valued functions. Then, which of the following hold good?
 (A) $Z = \frac{1}{1-ix} + i\left(\frac{1}{1+ix}\right)$ (B) $Z = \frac{1}{1+ix} + i\left(\frac{1}{1-ix}\right)$
 (C) $Z = \frac{1}{1+ix} + i\left(\frac{1}{1+ix}\right)$ (D) $Z = \frac{1}{1-ix} + i\left(\frac{1}{1-ix}\right)$

3. A set S contains $3n$ members. Let P_n be the probability that S is partitioned into 3 disjoint subset with n members in each subset such that the three largest numbers in S are in different subsets. The $\lim_{n \rightarrow \infty} P_n$ is
 (A) $\frac{2}{7}$ (B) $\frac{1}{7}$ (C) $\frac{1}{9}$ (D) $\frac{2}{9}$

4. The range of $\sin^{-1}\left[x^2 + \frac{1}{2}\right] + \cos^2\left[x^2 - \frac{1}{2}\right]$ where $[\cdot]$ denotes the greatest integer function is
 (A) $\left\{\frac{\pi}{2}, \pi\right\}$ (B) $\{\pi\}$ (C) $\left\{\frac{\pi}{2}\right\}$ (D) none of these

SECTION-3 (Maximum Marks: 24)

- This section contains **SIX (06)** questions.
- The answer to each question is a **NON-NEGATIVE INTEGER**.
- For each question, enter the correct integer corresponding to the answer using the mouse and the onscreen virtual numeric keypad in the place designated to enter the answer.
- Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +4 If **ONLY** the correct integer is entered;
Zero Marks : 0 In all other cases.

8. Tangents are drawn from the point (α, β) to the hyperbola $3x^2 - 2y^2 = 6$ and are inclined at angle θ and ϕ to the x-axis. If $\tan\theta \cdot \tan\phi = 2$, then the value of $2\alpha^2 - \beta^2$ is
9. If the value of $\lim_{n \rightarrow \infty} (n^{-3/2}) \sum_{r=1}^{6n} \sqrt{r}$ is equal to $\sqrt{\lambda}$, then the value of $\frac{\lambda}{24}$ is
10. Let $f(x)$ be a polynomial with leading coefficient unity and satisfying the equation $(x - 16)f(2x) = 16(x - 1)f(x)$ then $\frac{f(0)}{128}$ is equal to
11. Let T_n denote the number of triangles which can be formed using the vertices of a regular polygon of n sides. If $T_{n+1} - T_n = 21$, then n equals
12. $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, $AA^T = 2I$, if $P(\alpha, \beta)$ divides $Q(1, 2)$ and $R(2, 5)$ in ratio $c : b$ then $|\alpha + \beta|$ is equal to
13. If d is the minimum distance between the curve $f(x) = e^x$ and $g(x) = \log_e x$, then the value of d^6 is

SECTION-4 (Maximum Marks: 12)

- This section contains **FOUR (04)** Matching List Sets.
- Each set has **ONE** Multiple Choice Question.
- Each set has **TWO** lists: **List-I** and **List-II**.
- **List-I** has **Four** entries (P), (Q), (R) and (S) and **List-II** has **Five** entries (1), (2), (3), (4) and (5).
- **FOUR** options are given in each Multiple Choice Question based on **List-I** and **List-II** and **ONLY ONE** of these four options satisfies the condition asked in the Multiple Choice Question.
- Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +3 **ONLY** if the option corresponding to the correct combination is chosen;
Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);
Negative Marks : -1 In all other cases.

14. Match the statements given in List-I with the values given in List-II.

List-I		List-II	
(P)	If $\vec{a} = \hat{j} + \sqrt{3}\hat{k}, \vec{b} = -\hat{j} + \sqrt{3}\hat{k}$ and $\vec{c} = 2\sqrt{3}\hat{k}$ form a triangle, then the internal angle of the triangle between \vec{a} and \vec{b} is	(1)	$\frac{\pi}{6}$
(Q)	If $\int_a^b (f(x) - 3x)dx = a^2 - b^2$, then the value of $f\left(\frac{\pi}{6}\right)$ is	(2)	$\frac{2\pi}{3}$
(R)	The value of $\frac{\pi^2}{\ln 3} \int_{7/6}^{5/6} \sec(\pi x)dx$ is	(3)	$\frac{\pi}{3}$
(S)	The maximum value of $\left \text{Arg}\left(\frac{1}{1-Z}\right) \right $ for $ Z =1, Z \neq 1$ is given by	(4)	π
		(5)	$\frac{\pi}{2}$

