

PYQSide

JEE MAIN 2026 (ONLINE) 5TH APRIL EVENING SHIFT — QUESTION PAPER

Max. Marks: 300

Questions: 75

Section A (MCQ)

Q.1 Match **List-I** with **List-II**.

where h (Planck's constant), G (gravitational constant) and c (speed of light in vacuum) are fundamental units.

List-I		List-II	
A.	Meter (L)	I.	$\sqrt{\frac{hc}{G}}$
B.	Second (S)	II.	$\sqrt{\frac{Gh}{c^5}}$
C.	Kilogram (M)	III.	$\sqrt{\frac{K^2 L^2 c^3}{Gh}}$
D.	Kelvin (K)	IV.	$\sqrt{\frac{Gh}{c^3}}$

Choose the correct answer from the options given below : [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) A-II, B-IV, C-I, D-III (2) A-IV, B-II, C-I, D-III
(3) A-IV, B-I, C-II, D-III (4) A-III, B-I, C-II, D-IV

Scan or tap for the full solution



Q.2 In an experiment to determine the resistance of a given wire using Ohm's law, the voltmeter and ammeter readings are noted as 10 V and 5 A, respectively. The least counts of voltmeter and ammeter are 500 mV and 200 mA, respectively. The estimated error in the resistance measurement is _____ Ω .

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 0.25 (2) 2 (3) 2.5 (4) 0.18

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Q.3 A mass of 1 kg is kept on an inclined plane with 30° inclination with respect to horizontal plane and it is at rest initially. Then the whole assembly is moved up with constant velocity of 4 m/s. The work done by the frictional force in time 2 s is _____ J. (Take $g = 10 \text{ m/s}^2$)

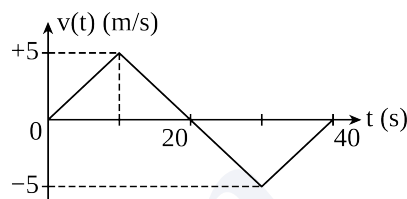
[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 20 (2) 25 (3) 30 (4) 10

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Q.4 The velocity (v) versus time (t) plot of a particle is shown in the figure, for a time interval of 40 s. The total distance travelled by the particle and the average velocity during this period are, respectively _____ . [JEE Main 2026 (Online) 5th April Evening Shift]



- (1) 25 m and zero (2) 50 m and zero
(3) 100 m and zero (4) 100 m and 2.5 m/s

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Q.5 A wheel initially at rest is subjected to a uniform angular acceleration about its axis. In the first 2 s it rotates through an angle θ_1 and in the next 2 s it rotates through an angle θ_2 . The ratio $\frac{\theta_2}{\theta_1}$ is _____.

[JEE Main 2026 (Online) 5th April Evening Shift]

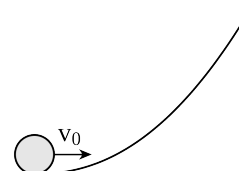
- (1) 6 (2) 3 (3) 4 (4) $\frac{1}{3}$

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Q.6 An object of uniform density rolls up the curved path with the initial velocity v_0 as shown in the figure. If the maximum height attained by an object is $\frac{7v_0^2}{10g}$ (g = acceleration due to gravity), the object is a _____.

[JEE Main 2026 (Online) 5th April Evening Shift]



- (1) solid cylinder (2) ring
(3) disc (4) solid sphere

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- Q.7** A body of mass m is taken from the surface of earth to a height equal to twice the radius of earth (R_e). The increase in potential energy will be _____.
(g is acceleration due to gravity at the surface of earth)

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{1}{2}mgR_e$ (2) $\frac{3}{4}mgR_e$ (3) $\frac{1}{4}mgR_e$ (4) $\frac{2}{3}mgR_e$

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- Q.8** Eight mercury drops, each of radius r , coalesce to form a bigger drop. The surface energy released in this process is _____. (S is the surface tension of mercury).

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $8\pi r^2 S$ (2) $16\pi r^2 S$ (3) $64\pi r^2 S$ (4) $4\pi r^2 S$

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- Q.9** An ideal gas at pressure P and temperature T is expanding such that $PT^3 = \text{constant}$. The coefficient of volume expansion of the gas is _____.
[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{2}{T}$ (2) $\frac{1}{T}$ (3) $\frac{4}{T}$ (4) $\frac{3}{T}$

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- Q.10** Match List-I with List-II.

