

JEE MAIN 2026 · QUESTION PAPER

8 Apr 2026 **Shift 2**

73 questions in exam order, with answer key

Subject	Section A multiple choice	Section B numerical value
● Physics	19 Q1 to Q19	5 Q20 to Q24
● Chemistry	19 Q25 to Q43	5 Q44 to Q48
● Mathematics	20 Q49 to Q68	5 Q69 to Q73
In this PDF	73 questions · answer key at the end	

- 1 Set a 3 hour timer and attempt the paper in one sitting, like the real exam.
- 2 Check yourself against the answer key at the end. Every question names its chapter, so you can see where marks went.
- 3 Got one wrong? Tap “Step-by-step solution” at the top right of it for the full working, where available.

Attempt this paper online

The same questions in the same order, with instant answer checking and step-by-step solutions where available.

prepwisar.in/pyqs/paper/2026-04-08-evening · Free, no signup needed to start

Answers follow NTA's final answer keys. Typing errors are possible, so check doubtful answers against the official key. Spotted a mistake?
prepwisar.in/feedback · Terms: prepwisar.in/terms

Q1 Circular Motion

[Step-by-step solution](#) > [prepwisar.in/questions/vBYbIMRa_2](https://www.prepwisar.in/questions/vBYbIMRa_2)

A car moving with a speed of 54km/h takes a turn of radius 20 m . A simple pendulum is suspended from the ceiling of the car. Determine the angle made by the string of the pendulum with the vertical during the turning. (Take $g = 10\text{m/s}^2$)

- (A) $\tan^{-1}(0.5)$ (B) $\tan^{-1}(0.75)$ (C) $\tan^{-1}(1.125)$ (D) $\tan^{-1}(0.25)$

Q2 Moving Charges & Magnetism

[Step-by-step solution](#) > [prepwisar.in/questions/HRNOFB-7bx](https://www.prepwisar.in/questions/HRNOFB-7bx)

A current carrying circular loop of radius 2 cm with unit normal $\hat{n} = \frac{\hat{k} + \hat{i}}{\sqrt{2}}$ is placed in a magnetic field, $\vec{B} = B_0(3\hat{i} + 2\hat{k})$. If $B_0 = 4 \times 10^{-3}\text{T}$ and current $I = 100\sqrt{2}\text{A}$, the torque experienced by the loop is ____ Wb.A . ($\pi = 3.14$)

- (A) $16 \times 10^{-5}\hat{k}$ (B) $5024 \times 10^{-7}\hat{k}$ (C) $5024 \times 10^{-7}\hat{i}$ (D) $5024 \times 10^{-7}\hat{j}$

Q3 Rotational Motion

[Step-by-step solution](#) > [prepwisar.in/questions/lum_tDTzpF](https://www.prepwisar.in/questions/lum_tDTzpF)

A solid cylinder having radius R and length L is slipping on a rough horizontal plane. At time $t = 0$ the cylinder has a translational velocity $v_0 = 49\text{m/s}$, perpendicular to its axis and a rotational velocity $v_0/4R$ about the centre. The time taken by the cylinder to start rolling is ____ seconds. (coefficient of kinetic friction $\mu_K = 0.25$ and $g = 9.8\text{m/s}^2$)

- (A) 15 (B) 5 (C) 10 (D) 7.5

Q4 Nuclear Physics

[Step-by-step solution](#) > [prepwisar.in/questions/1R1LuoHX4D](https://www.prepwisar.in/questions/1R1LuoHX4D)

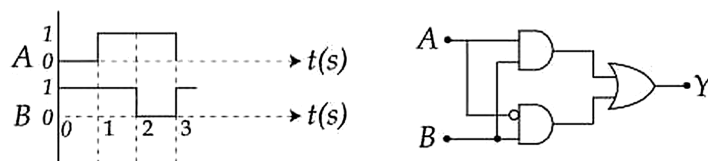
Two radioactive substances A and B of mass numbers 200 and 212 respectively, shows spontaneous α -decay with same Q value of 1 MeV . The ratio of energies of α -rays produced by A and B is ____.