- (A) (P) \rightarrow (2), (Q) \rightarrow (1), (R) \rightarrow (4), (S) \rightarrow (5) (B) (P) \rightarrow (3), (Q) \rightarrow (2), (R) \rightarrow (4), (S) \rightarrow (1)
 (C) (P) \rightarrow (4), (Q) \rightarrow (2), (R) \rightarrow (3), (S) \rightarrow (1) (D) (P) \rightarrow (1), (Q) \rightarrow (2), (R) \rightarrow (3), (S) \rightarrow (4)

15. Match the sets given in List-I with their number of elements given in List-II

List-I		List-II	
(P)	$\left\{ x \in \left[-\frac{2\pi}{3}, \frac{2\pi}{3} \right] : \cos x + \sin x = 1 \right\}$	(1)	has two elements
(Q)	$\left\{ x \in \left[-\frac{5\pi}{18}, \frac{5\pi}{18} \right] : \sqrt{3} \tan 3x = 1 \right\}$	(2)	has three elements
(R)	$\left\{ x \in \left[-\frac{6\pi}{5}, \frac{6\pi}{5} \right] : 2\cos(2x) = \sqrt{3} \right\}$	(3)	has four elements
(S)	$\left\{ x \in \left[-\frac{7\pi}{4}, \frac{7\pi}{4} \right] : \sin x - \cos x = 1 \right\}$	(4)	has five elements
		(5)	has six elements

- Ⓐ (P) → (1), (Q) → (4), (R) → (1), (S) → (4) Ⓑ (P) → (1), (Q) → (1), (R) → (5), (S) → (3)
 Ⓒ (P) → (2), (Q) → (1), (R) → (5), (S) → (4) Ⓓ (P) → (2), (Q) → (4), (R) → (1), (S) → (3)

16. Match the sets given in List-I with their number of elements given in List-II

List-I		List-II	
(P)	The number of points of intersection of the two curves $y = 2\sin x$ and $y = 5x^2 + 2x + 3$ is	(1)	3
(Q)	The number of values of x for which $f(x)$ is valid $f(x) = \sqrt{\sec^{-1}\left(\frac{1- x }{2}\right)}$	(2)	8
(R)	If $x, y \in [0, 2\pi]$, then total number of ordered pairs (x, y) satisfying $\sin x \cdot \cos y = 1$	(3)	∞
(S)	$f(x) = \sin x - \cos x - kx + d$ decreases for all values of x when $4\sqrt{2}K$ is always greater than	(4)	0
		(5)	6

- Ⓐ (P) → (3), (Q) → (2), (R) → (1), (S) → (4) Ⓑ (P) → (4), (Q) → (3), (R) → (1), (S) → (2)
 Ⓒ (P) → (3), (Q) → (4), (R) → (2), (S) → (1) Ⓓ (P) → (2), (Q) → (4), (R) → (1), (S) → (3)

17. Match the sets given in List-I with their

List-I		List-II	
(P)	The area between the curves $y = 2x^4 - x^2$, the x-axis and the ordinate of two minimum of the curve is	(1)	$2 \sin 1$
(Q)	The area bounded by the curve $x = at^2$, $y = 2at$ and the x-axis ($1 \leq t \leq 3$) is	(2)	$\frac{7}{120}$
(R)	The area of a circle centered at $(1, 2)$ and passing through $(4, 6)$ is	(3)	$\frac{104a^2}{3}$
(S)	The area bounded by $y = \cos x$, $y = 0$, $ x = 1$ is given by	(4)	25π
		(5)	$\frac{11}{120}$

- Ⓐ (P) → (2), (Q) → (3), (R) → (4), (S) → (1) Ⓑ (P) → (2), (Q) → (3), (R) → (1), (S) → (4)
 Ⓒ (P) → (4), (Q) → (1), (R) → (2), (S) → (3) Ⓓ (P) → (1), (Q) → (2), (R) → (3), (S) → (4)

PHYSICS

Paper-I

SECTION-1 (Maximum Marks: 12)

- This section contains **FOUR (04)** questions.
- Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.
- For each question, choose the option corresponding to the correct answer.
- Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +3 If **ONLY** the correct option is chosen;
Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);
Negative Marks : -1 In all other cases.

18. If the energy $E = G^p h^q c^r$, where G is the universal gravitational constant, h is the planck's constant and C is the velocity of light, then the values of p , q and r are respectively.