List-I		List-II	
A.	$\sin^2 \omega t$	I.	Periodic with time period $T = \frac{\pi}{\omega}$ but not simple harmonic motion (SHM)
B.	$\sin^3(2\omega t)$	II.	Periodic with time period $T = \frac{2\pi}{\omega}$ but Not SHM
C.	$\sin(\omega t) + \cos(\pi\omega t)$	III.	Periodic with time period $T = \frac{\pi}{\omega}$ and SHM
D.	$\cos \omega t + \cos 2\omega t$	IV.	Non-periodic

Choose the correct answer from the options given below : [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) A-III, B-I, C-IV, D-II (2) A-II, B-I, C-III, D-IV
(3) A-III, B-II, C-IV, D-I (4) A-II, B-I, C-IV, D-III

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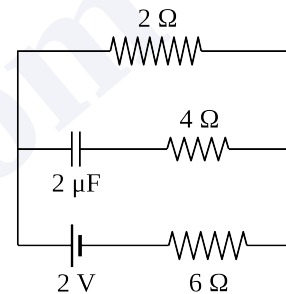
- Q.11** A metal rod of length L rotates about one end at origin with a uniform angular velocity ω . The magnetic field radially falls off as $B(r) = B_0 e^{-\lambda r}$; λ being a positive constant. The emf induced (neglecting the centripetal force on electrons in the rod) is : [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $B_0 \omega \left[\frac{1}{\lambda^2} - e^{-\lambda L} \left(\frac{1}{\lambda^2} + \frac{L}{\lambda} \right) \right]$
(2) $B_0 \omega \left[\frac{1}{\lambda^2} + e^{-\lambda L} \left(\frac{1}{\lambda^2} + \frac{L}{\lambda} \right) \right]$
(3) $B_0 \omega \left[\frac{4}{\lambda^2} - e^{-2\lambda L} \left(\frac{1}{\lambda^2} + \frac{2L}{\lambda} \right) \right]$
(4) $B_0 \omega \left[\frac{3}{\lambda^2} - e^{-3\lambda L} \left(\frac{3}{\lambda^2} + \frac{L}{\lambda} \right) \right]$

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- Q.12** Under steady state condition the potential difference across the capacitor in the circuit is _____ V.
[JEE Main 2026 (Online) 5th April Evening Shift]



- (1) 0.5 (2) 1.5 (3) 0 (4) 2

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- Q.13** A particle of charge q and mass m is projected from origin with an initial velocity $\vec{v} = \left(\frac{v_0}{\sqrt{2}} \hat{x} + \frac{v_0}{\sqrt{2}} \hat{y} \right)$.

There exists a uniform magnetic field $\vec{B} = B_0 \hat{z}$ and a space varying electric field $\vec{E} = E_0 e^{-\lambda x} \hat{x}$ within the region $0 \leq x \leq L$. After travelling a distance such that x -coordinate has changed from $x = 0$ to $x = L$, the change in the kinetic energy is _____.

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{qE_0}{\lambda} [1 - e^{-\lambda L}]$
(2) $\left(\frac{v_0 q B_0}{2\lambda} \right) [2 - e^{-2\lambda L}]$
(3) $\frac{qE_0}{\lambda} [1 + e^{-\lambda L}]$
(4) $q \left(\frac{E_0 + v_0 B_0}{\lambda} \right) [1 - e^{-\lambda L/2}]$

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- Q.14** Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): The electromagnetic wave exerts pressure on the surface on which they are allowed to fall.

Reason (R): There is no mass associated with the electromagnetic waves.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) (A) is false but (R) is true

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Q.15 A thin convex lens and a thin concave lens are kept in contact and are co-axial. Which of the following statements is correct for this combination of two lenses ? [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) behaves as concave lens if $|f_{\text{convex}}| > |f_{\text{concave}}|$
- (2) behaves as concave lens if $|f_{\text{convex}}| < |f_{\text{concave}}|$
- (3) behaves as convex lens if $|f_{\text{convex}}| > |f_{\text{concave}}|$
- (4) Focal length of the lens system will change if the positions of two lenses are interchanged

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Q.16 An object AB is placed 15 cm on the left of a convex lens P of focal length 10 cm. Another convex lens Q is now placed 15 cm right of lens P. If the focal length of lens Q is 15 cm, the final image is _____. [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) virtual, formed at 7.5 cm right of lens Q, with a size bigger than that of AB
- (2) real, formed at 7.5 cm right of lens Q, with a size same as that of AB
- (3) formed at infinity.
- (4) real, formed at 7 cm right of lens Q, with a size smaller than that of AB

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Q.17 The maximum intensity in a Young's double slit experiment is I_0 . Distance between the slits (d) is 5λ , where λ is the wavelength of light used. The intensity of the fringe, exactly opposite to one of the slits on the screen, placed at $D = 10d$ is _____. [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{I_0}{4}$
- (2) $\frac{I_0}{2}$
- (3) I_0
- (4) $\frac{3I_0}{4}$