- (A) $\frac{2548}{2650}$ (B) $\frac{2706}{2646}$ (C) $\frac{2597}{2600}$ (D) $\frac{2862}{2499}$

Q5 Semiconductors & Electronic Devices

[Step-by-step solution](#) > [prepwisar.in/questions/AP945vqRVK](https://www.prepwisar.in/questions/AP945vqRVK)

The output Y for the given inputs A and B to the circuit is:



- (A) (B) (C) (D)

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Q6 Thermodynamics[Step-by-step solution](#) > [prepwisar.in/questions/73CULMworY](https://www.prepwisar.in/questions/73CULMworY)

Initial pressure and volume of a monoatomic ideal gas are P and V . The change in internal energy of this gas in adiabatic expansion to volume $V_{\text{final}} = 27V$ is ____ J.

- (A) $-2PV(3\sqrt{3} - 1)$ (B) $\frac{4}{3}PV$ (C) $-\frac{4}{3}PV$ (D) $\frac{3}{4}PV$

Q7 Projectile Motion & Relative Motion[Step-by-step solution](#) > [prepwisar.in/questions/ZuRV3F_jB_](https://www.prepwisar.in/questions/ZuRV3F_jB_)

Two identical bodies, projected with the same speed at two different angles cover the same horizontal range R . If the time of flight of these bodies are 5 s and 10 s, respectively, then the value of R is ____ m. (Take $g = 10\text{m/s}^2$)

- (A) 250 (B) 25 (C) 500 (D) 125

Q8 Simple Harmonic Motion[Step-by-step solution](#) > [prepwisar.in/questions/1aI7ZVQvj](https://www.prepwisar.in/questions/1aI7ZVQvj)

The frequency of oscillation of a mass m suspended by a spring is ν_1 . If the length of the spring is cut to half, the same mass oscillates with frequency ν_2 . The value of ν_2/ν_1 is ____.

- (A) 1 (B) 2 (C) $\sqrt{2}$ (D) $\sqrt{3}$

Q9 Dual Nature of Radiation & Matter[Step-by-step solution](#) > [prepwisar.in/questions/GcNksO634s](https://www.prepwisar.in/questions/GcNksO634s)

A monochromatic source of light operating at 15 kW emits 2.5×10^{22} photons /s. The region of an electromagnetic spectrum to which the emitted electromagnetic radiation belongs to ____ °. (Take $h = 6.6 \times 10^{-34}\text{J.s}$ and $c = 3 \times 10^8\text{m/s}$).

- (A) Microwave (B) Infrared (C) Visible (D) Ultraviolet

Q10 Dual Nature of Radiation & Matter[Step-by-step solution](#) > [prepwisar.in/questions/_myc8kxtHS](https://www.prepwisar.in/questions/_myc8kxtHS)

K_1 and K_2 be the maximum kinetic energies of photoelectrons emitted from a surface of a given material for the light of wavelength λ_1 and λ_2 , respectively. If $\lambda_1 = 2\lambda_2$ then the work function of material is given by:

- (A) $K_2 + 2K_1$ (B) $2K_2 - K_1$ (C) $K_1 - 2K_2$ (D) $K_2 - 2K_1$

Q11 Electrostatics I: Charges, Field & Gauss's Law[Step-by-step solution](#) > [prepwisar.in/questions/XjUBfkM-RN](https://www.prepwisar.in/questions/XjUBfkM-RN)

Two point charges $q_1 = 3\mu\text{C}$ and $q_2 = -4\mu\text{C}$ are placed at points $(2\hat{i} + 3\hat{j} + 3\hat{k})$ and $(\hat{i} + \hat{j} + \hat{k})$ respectively. Force on charge q_2 is ____ N. (Take $\frac{1}{4\pi\epsilon_0} = 9 \times 10^9$ SI Units)

- (A) $(12\hat{i} + 24\hat{j} + 24\hat{k}) \times 10^{-3}$ (B) $(4\hat{i} + 8\hat{j} + 8\hat{k}) \times 10^{-3}$
(C) $(3\hat{i} + 6\hat{j} + 6\hat{k}) \times 10^{-3}$ (D) $(-4\hat{i} - 8\hat{j} - 8\hat{k}) \times 10^{-3}$

Q12 Rectilinear Motion[Step-by-step solution](#) > [prepwisar.in/questions/LGKt5EsxFp](https://www.prepwisar.in/questions/LGKt5EsxFp)