- (A) $-1/2, 1/2$ and $5/2$ (B) $1/2, -1/2$ and $-5/2$
 (C) $-1/2, 1/2$ and $3/2$ (D) $1/2, -1/2$ and $-3/2$

19. A charge is placed at the centre of a cylindrical surface. The total flux passing through lateral surface



- (A) $\frac{q}{\epsilon_0}$ (B) $\frac{q}{\sqrt{2}\epsilon_0}$ (C) $\frac{q}{2\epsilon_0}$ (D) $\frac{2q}{\epsilon_0}$

20. A transverse pulse is created at the free end of a string hanging vertically (Mass : M , length l). time taken by pulse to reach the top end is

- (A) $\sqrt{l/g}$ (B) $\sqrt{l/2g}$ (C) $\sqrt{4l/g}$ (D) $\sqrt{2l/g}$

21. A smooth block of mass m is welded with a spring of stiffness k , on a horizontal plane. If it is given a horizontal velocity v_0 then $v =$

- (A) $\sqrt{v_0^2 + \frac{k}{m}x^2}$ (B) $v_0 -$ (C) $v_0 - \frac{k}{m}x$ (D) $\sqrt{v_0^2 - \left(\frac{k}{m}\right)x^2}$

SECTION-2 (Maximum Marks: 12)

- This section contains three (03) questions.
- Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is(are) correct answer(s).
- For each question, choose the option(s) corresponding to (all) the correct answer(s).
- Answer to each question will be evaluated according to the following marking scheme:
 - Full Marks* : +4 **ONLY** if (all) the correct option(s) is(are) chosen;
 - Partial Marks* : +3 If all the four options are correct but **ONLY** three options are chosen;
 - Partial Marks* : +2 If three or more options are correct but **ONLY** two options are chosen, both of which are correct;
 - Partial Marks* : +1 If two or more options are correct but **ONLY** one option is chosen and it is a correct option;
 - Zero Marks* : 0 If none of the options is chosen (i.e. the question is unanswered);
 - Negative Marks* : -2 In all other cases.
- For example, in a question, if (A), (B) and (D) are the **ONLY** three options corresponding to correct answers, then
 - choosing **ONLY** (A), (B) and (D) will get +4 marks;
 - choosing **ONLY** (A) and (B) will get +2 marks;
 - choosing **ONLY** (A) and (D) will get +2 marks;
 - choosing **ONLY** (B) and (D) will get +2 marks;
 - choosing **ONLY** (A) will get +1 mark;
 - choosing **ONLY** (B) will get +1 mark;
 - choosing **ONLY** (D) will get +1 mark;
 - choosing no option (i.e the question is unanswered) will get 0 marks; and
 - choosing any other combination of options will get -2 marks.

22. Shown in the figures are two pulley-particle systems (where T_1 and T_2 are the tensions in the strings in fig(i) and fig (ii) respectively).

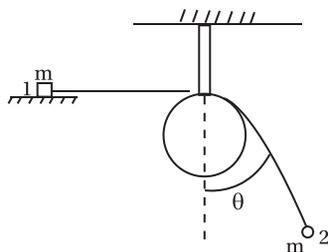


Fig (i)

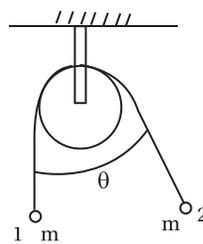
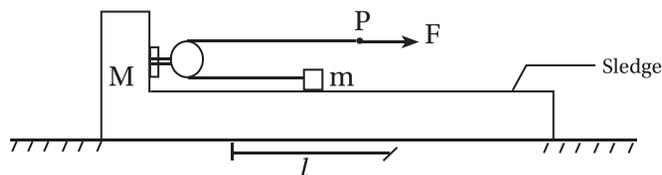


Fig (ii)

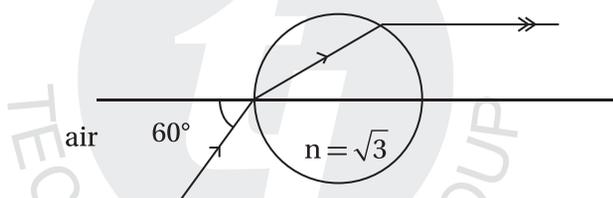
- (A) $T_1/T_2 = \frac{\cos\theta}{1+\cos\theta}$ (B) $T_2 = mg \cos^2(\theta/2)$ (C) $\frac{T_1}{T_2} = \tan\theta$ (D) $\frac{T_0}{T_0} = 1$

23. A horizontal force F acts on a point P on an inextensible light string that passes over a light pulley which is attached with a sledge of mass M . (Neglect friction)



