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JEE MAIN 2026 (ONLINE) 23RD JANUARY EVENING SHIFT

Question Paper · answer key at the end

Time: 3 Hours **Max. Marks:** 300 **Questions:** 75

General Instructions:

1. The duration of the paper is 3 hours. It has 75 questions: Physics 25, Chemistry 25, Mathematics 25.
2. Each subject has Section A (multiple-choice questions, only one correct answer) and Section B (numerical-value questions).
3. Marking: +4 for each correct answer, −1 for each wrong answer, 0 for a question not answered.
4. The answer key is at the end. Scan the QR code beside any question for its step-by-step solution.
5. Practise this paper as a timed test on the real exam screen, free, at pyqside.com.

Section A (MCQ) — 60 questions

Q.1 One mole of an ideal diatomic gas expands from volume V to 2V isothermally at a temperature 27°C and does W joule of work. If the gas undergoes same magnitude of expansion adiabatically from 27°C doing the same amount of work W, then its final temperature will be (close to) _____ °C.
($\log_e 2 = 0.693$)

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(1) -56 (2) -117 (3) -30 (4) -189

Scan or tap for the full solution

Q.2 A block is sliding down on an inclined plane of slope θ and at an instant t = 0 this block is given an upward momentum so that it starts moving up on the inclined surface with velocity u. The distance (S) travelled by the block before its velocity becomes zero, is _____ .
(g = gravitational acceleration)

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(1) $\frac{2u^2}{g\cos\theta}$ (2) $\frac{u^2}{\sqrt{2}g\cos\theta}$

(3) $\frac{u^2}{2g\sin\theta}$ (4) $\frac{u^2}{2g\cos\theta}$

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Q.3 The internal energy of a monoatomic gas is 3nRT. One mole of helium is kept in a cylinder having internal cross section area of 17 cm^2 and fitted with a light movable frictionless piston. The gas is heated slowly by supplying 126 J heat. If the temperature rises by 4°C, then the piston will move _____ cm.
(atmospheric pressure $= 10^5$ Pa)

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(1) 1.55 (2) 14.5 (3) 15.5 (4) 1.45

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Q.4 Two short dipoles (A, B), A having charges ± 2 μC and length 1 cm and B having charges ± 4 μC and length 1 cm are placed with their centres 80 cm apart as shown in the figure. The electric field at a point P, equi-distant from the centres of both dipoles is _____ N/C.

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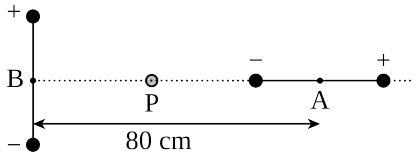

(1) $\frac{9}{16}\sqrt{2}\times10^5$ (2) $\frac{9}{16}\sqrt{2}\times10^4$

(3) $9\sqrt{2}\times10^4$ (4) $4.5\sqrt{2}\times10^4$

Scan or tap for the full solution

Q.5 A circular loop of radius 7 cm is placed in uniform magnetic field of 0.2 T directed perpendicular to plane of loop. The loop is converted into a square loop in 0.5 s . The EMF induced in the loop is _____ mV.

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(1) 13.2 (2) 6.6 (3) 1.32 (4) 8.25

Scan or tap for the full solution

Q.6 A bead P sliding on a frictionless semi-circular string (ACB) and it is at point S at t = 0 and at this instant the horizontal component of its velocity is v. Another bead Q of the same mass as P is ejected from point A at t = 0 along the horizontal string AB, with the speed v, friction between the beads and the respective strings may be neglected in both cases. Let t_P and t_Q be the respective times taken by beads P and Q to reach the point B, then the relation between t_P and t_Q is

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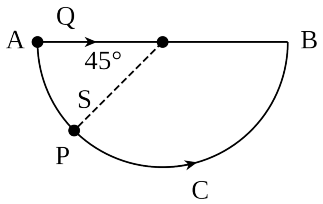

(1) $t_P < t_Q$ (2) $t_P = t_Q$
(3) $t_P > 1.25t_Q$ (4) $t_P > t_Q$

Scan or tap for the full solution

Q.7 A paratrooper jumps from an aeroplane and opens a parachute after 2 s of free fall and starts decelerating with 3 m/s^2. At 10 m height from ground, while descending with the help of parachute, the speed of paratrooper is 5 m/s. The initial height of the airplane is _____ m.
(g = 10 m/s^2)