A gas balloon is going up with a constant velocity of 10m/s . When this balloon reached a height of 75 m, a stone is dropped from it and balloon keeps moving up with the same velocity. The height of the balloon when the stone hits the ground is ____ m. (Take $g = 10\text{m/s}^2$)

- (A) 85 (B) 150 (C) 129 (D) 125

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Q13 Units, Dimensions & Errors[Step-by-step solution](https://www.prepwiser.in/questions/1WkMkE0XvZ) > prepwiser.in/questions/1WkMkE0XvZ

A new unit (α) of length is chosen such that it is equal to the speed of light in vacuum. What is the distance between Venus and Earth in terms of α units if light takes 6 min. 40 s to cover this distance?

- (A) 200α (B) 400α (C) 300α (D) 500α

Q14 Units, Dimensions & Errors[Step-by-step solution](https://www.prepwiser.in/questions/NGQ4V_Rq4I) > prepwiser.in/questions/NGQ4V_Rq4I

Consider the equation $H = \frac{x^p \epsilon^q E^r}{t^s}$

Where H = magnetic field; E = electric field, ϵ = permittivity, x = distance, t = time The values of p, q, r and s respectively are:

- (A) 1, 1, 1, 1 (B) -1, 1, 2, 1 (C) 1, -1, -2, 1 (D) -1, -2, -2, 1

Q15 Electromagnetic Induction[Step-by-step solution](https://www.prepwiser.in/questions/HLraEfr9kb) > prepwiser.in/questions/HLraEfr9kb

A 30 cm long solenoid has 10 turns per cm and area of 5cm^2 . The current through the solenoid coil varies from 2 A to 4 A in 3.14 s. The e.m.f. induced in the coil is $\alpha \times 10^{-5}\text{V}$. The value α is ____.

- (A) 60 (B) 12 (C) 120 (D) 34

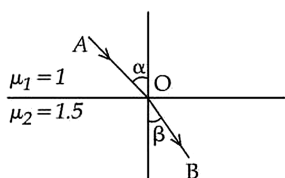
Q16 Ray Optics[Step-by-step solution](https://www.prepwiser.in/questions/_KyDsxOiRI) > prepwiser.in/questions/_KyDsxOiRI

A thin biconvex lens is prepared from the glass ($\mu = 1.5$) both curved surfaces of which have equal radii of 20 cm each. Left side surface of the lens is silvered from outside to make it reflecting. To have the position of image and object at the same place, the object should be placed, from the lens at a distance of ____ cm.

- (A) 10 (B) 12.5 (C) 13 (D) 13.5

Q17 Ray Optics[Step-by-step solution](https://www.prepwiser.in/questions/0gcagLwgee) > prepwiser.in/questions/0gcagLwgee

Light ray incident along a vector $\overrightarrow{AO}(\overrightarrow{AO} = 2\hat{i} - 3\hat{j})$ emerges out along vector $\overrightarrow{OB}(\overrightarrow{OB} = C\hat{i} - 4\hat{j})$ as shown in the figure below. The value of C is ____.



- (A) 1.6 (B) 0.16 (C) 11.6 (D) 16

Q18 Fluid Mechanics[Step-by-step solution](https://www.prepwiser.in/questions/5DKAssqz9t) > prepwiser.in/questions/5DKAssqz9t

A liquid of density 600kg/m^3 flowing steadily in a tube of varying cross-section. The cross-section at a point A is 1.0cm^2 and that at B is 20mm^2 . Both the points A and B are in same horizontal plane, the speed of the liquid at A is 10cm/s . The difference in pressures at A and B points is ____ Pa.

- (A) 18 (B) 144 (C) 36 (D) 72

Q19 Fluid Mechanics[Step-by-step solution](https://www.prepwiser.in/questions/7Z2r7pzBD1) > prepwiser.in/questions/7Z2r7pzBD1

A spherical liquid drop of radius R acquires the terminal velocity v_1 when falls through a gas of viscosity η . Now the drop is broken into 64 identical droplets and each droplet acquires terminal velocity v_2 falling through the same gas. The ratio of terminal velocities v_1/v_2 is ____.