- (A) acceleration of sledge is $\frac{2F}{M}$
- (B) acceleration of mass m is $\frac{F}{M}$
- (C) relative acceleration is $F\left(\frac{2}{M} + \frac{1}{m}\right)$
- (D) time after which m strikes the pulley is $\sqrt{\frac{2Mml}{(M+2m)F}}$

24. A light ray is incident on a glass sphere ($n = \sqrt{3}$) at an angle of incidence 60° as shown. The total deviation after two refractions is

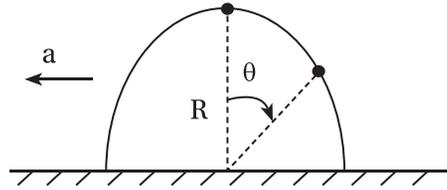


- (A) 30° (B) 45° (C) 60° (D) 90°

SECTION-3 (Maximum Marks: 24)

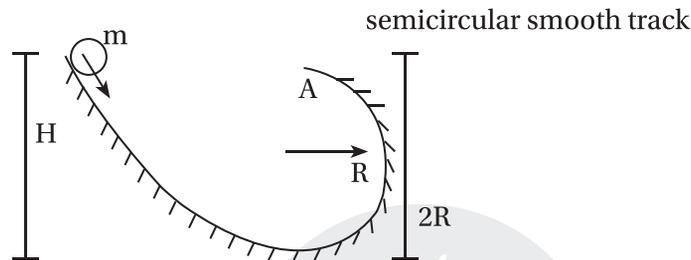
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25. The potential energy of a configuration changes in x and y directions as $U = xy$. The force acting on the particle at $x = 3\text{m}$, $y = 4\text{m}$ is (N) _____ .
26. A small ball is placed at the top of a smooth hemispherical wedge of radius R . If the wedge is accelerated with an acceleration a , then velocity of ball relative to wedge as the function of θ is

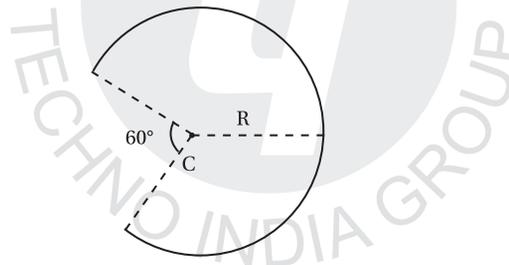


$\sqrt{n\{gR(1 - \cos\theta) + aR\sin\theta\}}$ Where $n =$ _____ .

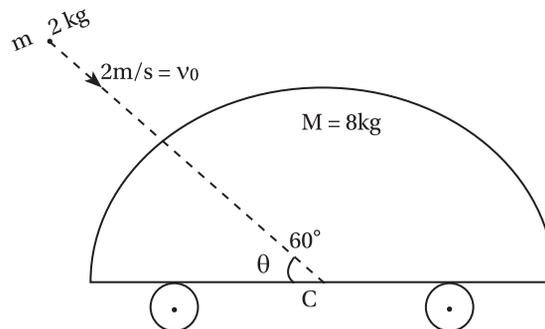
27. A smooth small ball is released from a height H on a frictionless track. The force offered by the track at point A on the ball is $mg\left(\frac{2H}{R} - n\right)$. Where n _____ .



28. The centre of mass of the circular arc as shown in figure is $\frac{nR}{5\pi}$ from the centre C towards right. Then n is _____ .



29. A particle of mass 2 kg strikes a smooth stationary wedge of mass $M = 8\text{ kg}$ with a velocity 2 m/s , at an angle 60° with horizontal. If the collision is perfectly inelastic, the velocity of wedge just after the collision is $\frac{n}{10}\text{ m/s}$. Then n _____ .