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(1) 92.5 (2) 62.5 (3) 20 (4) 82.5

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Q.8 The ratio of speeds of electromagnetic waves in vacuum and a medium, having dielectric constant k = 3 and permeability of $\mu = 2\mu_0$, is (μ_0 = permeability of vacuum)

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(1) 6:1 (2) 3:2 (3) $\sqrt{6}:1$ (4) 36:1

Scan or tap for the full solution

Q.9 Suppose a long solenoid of 100 cm length, radius 2 cm having 500 turns per unit length, carries a current $I = 10\sin(\omega t)$ A, where ω = 1000 rad/s. A circular conducting loop (B) of radius 1 cm coaxially slid through the solenoid at a speed v = 1 cm/s. The r.m.s. current through the loop when the coil B is inserted 10 cm inside the solenoid is $\frac{\alpha}{\sqrt{2}}$ μA. The value of α is _____.

[Resistance of the loop = 10 Ω]

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 80 (2) 280 (3) 100 (4) 197

Scan or tap for the full solution

Q.10 A body of mass 14 kg initially at rest explodes and breaks into three fragments of masses in the ratio 2:2:3. The two pieces of equal masses fly off perpendicular to each other with a speed of 18 m/s each. The velocity of the heavier fragment is _____ m/s.

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(1) $24\sqrt{2}$ (2) 12 (3) $12\sqrt{2}$ (4) $10\sqrt{2}$

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Q.11 A parallel plate capacitor with plate separation 5 mm is charged by a battery. On introducing a mica sheet of 2 mm and maintaining the connections of the plates with the terminals of the battery, it is found that it draws 25% more charge from the battery. The dielectric constant of mica is _____

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(1) 1.0 (2) 2.5 (3) 1.5 (4) 2.0

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Q.12 Which of the following pair of nuclei are isobars of the element?

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(1) ^3_1H and ^3_2He (2) $^{198}_{80}Hg$ and $^{197}_{79}Au$
(3) ^2_1H and ^3_1H (4) $^{236}_{92}U$ and $^{238}_{92}U$

Scan or tap for the full solution

Q.13 To compare EMF of two cells using potentiometer the balancing lengths obtained are 200 cm and 150 cm. The least count of scale is 1 cm. The percentage error in the ratio of EMFs is _____

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(1) 1.75 (2) 1.55 (3) 1.17 (4) 1.65

Scan or tap for the full solution

Q.14 Two charges 7 μC and −2 μC are placed at (−9, 0, 0) cm and (9, 0, 0) cm respectively in an external field $E = \frac{A}{r^2}\hat{r}$, where A = 9 × 10^5 N m^2 C^{-1}. Considering the potential at infinity is 0, the electrostatic energy of the configuration is _____ J.

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(1) 49.3 (2) 1.4 (3) 24.3 (4) -90.7

Scan or tap for the full solution

Q.15 A prism of angle 75° and refractive index $\sqrt{3}$ is coated with thin film of refractive index 1.5 only at the back exit surface. To have total internal reflection at the back exit surface the incident angle must be _____
($\sin 15° = 0.25$ and $\sin 25° = 0.43$)

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(1) between 15° and 20° (2) 15°
(3) < 15° (4) > 25°

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Q.16 The current passing through a conducting loop in the form of equilateral triangle of side $4\sqrt{3}$ cm is 2 A. The magnetic field at its centroid is $\alpha \times 10^{-5}$ T. The value of α is _____.
(Given: $\mu_0 = 4\pi \times 10^{-7}$ SI units)

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) $3\sqrt{3}$ (2) $2\sqrt{3}$ (3) $\sqrt{3}$ (4) $\frac{\sqrt{3}}{2}$

Scan or tap for the full solution

Q.17 For the given logic gate circuit, which of the following is the correct truth table?