- (A) 4 (B) 0.25 (C) 32 (D) 16

Q20 Moving Charges & Magnetism **NUMERICAL**
[Step-by-step solution](https://www.prepwiser.in/questions/w_O18_bXge)

A 5 mg particle carrying a charge of $5\pi \times 10^{-6} \text{C}$ is moving with velocity of $(3\hat{i} + 2\hat{k}) \times 10^{-2} \text{m/s}$ in a region having magnetic field $\vec{B} = 0.1\hat{k} \text{Wb/m}^2$. It moves a distance of α meter along $\hat{k}$ when it completes 5 revolutions. The value of α is ____°.

Q21 Wave Optics **NUMERICAL**
[Step-by-step solution](https://www.prepwiser.in/questions/K9mP9TfSWK)

Some distant star is to be observed by some telescope of diameter of objective lens a , at an angular resolution of 3.0×10^{-7} radian. If the wavelength of light from the star reaching the telescope is 500 nm, the minimum diameter of the objective lens of the telescope is ____ cm. (nearest interger)

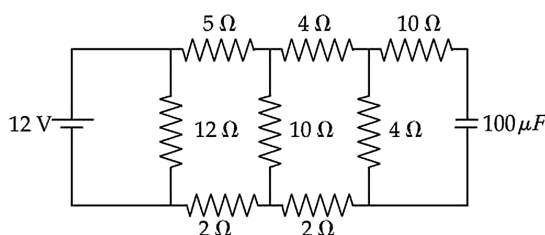
Q22 Electrostatics II: Potential & Capacitance **NUMERICAL**
[Step-by-step solution](https://www.prepwiser.in/questions/43He20AxWi)

A parallel plate capacitor is having separation between plates 0.885 mm. It has a capacitance of $1\mu\text{F}$ when the space between the plates is filled with an insulating material of resistivity $1 \times 10^{13} \Omega\text{m}$ and resistance $17.7 \times 10^{14} \Omega$. Relative permittivity of the insulating material is $\alpha \times 10^7$. The value of α is ____.

(Take permittivity of free space = $8.85 \times 10^{-12} \text{F/m}$)

Q23 Electrostatics II: Potential & Capacitance **NUMERICAL**
[Step-by-step solution](https://www.prepwiser.in/questions/zhsOiVo_LM)

The stored charge in the capacitor in steady state of the following circuit is ____ μC .


Q24 Rectilinear Motion **NUMERICAL**
[Step-by-step solution](https://www.prepwiser.in/questions/1105Ldt2Ge)

Two masses of 3.4 kg and 2.5 kg are accelerated from an initial speed of 5m/s and 12m/s, respectively. The distances traversed by the masses in the 5th second are 104 m and 129 m, respectively. The ratio of their momenta after 10 s is $\frac{x}{8}$. The value of x is ____°.

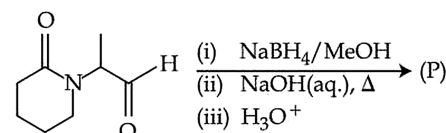
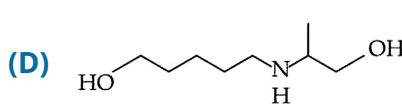
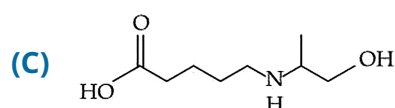
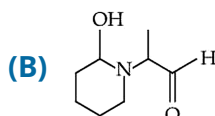
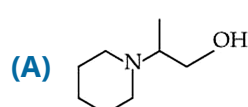
Chemistry Section A · Multiple choice

Q25 Carboxylic Acids & Their Derivatives

[Step-by-step solution](https://www.prepwiser.in/questions/xAuQTAcg2T)

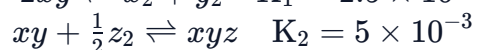
Consider the following reaction.

The major product(P) formed is:



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Consider the following reactions in which all the reactants and products are present in gaseous state



The value of K_3 for the equilibrium $\frac{1}{2}x_2 + \frac{1}{2}y_2 + \frac{1}{2}z_2 \rightleftharpoons xyz$ is:

- (A) 2.5×10^{-3} (B) 2.5×10^3 (C) 1.0×10^{-5} (D) 5×10^{-3}

Given below are two statements:

Statement I: Vapours of the liquid with higher boiling point condense before vapours of the liquid with lower boiling points in fractional distillation.