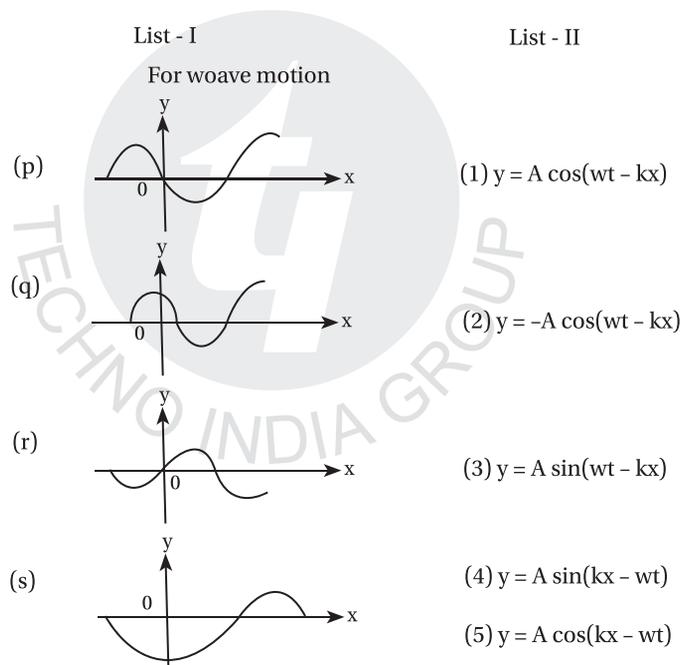


30. An L-shaped tube of uniform cross-section 'A' carries a flowing liquid. If the liquid moves with a speed v and changes its direction by 90° , the external force F required to keep the tube in equilibrium is $n\rho Av^2$ (neglect friction). Then n^2 is _____ .

SECTION-4 (Maximum Marks: 12)

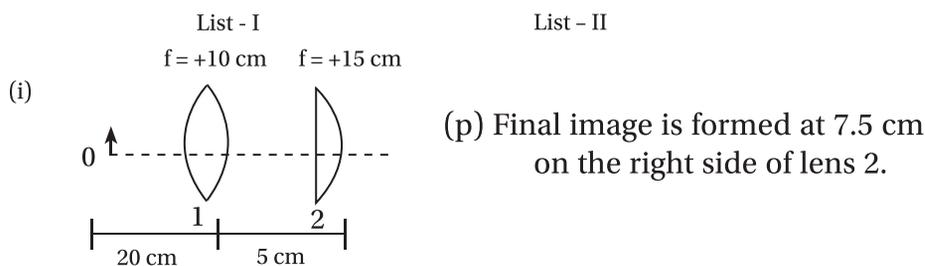
- This section contains **FOUR (04)** Matching List Sets.
- Each set has **ONE** Multiple Choice Question.
- Each set has **TWO** lists: **List-I** and **List-II**.
- **List-I** has **Four** entries (P), (Q), (R) and (S) and **List-II** has **Five** entries (1), (2), (3), (4) and (5).
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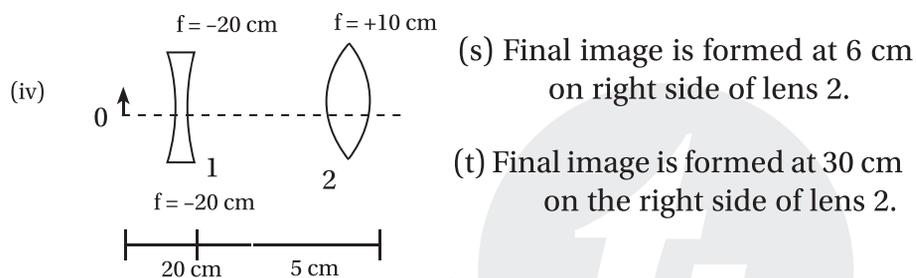
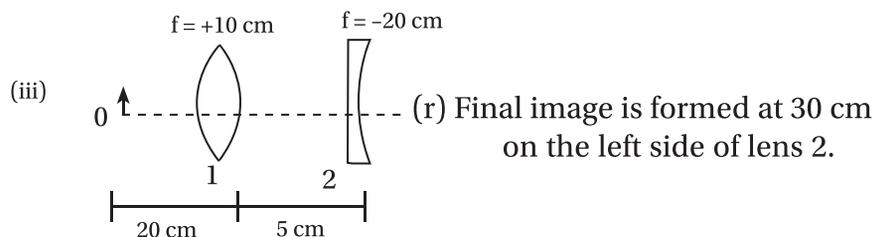
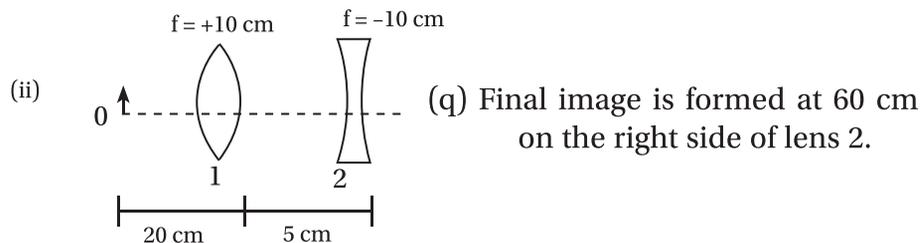
31. For four sinusoidal wave moving on a string along positive x-direction displacement distance curves (y - x) are shown at t = 0.