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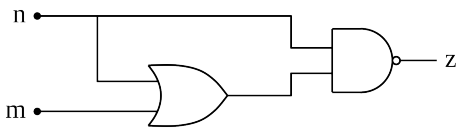

(1)

n	m	z
0	0	1
0	1	1
1	1	0
1	0	0

(2)

n	m	z
0	0	1
0	1	0
1	1	1
1	0	0

(3)

n	m	z
0	0	0
0	1	1
1	1	0
1	0	1

(4)

n	m	z
0	0	1
0	1	0
1	1	0
1	0	0

Scan or tap for the full solution

Q.18 A small metallic sphere of diameter 2 mm and density 10.5 g/cm^3 is dropped in glycerine having viscosity 10 Poise and density 1.5 g/cm^3 respectively. The terminal velocity attained by the sphere is _____ cm/s.
($\pi = \frac{22}{7}$ and g = 10 m/s^2)

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 1.0 (2) 1.5 (3) 3.0 (4) 2.0

Scan or tap for the full solution

Q.19 An air bubble of volume 2.9 cm^3 rises from the bottom of a swimming pool of 5 m deep. At the bottom of the pool water temperature is 17°C. The volume of the bubble when it reaches the surface, where the water temperature is 27°C, is _____ cm^3.
(g = 10 m/s^2, density of water = 10^3 kg/m^3, and 1 atm pressure is 10^5 Pa)

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(1) 2.0 (2) 4.2 (3) 3.0 (4) 4.5

Scan or tap for the full solution

Q.20 When an unpolarized light falls at a particular angle on a glass plate (placed in air), it is observed that the reflected beam is linearly polarized. The angle of refracted beam with respect to the normal is _____.
($\tan^{-1}(1.52) = 57.7°$, refractive indices of air and glass are 1.00 and 1.52, respectively.)

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(1) 36.3° (2) 39.6° (3) 42.6° (4) 32.3°

Scan or tap for the full solution

Q.21 Which of the following statements are TRUE about Haloform reaction?

A. Sodium hypochlorite reacts with KI to give KOI.
B. KOI is a reducing agent.
C. α, β-unsaturated methyl ketone $\left(CH_3{-}CH{=}CH{-}\overset{\overset{O}{||}}{C}{-}CH_3\right)$ will give iodoform reaction.
D. Isopropyl alcohol will not give iodoform test.
E. Methanoic acid will give positive iodoform test.

Choose the correct answer from the options given below :

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(1) A, B & C Only (2) A, C & E Only
(3) B, D & E Only (4) A & C Only

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Q.22 The oxidation state of chromium in the final product formed in the reaction between KI and acidified $K_2Cr_2O_7$ solution is :

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(1) +2 (2) +3 (3) +4 (4) +6

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Q.23 In Carius method 0.2425 g of an organic compound gave 0.5253 g silver chloride. The percentage of chlorine in the organic compound is

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(1) 87.65% (2) 53.58% (3) 37.57% (4) 34.79%

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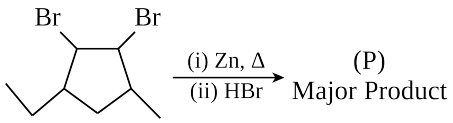
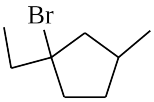
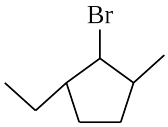
Q.24

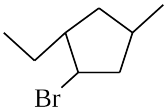


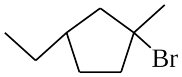
Identify (P)

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 

(2) 

(3) 

(4) 

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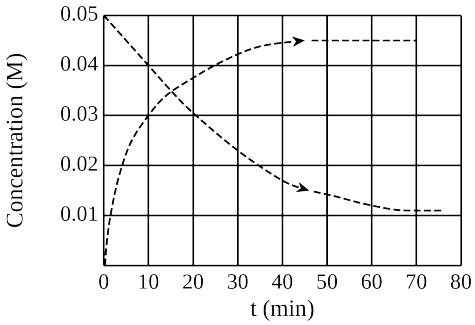
Q.25



Given above is the concentration vs time plot for a dissociation reaction : A $\longrightarrow$ nB.
Based on the data of the initial phase of the reaction (initial 10 min), the value of n is ____ .

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(1) 2 (2) 5 (3) 4 (4) 3

Scan or tap for the full solution

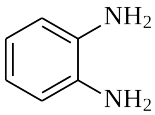
Q.26 Observe the following reactions at T(K).
I. A $\longrightarrow$ products.
II.
$$5Br^-(aq) + BrO_3^-(aq) + 6H^+(aq) \longrightarrow 3Br_2(aq) + 3H_2O(l)$$
Both the reactions are started at 10.00 am. The rates of these reactions at 10.10 am are same. The value of $-\frac{\Delta[Br^-]}{\Delta t}$ at 10.10 am is 2×10^{-4} mol L^{-1} min^{-1}.
The concentration of A at 10.10 am is 10^{-2} mol L^{-1}.
What is the first order rate constant (in min^{-1}) of reaction I?