Statement II: The vapours rising up in the fractionating column become richer in high boiling component of the mixture.

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

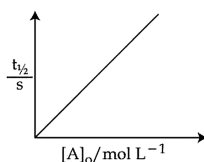
- (A) Both Statement I and Statement II are true (B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false (D) Statement I is false but Statement II is true

Given below are two statements:

$$R = 8.314 \text{ JK}^{-1} \text{ mol}^{-1} \text{ and } 1 \text{ cal} = 4.2 \text{ J}$$

Statement I: When $E_a = 12.6 \text{ kcal/mol}$, the room temperature rate constant is doubled by a 10°C increase in temperature (298 K to 308 K)

Statement II: For a first order reactions $A \rightarrow B$,



Here $[A]_0$ is the initial concentration of A and $t_{1/2}$ is half life of reaction.

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

- (A) Both Statement I and Statement II are true (B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false (D) Statement I is false but Statement II is true

Given below are two statements:

Statement I: The number of pairs among $[\text{Ti}^{4+}, \text{V}^{2+}]$, $[\text{V}^{2+}, \text{Mn}^{2+}]$, $[\text{Mn}^{2+}, \text{Fe}^{3+}]$ and $[\text{V}^{2+}, \text{Cr}^{2+}]$ in which both ions are coloured is 3.

Statement II: The number of pairs among $[\text{La}^{3+}, \text{Yb}^{2+}]$, $[\text{Lu}^{3+}, \text{Ce}^{4+}]$ and $[\text{Ac}^{3+}, \text{Lr}^{3+}]$ ions in which both are diamagnetic is 3.

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

- (A) Both Statement I and Statement II are correct
- (B) Both Statement I and Statement II are incorrect
- (C) Statement I is correct but Statement II is incorrect
- (D) Statement I is incorrect but Statement II is correct

Given below are two statements for catalytic properties of transition metals.

Statement I: First row transition metals which act as catalyst utilise their 3d electrons only for formation of bonds between reactant molecules and atoms on the surface of catalyst.

Statement II: There is increase in the concentration of reactants on the surface of catalyst which strengthens the bonds in reacting molecules.

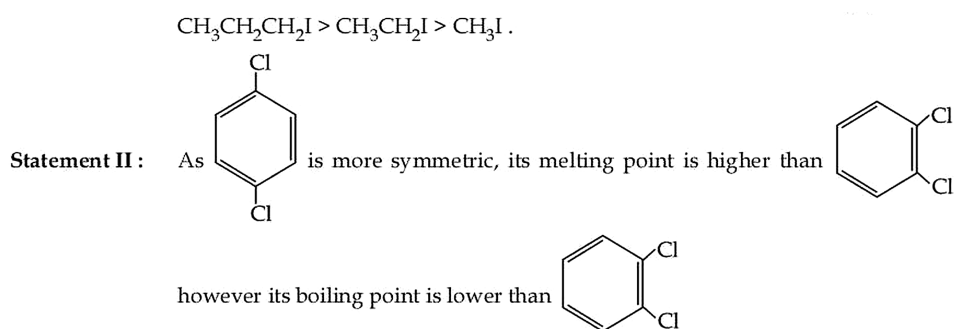
In the light of the above statements, choose the correct answer from the options given below:

- (A) Both Statement I and Statement II are correct
- (B) Both Statement I and Statement II are incorrect
- (C) Statement I is correct but Statement II is incorrect
- (D) Statement I is incorrect but Statement II is correct

Given below are two statements:

Statement I: Due to increase in van der Waals forces, the order of boiling points is $\text{CH}_3\text{CH}_2\text{CH}_2\text{I} > \text{CH}_3\text{CH}_2\text{I} > \text{CH}_3\text{I}$.

Statement II:



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

- (A) Both Statement I and Statement II are true
- (B) Both Statement I and Statement II are false
- (C) Statement I is true but Statement II is false
- (D) Statement I is false but Statement II is true

The incorrect statement from the following with respect to carbohydrates is:

- (A) All monosaccharides are reducing sugars.
 (B) The monosaccharide units obtained from hydrolysis of oligosaccharides are always the same.
 (C) Starch and cellulose are typical examples of polysaccharides, which are very high molecular weight compounds of more than ten monosaccharide units.
 (D) Open chain and cyclic structures co-exist at equilibrium that are responsible for certain properties as in the case of D – (+)-glucose.