- | | |
|--|--|
| (A) (p) → 4 (q) → (1), (5) r → (3) s → (2) | (B) (p) → 2 (q) → (3) r → (1) s → (5) |
| (C) (p) → 5 (q) → (1), r → (5) s → (3) | (D) (p) → 3 (q) → (4), (5) r → (2) s → (5) |

- 32.





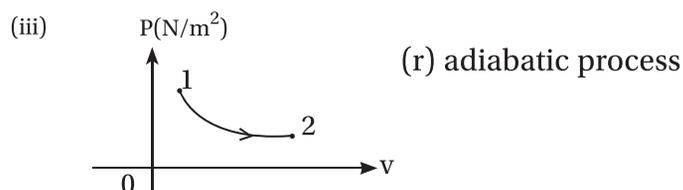
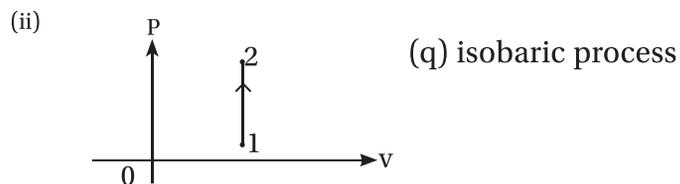
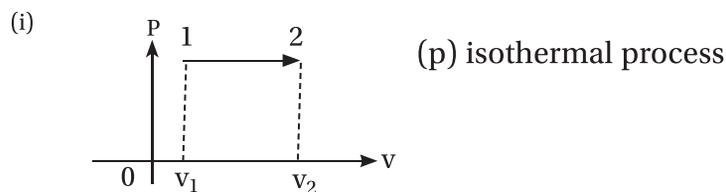
Which of the following options is correct ?

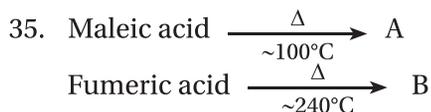
- (A) (i) → (p), (ii) → r (iii) → q (iv) → t (B) (i) → (q), (ii) → p (iii) → t (iv) → s
 (C) (i) → (p), (ii) → t (iii) → r (iv) → t (D) (i) → (t), (ii) → s (iii) → q (iv) → r

33.

List - I

List - II

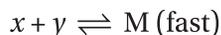




A and B are :

- (A) Ethylene and Maleic anhydride (B) Maleic anhydride and Fumaric anhydride
 (C) Both Maleic anhydride (D) Maleic anhydride and ethylene

36. Reaction $x + 2y + z \rightarrow N$, occurs by following mechanism

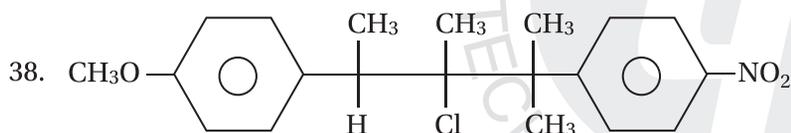


Rate of reaction will be

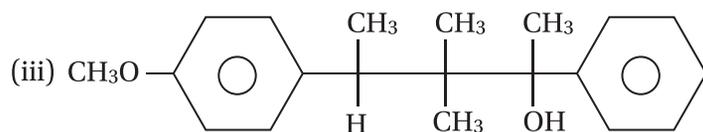
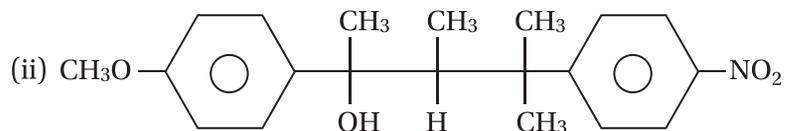
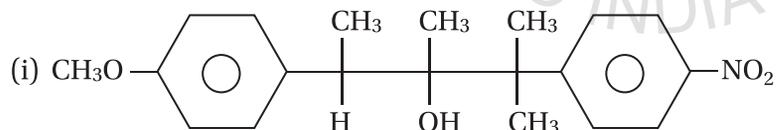
- (A) $K[Z]$ (B) $K[N]$ (C) $K[x][y]^2[z]$ (D) $K[x][y][z]$

37. Aqueous solution of titanium (IV) develops intense change colour on addition of H_2O_2 . Colour is due to

- (A) Reduction of Ti (IV) to Ti (III) (B) Oxidation of Ti (IV) to Ti (VI)
 (C) No change in oxidation state of Ti (D) Charge transfer



Compound on hydrolysis in aqueous acetone will give :