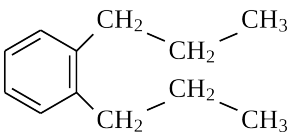
[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 4×10^{-3} (2) 2×10^{-3} (3) 10^{-3} (4) 10^{-2}

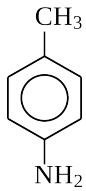
Scan or tap for the full solution

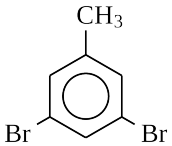
Q.27 Given below are two statements :

Statement-I: 

can be synthesized from 

using simpler reagents in the order i) Acidic $KMnO_4$, ii) Ammonia, iii) Bromine and alkali

Statement-II: 

can be converted into 

using reagents in the order i) Bromine-H_2O ii) $NaNO_2$/HCl (0 - 5 °C) (iii) Aq. H_3PO_2.

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

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.28 The work functions of two metals (M_A and M_B) are in the 1 : 2 ratio. When these metals are exposed to photons of energy 6 eV, the kinetic energy of liberated electrons of M_A:M_B is in the ratio of 2.642 : 1. The work functions (in eV) of M_A and M_B are respectively.

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 3.1, 6.2 (2) 1.5, 3.0 (3) 2.3, 4.6 (4) 1.4, 2.8

Scan or tap for the full solution

Q.29 Iodoform test can differentiate between
A. Methanol and Ethanol
B. CH_3COOH and CH_3CH_2COOH
C. Cyclohexene and cyclohexanone
D. Diethyl ether and Pentan-3-one
E. Anisole and acetone
Choose the **correct** answer from the options given below :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) A, B & E Only (2) A & D Only
(3) A & E Only (4) B, C & E Only

Scan or tap for the full solution

Q.30 Given below are two statements :

Statement-I: $(CH_3)_3\overset{\oplus}{C}$ is more stable than $\overset{\oplus}{C}H_3$ as nine hyperconjugation interactions are possible in $(CH_3)_3\overset{\oplus}{C}$.

Statement-II: $\overset{\oplus}{C}H_3$ is less stable than $(CH_3)_3\overset{\oplus}{C}$ as only three hyperconjugation interactions are possible in $\overset{\oplus}{C}H_3$.

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

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) Statement-I is false but Statement-II is true

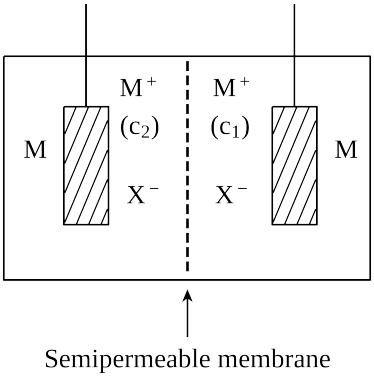
(2) Statement-I is true but Statement-II is false

(3) Both Statement-I and Statement-II are true

(4) Both Statement-I and Statement-II are false

Scan or tap for the full solution

Q.31



Consider the above electrochemical cell where a metal electrode (M) is undergoing redox reaction by forming M^+ $(M \longrightarrow M^+ + e^-)$. The cation M^+ is present in two different concentrations c_1 and c_2 as shown above. Which of the following statement is correct for generating a positive cell potential?

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(1) If c_1 is present at anode, then $c_1 > c_2$.

(2) If c_1 is present at cathode, then $c_1 > c_2$.

(3) If c_1 is present at cathode, then $c_1 < c_2$.

(4) If c_1 is present at anode, then $c_1 = c_2$.

Scan or tap for the full solution

Q.32 A mixed ether (P), when heated with excess of hot concentrated hydrogen iodide produces two different alkyl iodides which when treated with aq. NaOH give compounds (Q) and (R). Both (Q) and (R) give yellow precipitate with NaOI. Identify the mixed ether (P) :

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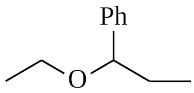
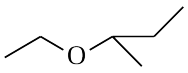
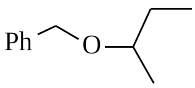
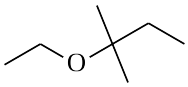
(1) 

(2) 

(3) 

(4) 

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Q.33 Given below are two statements :

Statement-I: The second ionisation enthalpy of Na is larger than the corresponding ionisation enthalpy of Mg.