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Q.18 An electron is travelling with a velocity v in free space and when it enters a medium, its velocity is reduced by 20%. The de Broglie wavelength of electron in the medium is $\alpha\lambda_0$, where λ_0 is its de Broglie wavelength in free space. The value of α is _____. [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 1.20
- (2) 1.0
- (3) 1.25
- (4) 0.75

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Q.19 Assuming the experimental mass of ${}^{12}_6\text{C}$ as 12 u, the mass defect of ${}^{12}_6\text{C}$ atom is _____ MeV/ c^2 . (Mass of proton = 1.00727 u, mass of neutron = 1.00866 u, 1 u = 931.5 MeV/ c^2 and c is the speed of the light in vacuum). [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 127.5
- (2) 89.03
- (3) 272.0
- (4) 92.0

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Q.20 In a semiconductor p-n diode, the doping concentrations on p-side and n-side are 10^{15} atoms/ cm^3 and 10^{18} atoms/ cm^3 , respectively. Which one of the following statements is true ? [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Widths of depletion region on either side of the interface are equal
- (2) The depletion region width is more on p-side compared to that in n-side
- (3) The depletion region width is more on n-side compared to that in p-side
- (4) No depletion region forms because of unequal doping concentrations on p and n-sides

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Q.21 What volume of hydrogen gas at STP would be liberated by action of 50 mL of H_2SO_4 of 50% purity (density = 1.3 g mL^{-1}) on 20 g of zinc? Given : Molar mass of H, O, S, Zn are 1, 16, 32, 65 g mol^{-1} respectively. [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 5.824 L
- (2) 7.428 L
- (3) 6.892 L
- (4) 8.375 L

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Q.22 Which of the following statement(s) is/are true ?

- A. If two orbitals have the same value of $(n + l)$, the orbital with lower value of n will have lower energy.
- B. Energies of the orbitals in the same subshell increase with increase in atomic number.
- C. The size of $2p_x$ orbital is less than the size of $3p_x$ orbital.
- D. Among 5f, 6s, 4d, 5p and 5d orbitals, none of the orbitals have 2 radial nodes.

Choose the correct answer from the options given below : [JEE Main 2026 (Online) 5th April Evening Shift]

- (1) A, B and C only (2) A and C only
(3) C and D only (4) A only

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Q.23 The covalent radii of atoms A and B are r_A and r_B , respectively. The covalent bond length and total length of AB molecule are respectively

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $(r_A + r_B)$, $2(r_A + r_B)$ (2) $\frac{1}{2}(r_A + r_B)$, $(r_A + r_B)$
(3) $(r_A + r_B)$, $(r_A + r_B)$ (4) $2(r_A + r_B)$, $\frac{1}{2}(r_A + r_B)$

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Q.24 Consider the following data for the reaction $X_2(g) + Y_2(g) \rightleftharpoons 2XY(g)$ at 600 K. The $\Delta_r G^\ominus$ (in kJ mol^{-1}) for the reaction is :

Compound	$\Delta_f H_{600K}^\ominus$ (kJ mol^{-1})	$S_{600K}^\ominus$ ($\text{J mol}^{-1} \text{K}^{-1}$)
XY(g)	42	200
$X_2(g)$	8	140
$Y_2(g)$	80	250

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) -21000 (2) -10 (3) -1000 (4) -9.012

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Q.25 The correct order of molar heat capacities measured at 298 K and 1 bar is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Copper(s) > Bromine(l) > Helium(g)
(2) Bromine(l) > Copper(s) > Helium(g)
(3) Helium(g) > Bromine(l) > Copper(s)
(4) Helium(g) > Bromine(l) = Copper(s)

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Q.26 The reaction $A(g) \rightleftharpoons B(g) + C(g)$ was initiated with the amount 'a' of A(g). At equilibrium it is found that the amount of A(g) remaining is $(a - x)$ at a total pressure of p. The equilibrium constant K_p of the reaction can be calculated from the expression :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{x^2}{a^2 + x^2} \times p$ (2) $\frac{x^2}{a^2 - x^2} \times p$
(3) $\frac{a + x^2}{x^2} \times p$ (4) $\frac{a^2 - x^2}{x^2} \times p$

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Q.27 One half cell in a voltaic cell is constructed by dipping silver rod in AgNO_3 solution of unknown concentration, other half cell is Zn rod dipped in 1 molar solution of ZnSO_4 .