- (A) (i) and (ii) only (B) (i), (ii) and (iii)
 (C) (ii) and (iii) only (D) (iii) only

SECTION-2 (Maximum Marks: 12)

- This section contains three (03) questions.
- Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is(are) correct answer(s).
- For each question, choose the option(s) corresponding to (all) the correct answer(s).
- Answer to each question will be evaluated according to the following marking scheme:

Full Marks : +4 **ONLY** if (all) the correct option(s) is(are) chosen;

Partial Marks : +3 If all the four options are correct but **ONLY** three options are chosen;

Partial Marks : +2 If three or more options are correct but **ONLY** two options are chosen, both of which are correct;

Partial Marks : +1 If two or more options are correct but **ONLY** one option is chosen and it is a correct option;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -2 In all other cases.

- For example, in a question, if (A), (B) and (D) are the **ONLY** three options corresponding to correct answers, then

choosing **ONLY** (A), (B) and (D) will get +4 marks;

choosing **ONLY** (A) and (B) will get +2 marks;

choosing **ONLY** (A) and (D) will get +2 marks;

choosing **ONLY** (B) and (D) will get +2 marks;

choosing **ONLY** (A) will get +1 mark;

choosing **ONLY** (B) will get +1 mark

choosing **ONLY** (D) will get +1 mark;

choosing no option (i.e the question is unanswered) will get 0 marks; and

choosing any other combination of options will get -2 marks.

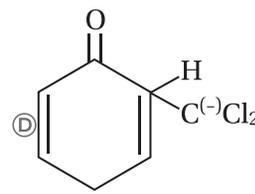
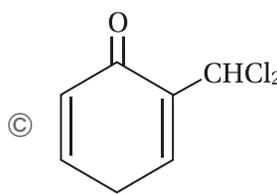
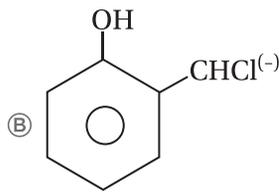
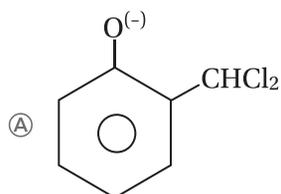
39. Which of the following is/are not ionic?



40. When diethyl oxalate reacts with amines, choose the correct statement:



41. Phenol reacts with CHCl_3 and NaOH to form salicylaldehyde. Which of the following is not intermediate of above reaction?



SECTION-3 (Maximum Marks: 24)

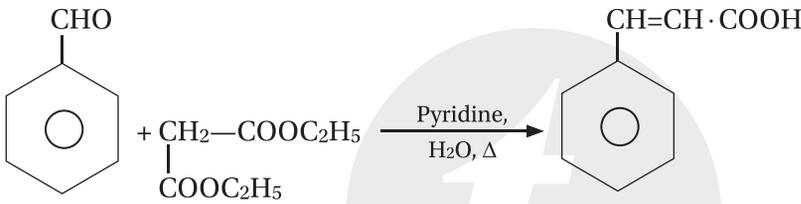
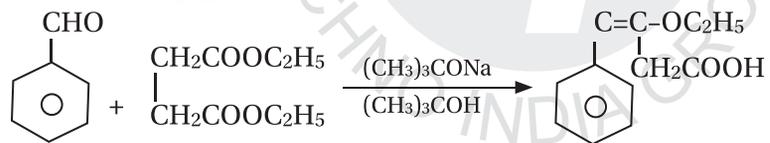
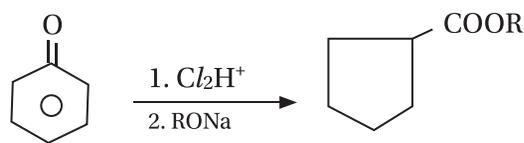
- This section contains **SIX (06)** questions.
- The answer to each question is a **NON-NEGATIVE INTEGER**.
- For each question, enter the correct integer corresponding to the answer using the mouse and the onscreen virtual numeric keypad in the place designated to enter the answer.
- Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +4 If **ONLY** the correct integer is entered;
Zero Marks : 0 In all other cases.