Statement-II: The ionic radius of O^{2-} is larger than that of F^-.

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

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) Statement-I is true but Statement-II is false

(2) Statement-I is false but Statement-II is true

(3) Both Statement-I and Statement-II are true

(4) Both Statement-I and Statement-II are false

Scan or tap for the full solution

Q.34 Both human DNA and RNA are chiral molecules. The chirality in DNA and RNA arises due to the presence of

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) L-sugar component (2) D-sugar component

(3) Chiral phosphate unit (4) Base unit

Scan or tap for the full solution

Q.35 A student has been given a compound 'x' of molecular formula C_6H_7N. 'x' is sparingly soluble in water. However, on addition of dilute mineral acid, 'x' becomes soluble in water. 'x' when treated with $CHCl_3$ and KOH(alc), 'y' is produced. 'y' has a specific unpleasant smell. On treatment with benzenesulphonyl chloride, 'x' gives a compound 'z' which is soluble in alkali. The number of different "H" atoms present in 'z' is :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 8 (2) 4 (3) 5 (4) 7

Scan or tap for the full solution

Q.36 Identify the **INCORRECT** statements from the following :

A. Notation $^{24}{}_{12}Mg$ represents 24 protons and 12 neutrons.

B. Wavelength of a radiation of frequency $4.5 \times 10^{15}\ s^{-1}$ is 6.7×10^{-8} m.

C. One radiation has wavelength $= \lambda_1$(900 nm) and energy $= E_1$. Other radiation has wavelength $= \lambda_2$(300 nm) and energy $= E_2$. $E_1:E_2 = 3:1$.

D. Number of photons of light of wavelength 2000 pm that provides 1 J of energy is 1.006×10^{16}.

Choose the correct answer from the options given below :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) A and D Only (2) A and C Only

(3) A and B Only (4) B and C Only

Scan or tap for the full solution

Q.37 Which statements are **NOT TRUE** about XeO_2F_2?

A. It has a see-saw shape.

B. Xe has 5 electron pairs in its valence shell in XeO_2F_2.

C. The O–Xe–O bond angle is close to 180°.

D. The F–Xe–F bond angle is close to 180°.
E. Xe has 16 valence electrons in XeO_2F_2.
Choose the **correct** answer from the options given below :

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.38 It is noticed that Pb^{2+} is more stable than Pb^{4+} but Sn^{2+} is less stable than Sn^{4+}. Observe the following reactions.

$PbO_2 + Pb \longrightarrow 2PbO;\ \Delta_rG°(1)$

$SnO_2 + Sn \longrightarrow 2SnO;\ \Delta_rG°(2)$

Identify the correct set from the following

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) $\Delta_rG°(1) > 0; \Delta_rG°(2) < 0$
(2) $\Delta_rG°(1) < 0; \Delta_rG°(2) > 0$
(3) $\Delta_rG°(1) < 0; \Delta_rG°(2) < 0$
(4) $\Delta_rG°(1) > 0; \Delta_rG°(2) > 0$

Scan or tap for the full solution

Q.39 Identify the CORRECT set of details from the following :
Choose the correct answer from the options given below :

A. $[Co(NH_3)_6]^{3+}$: Inner orbital complex; d^2sp^3 hybridized
B. $[MnCl_6]^{3-}$: Outer orbital complex; sp^3d^2 hybridized
C. $[CoF_6]^{3-}$: Outer orbital complex; d^2sp^3 hybridized
D. $[FeF_6]^{3-}$: Outer orbital complex; sp^3d^2 hybridized
E. $[Ni(CN)_4]^{2-}$: Inner orbital complex; sp^3 hybridized

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) C & D Only (2) A, C & E Only
(3) A, B, C, D & E (4) A, B & D Only

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Q.40 Elements X and Y belong to Group 15. The difference between the electronegativity values of 'X' and phosphorus is higher than that of the difference between phosphorus and 'Y'. 'X' & 'Y' are respectively

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) As & Bi (2) Bi & N (3) N & As (4) As & Sb

Scan or tap for the full solution

Q.41 The number of ways, in which 16 oranges can be distributed to four children such that each child gets at least one orange, is

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 384 (2) 403 (3) 429 (4) 455