A voltage of 1.60 V is measured at 298 K for this cell. What is the concentration of Ag^+ ions used in terms of log x ($x = [\text{Ag}^+]$)?

$$E_{\text{Zn}^{2+}/\text{Zn}}^\ominus = -0.76 \text{ V}, E_{\text{Ag}^+/\text{Ag}}^\ominus = +0.80 \text{ V}, \frac{2.303RT}{F} = 0.059 \text{ V}$$

[JEE Main 2026 (Online) 5th April Evening Shift]

(1) $\frac{2}{3.9}$ (2) $\frac{4}{5.9}$ (3) $\frac{2.9}{2}$ (4) $\frac{5.9}{4}$

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Q.28 Given below are two statements :

Statement-I: The number of pairs among $[\text{Al}_2\text{O}_3, \text{Cr}_2\text{O}_3]$, $[\text{Cl}_2\text{O}_7, \text{Mn}_2\text{O}_7]$, $[\text{Na}_2\text{O}, \text{V}_2\text{O}_3]$ and $[\text{CO}, \text{N}_2\text{O}]$ that contain oxides of same nature (acidic, basic, neutral or amphoteric) is 4.

Statement-II: Among Na_2O , Al_2O_3 , CO and Cl_2O_7 , the most basic and acidic oxides are Na_2O and Cl_2O_7 , respectively.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Both Statement-I and Statement-II are true
(2) Both Statement-I and Statement-II are false
(3) Statement-I is true but Statement-II is false
(4) Statement-I is false but Statement-II is true

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Q.29 Given below are two statements :

Statement-I: Aluminium upon reaction with NaOH forms $[\text{Al}(\text{OH})_6]^{3-}$ ion.

Statement-II: The geometry of ICl_4^- , ClO_3^- and IBr_2^- is square planar, pyramidal and linear respectively.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Both Statement-I and Statement-II are true
(2) Both Statement-I and Statement-II are false
(3) Statement-I is true but Statement-II is false
(4) Statement-I is false but Statement-II is true

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Q.30 Given below are two statements :

Statement-I: Presence of large number of unpaired electrons in transition metal atoms results in higher enthalpies of their atomisation.

Statement-II: $d_{xy} = d_{xz} = d_{yz} < d_{x^2-y^2} = d_{z^2}$ and $d_{x^2-y^2} = d_{z^2} < d_{xy} = d_{xz} = d_{yz}$ are the d-orbital

splittings in $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$ and $[\text{Ni}(\text{Cl})_4]^{2-}$ complex ions respectively.

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Both Statement-I and Statement-II are correct
- (2) Both Statement-I and Statement-II are incorrect
- (3) Statement-I is correct but Statement-II is incorrect
- (4) Statement-I is incorrect but Statement-II is correct

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Q.31 Identify the correct statements from the following
Choose the correct answer from the options given below :

- A. $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$ is the most stable complex among $[\text{Fe}(\text{OH})_6]^{3-}$, $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{3-}$ and $[\text{Fe}(\text{SCN})_6]^{3-}$
- B. The stability of $[\text{Cu}(\text{NH}_3)_4]^{2+}$ is greater than that of $[\text{Cu}(\text{en})_2]^{2+}$
- C. The hybridization of Fe in $\text{K}_4[\text{Fe}(\text{CN})_6]$ is d^2sp^3
- D. $[\text{Fe}(\text{NO}_2)_3\text{Cl}_3]^{3-}$ exhibits linkage isomerism
- E. NO_2^- and SCN^- ligands are NOT ambidentate ligands

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) A, B, C, D and E
- (2) B, C and D only
- (3) A, C and D only
- (4) A, C and E only

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Q.32 Match List - I with List - II.

[JEE Main 2026 (Online) 5th April Evening Shift]

Purification technique		Used to separate	
A.	Simple distillation	I.	Steam volatile compound
B.	Fractional distillation	II.	Two liquids with large difference in boiling points
C.	Steam distillation	III.	Liquid decomposing at its boiling point
D.	Distillation under reduced pressure	IV.	Two liquids with close boiling points

- (1) A-II, B-III, C-I, D-IV
- (2) A-II, B-IV, C-I, D-III
- (3) A-II, B-IV, C-III, D-I
- (4) A-IV, B-III, C-II, D-I

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Q.33 IUPAC name of the some alkenes are given below.
Find out the correct stability order.

- A. 2-Methylbut-2-ene
- B. cis-But-2-ene

C. 2,3-Dimethylbut-2-ene

D. Prop-1-ene

Choose the correct answer from the options given below :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $C > A > B > D$
- (2) $C > A > D > B$
- (3) $B > D > A > C$
- (4) $A > B > C > D$

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Q.34 Identify the correct IUPAC name of hydrocarbon (x) containing three primary carbon atoms and with molar mass 72 g mol^{-1} .