42. How many isomers are possible for $[\text{CoCl}_2(\text{NH}_3)_2\text{en}]^+$ ion : _____
43. Number of sigma bonds in NOBF_4 are : _____
44. How many different hydrogen atoms are present in methyl cyclobutane? _____
45. The mole fraction of a solute in solution is 0.1. At 298 K, molarity of this solution is the same as its molality. Density of this solution at 298 K is 2.0 g/cc. The ratio of the molecular weights of the solute and solvent, $\left(\frac{\text{MW}_{\text{solute}}}{\text{M} \cdot \text{W}_{\text{solvent}}}\right)$, is _____.
46. Among the triatomic molecules/ions; BeCl_2 , N_3^- , N_2O , NO^+ , O_3 , SCl_2 , ICl_2^- , I_3^- and XeF_2 , the total number of linear molecule(s)/ion(s). Where the hybridization of the central atom does not have contribution from the d-orbitals is _____
 [Atomic number : S = 16, Cl = 17, I = 53 and Xe = 54]
47. An aromatic hydrocarbon A, $\text{C}_{16}\text{H}_{16}$ shows the following reactions :
- (A) It decolourizes both Br_2 in CCl_4 and Cold aq. KMnO_4
- (B) It adds an equimolar amount of H_2
- (C) Oxidation with KMnO_4 gives a dicarboxylic acid (B). $\text{C}_6\text{H}_4(\text{COOH})_2$ which gives only one monobromo substitution product. The number of stereoisomers of the compound A is _____.

SECTION-4 (Maximum Marks: 12)

- This section contains **FOUR (04)** Matching List Sets.
- Each set has **ONE** Multiple Choice Question.
- Each set has **TWO** lists: **List-I** and **List-II**.
- **List-I** has **Four** entries (P), (Q), (R) and (S) and **List-II** has **Five** entries (1), (2), (3), (4) and (5).
- **FOUR** options are given in each Multiple Choice Question based on **List-I** and **List-II** and **ONLY ONE** of these four options satisfies the condition asked in the Multiple Choice Question.
- Answer to each question will be evaluated according to the following marking scheme:
Full Marks : +3 **ONLY** if the option corresponding to the correct combination is chosen;
Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);
Negative Marks : -1 In all other cases.

48. Match the columns :

Column-I	Column-II
(P) 	1. Stobbe condensation
(Q) $\text{CH}_3\text{COOC}_2\text{H}_5 \xrightarrow[2. \text{H}^+]{1. \text{C}_2\text{H}_5\text{ONa}} \text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2\text{COOC}_2\text{H}_5$	2. Claisen condensation
(R) 	3. Knoevengal reaction
(R) 	4. Favorski reaction
	3. Demjanov reaction
(A) P(3), Q(2), R(1), S(4)	(B) P(2), Q(3), R(4), S(1)
(C) P(4), Q(1), R(3), S(2)	(D) P(1), Q(1), R(4), S(3)

49. Match the columns :

Column - I	Column - II
P. $[\text{Cr}(\text{NH}_3)_6]^{3+}$	1. Sp^3d hybridised
Q. PBr_2Cl_3	2. Sp^3d^2 hybridised
R. $\text{Fe}(\text{CO})_5$	3. Dipole moment is zero
S. NO_2	4. Paramagnetic
	5. Trigonal bipyramidal molecule.

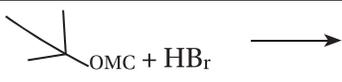
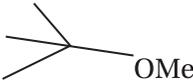
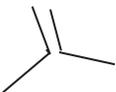
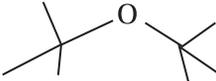
- (A) P - (3, 4), Q (1, 5), R (3, 5), S (4) (B) P - (3, 4), Q (1, 5), R (4), S (3, 5)
 (C) P - (1, 2), Q (3), R (4), S (5) (D) P - (3), Q (4), R (5), S (1)

50. Match each entry in List-I with the appropriate entry in list II and choose the correct option :

List -I (Name of Polymer)		List-II (Uses)	
P	Glyptal	I.	Flexible pipes
Q	Neoprene	II.	Synthetic wool
R	Acrilan	III.	Paints and Lacquers
S	LDP	IV.	Gaskets
		V.	Electric switches

- (A) P - III, Q - I, R - IV, S - V (B) P - III, Q - IV, R - II, S - I
 (C) P - V, Q - II, R - IV, S - I (D) P - III, Q - IV, R - I, S - II

51. List-I contains reactions and List-II contains major products :

List -I		List-II	
P		1.	
Q		2.	
R		3.	
S		4	
		5.	

Match each reaction in List-I with one or more products in List-II and choose the correct option. The correct option is :

- (A) P - 1, 5, Q - 2, R - 3, S - 4 (B) P - 1, 4, Q - 2, R - 4, S - 3
 (C) P - 1, 4, Q - 1, 2, R - 3, 4, S - 4 (D) P - 4, 5, Q - 4, R - R, S - 3, 4