Given at 298 K:

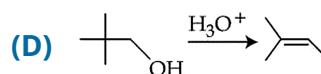
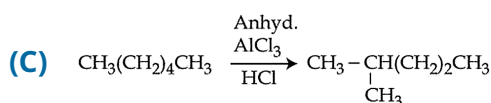
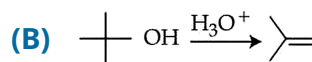
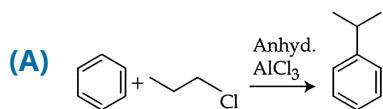
$$E_{\text{Fe}^{2+}/\text{Fe}}^{\ominus} = X \text{ Volt}$$

$$E_{\text{Fe}^{3+}/\text{Fe}}^{\ominus} = Y \text{ Volt}$$

The $E_{\text{Fe}^{3+}/\text{Fe}^{2+}}^{\ominus}$ in Volt at 298 K is given by:

- (A) $2X - 3Y$ (B) $3Y - 2X$ (C) $3Y + 2X$ (D) $Y + X$

The major product of which of the following reaction is not obtained by rearrangement reaction?



n-Butane on monochlorination under photochemical condition gives an optically active compound " P ". " P " on further chlorination gives dichloro compounds.

The number of dichloro compounds obtained (ignore stereoisomers) is:

- (A) 3 (B) 4 (C) 5 (D) 6

Find the correct statements related to group 15 hydrides.

- A. Reducing nature increases from NH_3 to BiH_3
 B. Tendency to donate lone pair of electrons decreases from NH_3 to BiH_3
 C. The stability of hydrides decreases from NH_3 to BiH_3
 D. HEH bond angle decreases from NH_3 to SbH_3 (E = Elements of group 15)

Choose the correct answer from the options given below:

- (A) A and B only (B) B and C only (C) A, B, C and D (D) A, C and D Only

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Given below are two statements:

Given : Molar mass of C, H, O, Cl are 12, 1, 16 and 35.5 g mol⁻¹, respectively

Statement I: In 30% (w/w) solution of methanol in CCl₄ (at T K), the mole fraction of CCl₄ is equal to 0.33.

Statement II: Mixture of methanol and CCl₄ shows positive deviation from Raoult's law. In the light of the above statements, choose the correct answer from the options given below:

- (A) Both Statement I and Statement II are true (B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false (D) Statement I is false but Statement II is true

Which of the following statements are not correct?

- A. For water, magnitude of K_b is more than the magnitude of K_f .
B. The elevation in boiling point of water when a non-volatile solute is added to it is larger in magnitude than its depression in freezing point.
C. Osmotic pressure measurement is preferred over any other colligative property to determine molar mass of proteins and polymers.
D. The dimerised form of benzoic acid in benzene is



Choose the correct answer from the options given below:

- (A) A and B only (B) A and D only (C) A, B and D only (D) A, C and D only

Bromine trifluoride autoionizes to form BrF_2^+ and BrF_4^- . The shapes of the cation and anion are respectively ____ and ____.

- (A) bent, square planar (B) linear, square planar
(C) bent, see-saw (D) linear, tetrahedral

Which statements are True?

- A. In Hoffmann bromamide degradation, 4 moles of NaOH and 2 moles of Br₂ are consumed per mole of an amide
B. Hoffmann bromamide reaction is not given by alkyl amides.
C. Primary amines can be synthesized by Hoffmann bromamide degradation.
D. Secondary amide on reaction with Br₂ and NaOH will give secondary amine.
E. The by-products of Hoffmann degradation are Na₂CO₃, NaBr and H₂O.

Choose the correct answer from the options given below:

- (A) A, C and E only (B) B, C and D only (C) C and E only (D) C, D and E only

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Which of the following amino acid will give violet coloured complex with neutral ferric chloride solution?

- (A) Threonine (B) Serine (C) Tyrosine (D) Cysteine

Match List - I with List - II.