Scan or tap for the full solution

Q.42 Let $\sum_{k=1}^{n} a_k = \alpha n^2 + \beta n$. If $a_{10} = 59$ and $a_6 = 7a_1$, then $\alpha + \beta$ is equal to :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 3 (2) 5 (3) 7 (4) 12

Scan or tap for the full solution

Q.43 If $z = \frac{\sqrt{3}}{2} + \frac{i}{2},\ i = \sqrt{-1}$, then $(z^{201} - i)^8$ is equal to

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 1 (2) 0 (3) −1 (4) 256

Scan or tap for the full solution

Q.44 Let $\vec{a}, \vec{b}, \vec{c}$ be three vectors such that $\vec{a} \times \vec{b} = 2(\vec{a} \times \vec{c})$. If $|\vec{a}| = 1, |\vec{b}| = 4, |\vec{c}| = 2$, and the angle between $\vec{b}$ and $\vec{c}$ is 60°, then $|\vec{a} \cdot \vec{c}|$ is equal to

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.45 Consider two sets $A = \{x \in \mathbb{Z} : |(|x-3|-3)| \le 1\}$ and $B = \left\{x \in \mathbb{R} - \{1, 2\} : \frac{(x-2)(x-4)}{x-1} \log_e(|x-2|) = 0\right\}$.
Then the number of onto functions $f : A \longrightarrow B$ is equal to :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 32 (2) 81 (3) 79 (4) 62

Scan or tap for the full solution

Q.46 Let A = {0, 1, 2, …, 9}. Let R be a relation on A defined by $(x, y) \in R$ if and only if $|x - y|$ is a multiple of 3.
Given below are two statements :
Statement-I: n(R) = 36.
Statement-II: R is an equivalence relation.

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

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.47 Bag A contains 9 white and 8 black balls, while bag B contains 6 white and 4 black balls. One ball is randomly picked up from the bag B and mixed up with the balls in the bag A. Then a ball is randomly drawn from the bag A. If the probability, that the ball drawn is white, is $\frac{p}{q}$, $\gcd(p, q) = 1$, then p + q is equal to

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 24 (2) 22 (3) 23 (4) 21

Scan or tap for the full solution

Q.48 Let PQ be a chord of the hyperbola $\frac{x^2}{4} - \frac{y^2}{b^2} = 1$, perpendicular to the x-axis such that OPQ is an equilateral triangle, O being the centre of the hyperbola. If the eccentricity of the hyperbola is $\sqrt{3}$, then the area of the triangle OPQ is

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) $2\sqrt{3}$ (2) $\frac{11}{5}$ (3) $\frac{8\sqrt{3}}{5}$ (4) $\frac{9}{5}$

Scan or tap for the full solution

Q.49 If the mean and the variance of the data

Class	4 – 8	8 – 12	12 – 16	16 – 20
Frequency	3	λ	4	7

are μ and 19 respectively, then the value of λ + μ is :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 21 (2) 19 (3) 18 (4) 20

Scan or tap for the full solution

Q.50 Let A(1, 2) and C(−3, − 6) be two diagonally opposite vertices of a rhombus, whose sides AD and BC are parallel to the line 7x − y = 14. If B(α, β) and D(γ, δ) are the other two vertices, then |α + β + γ + δ| is equal to :

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.51 The sum of all the real solutions of the equation $\log_{(x+3)}(6x^2 + 28x + 30) = 5 - 2\log_{(6x+10)}(x^2 + 6x + 9)$ is equal to :

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.52 The least value of $(\cos^2\theta - 6\sin\theta\cos\theta + 3\sin^2\theta + 2)$ is [JEE Main 2026 (Online) 23rd January Evening Shift]

(1) $4 - \sqrt{10}$ (2) −1
(3) $4 + \sqrt{10}$ (4) 1

Scan or tap for the full solution

Q.53 Let $\frac{\pi}{2} < \theta < \pi$ and $\cot\theta = -\frac{1}{2\sqrt{2}}$. Then the value of $\sin\left(\frac{15\theta}{2}\right)(\cos 8\theta + \sin 8\theta) + \cos\left(\frac{15\theta}{2}\right)(\cos 8\theta - \sin 8\theta)$ is equal to :