[JEE Main 2026 (Online) 5th April Evening Shift]

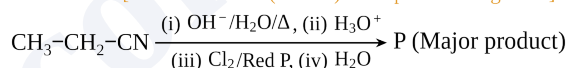
- (1) 1, 1 - Dimethylcyclopropane
- (2) 2, 2 - Dimethylpropane
- (3) 2 - Methylbutane
- (4) n-pentane

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Q.35 Complete the following reaction sequence and give the name of major product 'P'.

[JEE Main 2026 (Online) 5th April Evening Shift]



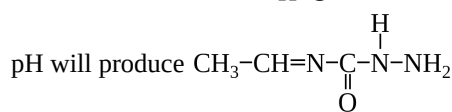
- (1) 2-Chloropropanoic acid
- (2) 3-Chloropropanoic acid
- (3) 1-Chloropropane
- (4) 2-Chloropropane

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Q.36 Given below are two statements:

Statement-I: The condensation reaction between $\text{CH}_3-\text{CH}=\text{O}$ and $\text{H}_2\text{N}-\text{N}-\text{C}(=\text{O})-\text{NH}_2$ under optimum



Statement-II: The molecule, $\text{Ph}-\text{CH}(\text{O}-\text{H})(\text{O}-\text{CH}_3)$ will generate $\text{Ph}-\text{CH}=\text{O}$ in the presence of dilute acid.

In the light of the above statements, choose the correct answer from the options given below:

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Both Statement-I and Statement-II are true
- (2) Both Statement-I and Statement-II are false
- (3) Statement-I is true but Statement-II is false
- (4) Statement-I is false but Statement-II is true

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Q.37 Given below are two statements :

Statement-I: Heating benzamide with bromine in an ethanolic solution of sodium hydroxide will give

benzylamine.

Statement-II: Nitration of aniline with $\text{HNO}_3/\text{H}_2\text{SO}_4$ at 288 K produces m-nitroaniline in higher amount than o-nitroaniline (pH adjusted).

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Both Statement-I and Statement-II are true
- (2) Both Statement-I and Statement-II are false
- (3) Statement-I is true but Statement-II is false
- (4) Statement-I is false but Statement-II is true

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Q.38 Identify the incorrect statement about tertiary structure of proteins.

[JEE Main 2026 (Online) 5th April Evening Shift]

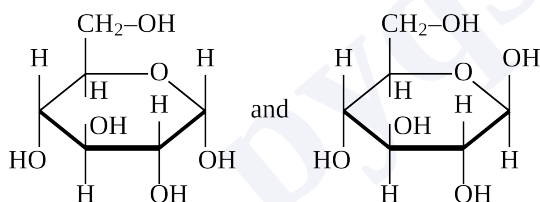
- (1) They can be fibrous or globular in structure.
- (2) The main forces that stabilize the structure are hydrogen bonding, disulphide links, van der Waals and electrostatic forces of attraction.
- (3) The structure remains intact when exposed to pH changes.
- (4) A linear polypeptide chain will convert to a secondary structure and then further folding of the secondary structure will convert to tertiary structure.

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Q.39 Given below are two statements :

Statement-I:



are two anomers of D-(+)-glucose.

Statement-II: The open chain forms of D-glucose and D-fructose contain three similar chiral carbons at C_3 , C_4 and C_5 .

In the light of the above statements, choose the correct answer from the options given below :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) Both Statement-I and Statement-II are true
- (2) Both Statement-I and Statement-II are false
- (3) Statement-I is true but Statement-II is false
- (4) Statement-I is false but Statement-II is true

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Q.40 A paper dipped in a dil. H_2SO_4 solution of 'X' upon treatment with SO_2 gas turns into green. The compound 'X' is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) KI-starch
- (2) KMnO_4
- (3) $\text{Pb}(\text{CH}_3\text{COO})_2$
- (4) $\text{K}_2\text{Cr}_2\text{O}_7$

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Q.41 Let α, β be the roots of the equation $x^2 - x + p = 0$ and γ, δ be the roots of the equation $x^2 - 4x + q = 0$; $p, q \in \mathbb{Z}$. If $\alpha, \beta, \gamma, \delta$ are in G.P., then $|p + q|$ equals :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 16
- (2) 32
- (3) 34
- (4) 38

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Q.42 Let $z_1, z_2 \in \mathbb{C}$ be the distinct solutions of the equation $z^2 + 4z - (1 + 12i) = 0$.