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.54 Let $I(x) = \int \frac{3\,dx}{(4x+6)\left(\sqrt{4x^2+8x+3}\right)}$ and $I(0) = \frac{\sqrt{3}}{4} + 20$. If $I\left(\frac{1}{2}\right) = \frac{a\sqrt{2}}{b} + c$, where a, b, c ∈ N, gcd(a, b) = 1, then a + b + c is equal to :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 30 (2) 29 (3) 28 (4) 31

Scan or tap for the full solution

Q.55 If the points of intersection of the ellipses $x^2 + 2y^2 - 6x - 12y + 23 = 0$ and $4x^2 + 2y^2 - 20x - 12y + 35 = 0$ lie on a circle of radius r and centre (a, b), then the value of $ab + 18r^2$ is :

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 53 (2) 52 (3) 55 (4) 51

Scan or tap for the full solution

Q.56 Let $\vec{a} = \hat{i} - 2\hat{j} + 3\hat{k}$, $\vec{b} = 2\hat{i} + \hat{j} - \hat{k}$, $\vec{c} = \lambda\hat{i} + \hat{j} + \hat{k}$ and $\vec{v} = \vec{a} \times \vec{b}$. If $\vec{v} \cdot \vec{c} = 11$ and the length of the projection of $\vec{b}$ on $\vec{c}$ is p, then $9p^2$ is equal to

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) 9 (2) 6 (3) 4 (4) 12

Scan or tap for the full solution

Q.57 If $f(x) = \begin{cases} \dfrac{a|x| + x^2 - 2(\sin|x|)(\cos|x|)}{x} & , x \neq 0 \\ b & , x = 0 \end{cases}$

is continuous at x = 0, then a + b is equal to :

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution

Q.58 The area of the region enclosed between the circles $x^2 + y^2 = 4$ and $x^2 + (y - 2)^2 = 4$ is:

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

(3) $\frac{4}{3}(2\pi - 3\sqrt{3})$ (4) $\frac{2}{3}(2\pi - 3\sqrt{3})$

Scan or tap for the full solution

Q.59 An equilateral triangle OAB is inscribed in the parabola $y^2 = 4x$ with the vertex O at the vertex of the parabola. Then the minimum distance of the circle having AB as a diameter from the origin is

[JEE Main 2026 (Online) 23rd January Evening Shift]

(1) $2(8 - 3\sqrt{3})$ (2) $4(6 + \sqrt{3})$

(3) $4(3 - \sqrt{3})$ (4) $2(3 + \sqrt{3})$

Scan or tap for the full solution

Q.60 The system of linear equations

x + y + z = 6

2x + 5y + az = 36

x + 2y + 3z = b

has : [JEE Main 2026 (Online) 23rd January Evening Shift]

(1) unique solution for a = 8 and b = 16

(2) infinitely many solutions for a = 8 and b = 14

(3) infinitely many solutions for a = 8 and b = 16

(4) unique solution for a = 8 and b = 14

Scan or tap for the full solution

Section B (Numerical) — 15 questions

Q.61 The size of the images of an object, formed by a thin lens are equal when the object is placed at two different positions 8 cm and 24 cm from the lens. The focal length of the lens is _____ cm.

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.62 The average energy released per fission for the nucleus of $^{235}_{92}U$ is 190 MeV. When all the atoms of 47 g pure $^{235}_{92}U$ undergo fission process, the energy released is $\alpha \times 10^{23}$ MeV. The value of α is _____. (Avogadro Number $= 6 \times 10^{23}$ per mole)

[JEE Main 2026 (Online) 23rd January Evening Shift]

Scan or tap for the full solution

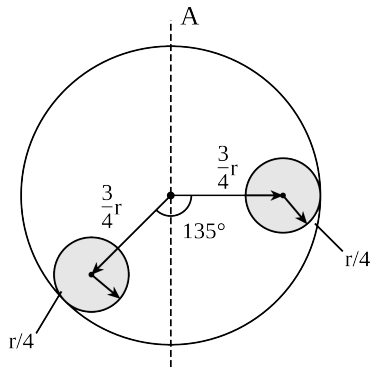
Q.63 The velocity of sound in air is doubled when the temperature is raised from 0°C to α°C. The value of α is _____.

[JEE Main 2026 (Online) 23rd January Evening Shift]

Scan or tap for the full solution

Q.64 Suppose there is a uniform circular disc of mass M kg and radius r m shown in figure. The shaded regions are cut out from the disc. The moment of inertia of the remainder about the axis A of the disc is given by $\frac{x}{256}Mr^2$. The value of x is _____.