Then $|z_1|^2 + |z_2|^2$ is equal to :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 18
- (2) 22
- (3) 29
- (4) 34

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Q.43 If $f: \mathbb{N} \rightarrow \mathbb{Z}$ is defined by

$$f(n) = \begin{vmatrix} n & -1 & -5 \\ -2n^2 & 3(2k+1) & 2k+1 \\ -3n^3 & 3k(2k+1) & 3k(k+2)+1 \end{vmatrix}, k \in \mathbb{N},$$

and $\sum_{n=1}^k f(n) = 98$, then k is equal to :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 3
- (2) 4
- (3) 5
- (4) 6

Scan or tap for the full solution



Q.44 Let M be a 3×3 matrix such that

$$M \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}, M \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \\ 2 \end{bmatrix} \text{ and } M \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} -1 \\ 1 \\ 1 \end{bmatrix}. \text{ If } M \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ 7 \\ 11 \end{bmatrix}, \text{ then } x + y + z \text{ equals :}$$

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 4
- (2) 5
- (3) 7
- (4) 11

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Q.45 If the sum of the first 10 terms of the series

$$\frac{1}{1+1^4 \times 4} + \frac{2}{1+2^4 \times 4} + \frac{3}{1+3^4 \times 4} + \frac{4}{1+4^4 \times 4} + \dots \text{ is } \frac{m}{n}, \text{ gcd}(m, n) = 1, \text{ then } m + n \text{ is equal to :}$$

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- (1) 256
- (2) 264
- (3) 276
- (4) 284

Scan or tap for the full solution



- Q.46** Let $A_1, A_2, A_3, \dots, A_{39}$ be 39 arithmetic means between the numbers 59 and 159. Then the mean of A_{25}, A_{28}, A_{31} and A_{36} is equal to :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 129 (2) 136 (3) 131.50 (4) 134

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full solution



- Q.47** The coefficient of x^2 in the expansion of $\left(2x^2 + \frac{1}{x}\right)^{10}$, $x \neq 0$, is :

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- (1) 3240 (2) 3360 (3) 3480 (4) 3600

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full solution



- Q.48** The probabilities that players A and B of a team are selected for the captaincy for a tournament are 0.6 and 0.4, respectively. If A is selected the captain, the probability that the team wins the tournament is 0.8 and if B is selected the captain, the probability that the team wins the tournament is 0.7. Then the probability, that the team wins the tournament, is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 0.74 (2) 0.76 (3) 0.72 (4) 0.78

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full solution



- Q.49** A box contains 5 blue, 6 yellow and 4 red balls. The number of ways, of drawing 8 balls containing at least two balls of each colour, is :

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- (1) 4100 (2) 4140 (3) 4230 (4) 4290

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- Q.50** A variable X takes values $0, 0, 2, 6, 12, 20, \dots, n(n-1)$ with frequencies ${}^nC_0, {}^nC_1, {}^nC_2, {}^nC_3, {}^nC_4, {}^nC_5, \dots, {}^nC_n$, respectively. If the mean of this data is 60, then its median is :

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- (1) 56 (2) 42 (3) 72 (4) 90

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full solution



- Q.51** Let the point P be the vertex of the parabola $y = x^2 - 6x + 12$. If a line passing through the point P intersects the circle $x^2 + y^2 - 2x - 4y + 3 = 0$ at the points R and S , then the maximum value of $(PR + PS)^2$ is :

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- (1) 10 (2) 20 (3) 25 (4) 5

Scan or tap for the
full solution



- Q.52** Let the directrix of the parabola $P: y^2 = 8x$, cut x -axis at the point A . Let $B(\alpha, \beta)$, $\alpha > 1$, be a point on P such that the slope of AB is $3/5$. If BC is a focal chord of P , then six times the area of ΔABC is :

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- (1) 80 (2) 160 (3) 174 (4) 192

Scan or tap for the
full solution



- Q.53** Let the eccentricity e of a hyperbola satisfy the equation $6e^2 - 11e + 3 = 0$. If the foci of the hyperbola are $(3, 5)$ and $(3, -4)$, then the length of its latus rectum is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{11}{3}$ (2) $\frac{17}{3}$ (3) $\frac{15}{2}$ (4) $\frac{17}{2}$

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full solution



- Q.54** Let a triangle PQR be such that P and Q lie on the line $\frac{x+3}{8} = \frac{y-4}{2} = \frac{z+1}{2}$ and are at a distance of 6 units from $R(1, 2, 3)$. If (α, β, γ) is the centroid of ΔPQR , then $\alpha + \beta + \gamma$ is equal to :

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- (1) 4 (2) 5 (3) 6 (4) 8

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- Q.55** If the distance of the point $(a, 2, 5)$ from the image of the point $(1, 2, 7)$ in the line $\frac{x}{1} = \frac{y-1}{1} = \frac{z-2}{2}$ is 4, then the sum of all possible values of a is equal to :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 11 (2) 9 (3) 6 (4) 4