[JEE Main 2026 (Online) 23rd January Evening Shift]



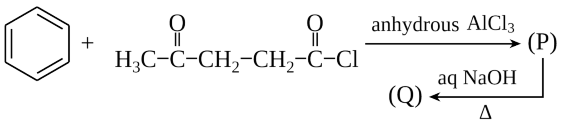
Scan or tap for the full solution

Q.65 A ball of radius r and density ρ dropped through a viscous liquid of density σ and viscosity η attains its terminal velocity at time t, given by $t = A\rho^a r^b \eta^c \sigma^d$, where A is a constant and a, b, c and d are integers. The value of $\frac{b+c}{a+d}$ is _____.

[JEE Main 2026 (Online) 23rd January Evening Shift]

Scan or tap for the full solution

Q.66 Consider the following reaction of benzene.



In compound (Q), the percentage of oxygen is _____ %. (Nearest integer)

[JEE Main 2026 (Online) 23rd January Evening Shift]

Scan or tap for the full solution

Q.67 Total number of unpaired electrons present in the central metal atoms/ions of $[Ni(CO)_4]$, $[NiCl_4]^{2-}$, $[PtCl_2(NH_3)_2]$, $[Ni(CN)_4]^{2-}$ and $[Pt(CN)_4]^{2-}$ is _____.

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.68 200 cc of $x \times 10^{-3}$ M potassium dichromate is required to oxidise 750 cc of 0.6 M Mohr's salt solution in acidic medium.
Here x = _____.

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.69 $X_2(g) + Y_2(g) \rightleftharpoons 2Z(g)$

$X_2(g)$ and $Y_2(g)$ are added to a 1 L flask and it is found that the system attains the above equilibrium at T(K) with the number of moles of $X_2(g)$, $Y_2(g)$ and Z(g) being 3, 3 and 9 mol respectively (equilibrium moles). Under this condition of equilibrium, 10 mol of Z(g) is added to the flask and the temperature is maintained at T(K). Then the number of moles of Z(g) in the flask when the new equilibrium is established is _____. (Nearest integer)

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.70 Two liquids A and B form an ideal solution. At 320 K, the vapour pressure of the solution, containing 3 mol of A and 1 mol of B is 500 mm Hg. At the same temperature, if 1 mol of A is further added to this solution, vapour pressure of the solution increases by 20 mm Hg. Vapour pressure (in mm Hg) of B in pure state is _____. (Nearest integer)

[JEE Main 2026 (Online) 23rd January Evening Shift]

Scan or tap for the full solution

Q.71 If the image of the point P(a, 2, a) in the line $\frac{x}{2} = \frac{y+a}{1} = \frac{z}{1}$ is Q and the image of Q in the line $\frac{x-2b}{2} = \frac{y-a}{1} = \frac{z+2b}{-5}$ is P , then a + b is equal to _____.

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.72 If the solution curve y = f(x) of the differential equation
$(x^2 - 4)y' - 2xy + 2x(4 - x^2)^2 = 0, x > 2,$
passes through the point (3, 15), then the local maximum value of f is _____

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.73 The number of elements in the set
$S = \left\{x : x \in [0, 100] \text{ and } \int_0^x t^2 \sin(x-t)\,dt = x^2\right\}$ is _____

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Q.74 Let S denote the set of 4-digit numbers abcd such that a > b > c > d and P denote the set of 5-digit numbers having product of its digits equal to 20 . Then n(S) + n(P) is equal to _____

[JEE Main 2026 (Online) 23rd January Evening Shift]

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Q.75 Let $A = \begin{bmatrix} 0 & 2 & -3 \\ -2 & 0 & 1 \\ 3 & -1 & 0 \end{bmatrix}$ and B be a matrix such that B(I − A) = I + A. Then the sum of the diagonal elements of B^TB is equal to _____

[JEE Main 2026 (Online) 23rd January Evening Shift]

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ANSWER KEY

Section A (MCQ) — 60 questions

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

Section B (Numerical) — 15 questions

Ques.	61	62	63	64	65	66	67
Ans.	**16**	**228**	**819**	**109**	**1**	**10**	**2**
Ques.	68	69	70	71	72	73	74
Ans.	**375**	**15**	**200**	**3**	**16**	**16**	**260**
Ques.	75						
Ans.	**3**						