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full solution



- Q.56** Let O be the origin, $\vec{OP} = \vec{a}$ and $\vec{OQ} = \vec{b}$. If R is the point on $\vec{OP}$ such that $\vec{OP} = 5\vec{OR}$, and M is the point such that $\vec{OQ} = 5\vec{RM}$, then $\vec{PM}$ is equal to :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{1}{5}(\vec{a} - 4\vec{b})$ (2) $\frac{1}{5}(\vec{b} - 4\vec{a})$
(3) $\frac{1}{5}(-\vec{a} + 4\vec{b})$ (4) $\frac{1}{5}(-\vec{b} + 4\vec{a})$

Scan or tap for the
full solution



- Q.57** Let $f(x) = \lim_{y \rightarrow 0} \frac{(1 - \cos(xy))\tan(xy)}{y^3}$. Then the number of solutions of the equation $f(x) = \sin x$, $x \in \mathbb{R}$ is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 0 (2) 2 (3) 3 (4) 1

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full solution



Q.58 Let $(2^{1-a} + 2^{1+a})$, $f(a)$, $(3^a + 3^{-a})$ be in A.P. and α be the minimum value of $f(a)$. Then the value of the

integral $\int_{\log_e(\alpha-1)}^{\log_e(\alpha)} \frac{dx}{(e^{2x} - e^{-2x})}$ is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{1}{2} \log_e \left(\frac{4}{3} \right)$ (2) $\frac{1}{4} \log_e \left(\frac{4}{3} \right)$
(3) $\frac{1}{2} \log_e \left(\frac{8}{5} \right)$ (4) $\frac{1}{4} \log_e \left(\frac{8}{5} \right)$

Scan or tap for the
full solution



Q.59 Let $f: [1, \infty) \rightarrow \mathbb{R}$ be a differentiable function defined as $f(x) = \int_1^x f(t) dt + (1-x)(\log_e x - 1) + e$. Then the value of $f(f(1))$ is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $(1 + e^e)$ (2) $(1 + e)$
(3) $(1 + e + e^e)$ (4) $1 + 2e$

Scan or tap for the
full solution



Q.60 Let $f(x)$ and $g(x)$ be twice differentiable functions satisfying $f''(x) = g''(x)$ for all $x \in \mathbb{R}$, $f'(1) = 2g'(1) = 4$ and $g(2) = 3f(2) = 9$. Then $f(25) - g(25)$ is equal to :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 20 (2) 40 (3) -20 (4) -40

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full solution



Section B (Numerical)

Q.61 A copper wire of length 3 m is stretched by 3 mm by applying an external force. The volume of the wire is $600 \times 10^{-6} \text{ m}^3$. The elastic potential energy stored in the wire in stretched condition would be _____ J.

(Given Young modulus of copper = $1.1 \times 10^{11} \text{ N/m}^2$)

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full solution



Q.62 The heat extracted out of x gram of water initially at 50°C to cool it down to 0°C is sufficient to evaporate $(1000 - x)$ gram of water also initially at 50°C . The value of x (closest integer) is _____. (Take latent heat of water 2256 kJ/kg , specific heat capacity of water $4200 \text{ J/kg} \cdot \text{K}$)

[JEE Main 2026 (Online) 5th April Evening Shift]

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full solution



Q.63 A series LCR circuit with $R = 20 \Omega$, $L = 1.6 \text{ H}$ and $C = 40 \mu\text{F}$ is connected to a variable frequency a.c. source. The inductive reactance at resonant frequency is _____ Ω .

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full solution



Q.64 When an external resistance of 5Ω is connected across terminals of a cell, a current of 0.25 A flows through it. When the 5Ω resistor is replaced by a 2Ω resistor, a current of 0.5 A flows through it. The internal resistance of the cell is _____ Ω .

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full solution



Q.65 A circular loop of radius 20 cm and resistance 2Ω is placed in a time varying magnetic field $\vec{B} = (2t^2 + 2t + 3) \text{ T}$. At $t = 0$, for the plane of the loop being perpendicular to the magnetic field and, the induced current in the loop at $t = 3 \text{ s}$ is $\frac{\alpha}{50} \text{ A}$. The value of α is _____. (Take $\pi = 22/7$)

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full solution



Q.66 The total number of unpaired electrons present in the d^3 , d^4 (low spin) d^5 (high spin), d^6 (high spin) and d^7 (low spin) octahedral complex systems is _____. [JEE Main 2026 (Online) 5th April Evening Shift]

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full solution



Q.67 RMgI when treated with ice cold water liberated a gas which occupied $1.4 \text{ dm}^3/\text{g}$ at STP. The gas produced is further reacted with iodine in presence of HIO_3 to give compound (X). Compound (X) in presence of Na and dry ether produced compound (Y). Molar mass of compound (Y) is _____ g mol^{-1} . (Nearest integer)

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full solution



Q.68 20 g hemoglobin in a 1 L aqueous solution (A) at 300 K is separated from pure water by semi permeable membrane. At equilibrium the height of solution in a tube dipped in a solution (A) is found to be 80.0 mm higher than the tube dipped in water. The molar mass of hemoglobin is _____ kg mol^{-1} . (Nearest integer) (Given : $g = 10 \text{ m s}^{-2}$, $R = 8.3 \text{ kPa dm}^3 \text{ K}^{-1} \text{ mol}^{-1}$, density of solution = 1000 kg m^{-3})

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- Q.69** At 298 K, the molar conductivity of x% (w/w) MX solution (aqueous) is $123.5 \text{ S cm}^2 \text{ mol}^{-1}$. The conductance of same solution is $1.9 \times 10^{-3} \text{ S}$. The value of x is $\text{_____} \times 10^{-2}$.

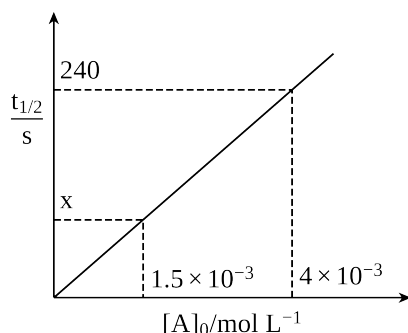
(Given: cell constant = 1.3 cm^{-1} ; molar mass of MX is 75 g mol^{-1} , density of aqueous solution of MX at 298 K is 1.0 g mL^{-1})

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- Q.70** For a reaction $A \rightarrow P$ at T K, the half life ($t_{1/2}$) is plotted as a function of initial concentration $[A]_0$ of A as given below.



The value of x in the given figure is _____ s (Nearest integer)

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- Q.71** Let $A = \{1, 4, 7\}$ and $B = \{2, 3, 8\}$. Then the number of elements, in the relation $R = \{(a_1, b_1), (a_2, b_2)\} \in ((A \times B) \times (A \times B)) : a_1 + b_2 \text{ divides } a_2 + b_1\}$ is _____ .

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- Q.72** From the point $(-1, -1)$, two rays are sent making angles of 45° with the line $x + y = 0$. These rays get reflected from the mirror $x + 2y = 1$. If the equations of the reflected rays are $ax + by = 9$ and $cx + dy = 7$, $a, b, c, d \in \mathbb{Z}$, then the value of $ad + bc$ is _____ .

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- Q.73** If $S = \{\theta \in [-\pi, \pi] : \cos \theta \cos \frac{5\theta}{2} = \cos 7\theta \cos \frac{7\theta}{2}\}$, then $n(S)$ is equal to _____ .

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- Q.74** Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be a function such that

$f(x) + 3f\left(\frac{\pi}{2} - x\right) = \sin x$, $x \in \mathbb{R}$. Let the maximum value of f on $\mathbb{R}$ be α . If the area of the region bounded by the curves $g(x) = x^2$ and $h(x) = \beta x^3$, $\beta > 0$, is α^2 , then $30\beta^3$ is equal to _____ .

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- Q.75** Let $y = y(x)$ be the solution of the differential equation

$$(\tan x)^{1/2} dy = (\sec^3 x - (\tan x)^{3/2} y) dx, \quad 0 < x < \frac{\pi}{2},$$

$$y\left(\frac{\pi}{4}\right) = \frac{6\sqrt{2}}{5}. \quad \text{If } y\left(\frac{\pi}{3}\right) = \frac{4}{5}\alpha, \quad \text{then } \alpha^4 \text{ equals}$$

_____ . [JEE Main 2026 (Online) 5th April Evening Shift]

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ANSWER KEY

Section A (MCQ)

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	2	4	1	3	2	4	4	2	3	1	1
Ques.	12	13	14	15	16	17	18	19	20	21	22
Ans.	1	1	2	1	2	2	3	2	2	3	2
Ques.	23	24	25	26	27	28	29	30	31	32	33
Ans.	1	2	2	2	2	1	4	1	3	2	1
Ques.	34	35	36	37	38	39	40	41	42	43	44
Ans.	3	1	4	4	3	1	4	3	4	1	2
Ques.	45	46	47	48	49	50	51	52	53	54	55
Ans.	3	4	2	2	1	1	2	2	3	3	3
Ques.	56	57	58	59	60						
Ans.	2	3	2	1	2						

Section B (Numerical)

Ques.	61	62	63	64	65	66	67
Ans.	33	922	200	1	44	15	30
Ques.	68	69	70	71	72	73	74
Ans.	62	15	90	18	7	19	16
Ques.	75						
Ans.	48						