List - I		List - II	
Electronic configuration of neutral atom (where $n = 2$)		1 st Ionization Energy (kJmol^{-1})	
A.	ns^2	I.	2080
B.	ns^2np^1	II.	899
C.	ns^2np^3	III.	800
D.	ns^2np^6	IV.	1402

Choose the correct answer from the options given below:

- (A) A-II, B-III, C-IV, D-I (B) A-IV, B-III, C-II, D-I (C) A-III, B-II, C-IV, D-I (D) A-III, B-II, C-I, D-IV

Match List - I with List - II.

List - I		List - II	
Mass of substance		Number of atoms	
A.	1.8 mg water	I.	$2 \times 10^{-4} \times N_A$
B.	9.8 mg sulphuric acid	II.	$1.5 \times 10^{-4} \times N_A$
C.	1.8 mg carbon	III.	$3 \times 10^{-4} \times N_A$
D.	5.85 mg salt (NaCl)	IV.	$7 \times 10^{-4} \times N_A$

Choose the correct answer from the options given below:

- (A) A-IV, B-III, C-I, D-II (B) A-III, B-II, C-IV, D-I (C) A-III, B-IV, C-II, D-I (D) A-III, B-IV, C-I, D-II

Chemistry Section B · Numerical value

Q44 to Q48

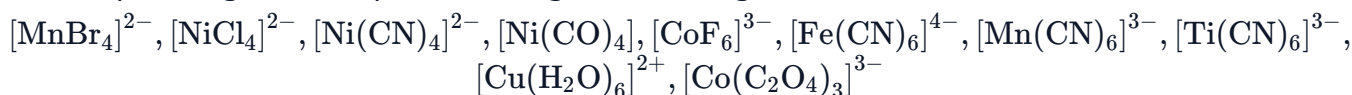
'x' is the product which is obtained from benzene by reacting it with carbon monoxide and hydrogen chloride in the presence of cuprous chloride. 'y' is the major product obtained from the benzene by reacting it with ethanoyl chloride in the presence of anhydrous AlCl_3 . Product (major) obtained by heating x and y in the presence of alkali is z. Total number of π (pi) electrons in z is ____.

Solid carbon, CaO and CaCO_3 are mixed and allowed to attain equilibrium at T K.



The partial pressure of CO is $__ \times 10^{-1} \text{ atm}$

Number of paramagnetic complexes among the following is ____.



Consider two radiations of wavelengths

1. $\lambda_1 = 2000\text{\AA}$
2. $\lambda_2 = 6000\text{\AA}$

The ratio of the energies of these two radiations $\left(\frac{E_1}{E_2}\right)$ is ____ (Nearest integer).

Consider the reaction



The magnitude of enthalpy change for the reaction in kJmol^{-1} is _____. (Nearest integer)

Given :

$$\Delta_f H^\ominus(\text{H}_2\text{S}) = -20.1\text{kJmol}^{-1}$$

$$\Delta_f H^\ominus(\text{H}_2\text{O}) = -286.0\text{kJmol}^{-1}$$

$$\Delta_f H^\ominus(\text{SO}_2) = -297.0\text{kJmol}^{-1}$$

Mathematics Section A · Multiple choice

Q49 to Q68

The number of values of $z \in \mathbb{C}$, satisfying the equations $|z - (4 + 8i)| = \sqrt{10}$ and $|z - (3 + 5i)| + |z - (5 + 11i)| = 4\sqrt{5}$, is :

- (A) 0 (B) 2 (C) 1 (D) 4

Let $\frac{x^2}{f(a^2+7a+3)} + \frac{y^2}{f(3a+15)} = 1$ represent an ellipse with major axis along y -axis, where f is a strictly decreasing positive function on $\mathbf{R}$. If the set of all possible values of a is $\mathbf{R} - [\alpha, \beta]$, then $\alpha^2 + \beta^2$ is equal to:

- (A) 28 (B) 40 (C) 61 (D) 24

If the system of linear equations:

$$\begin{aligned} x + y + z &= 6 \\ x + 2y + 5z &= 10 \\ 2x + 3y + \lambda z &= \mu \end{aligned}$$

has infinitely many solutions, then the value of $\lambda + \mu$ equals:

- (A) 12 (B) 16 (C) 22 (D) 28

Let $A = \begin{bmatrix} \alpha & 1 & 2 \\ 2 & 3 & 0 \\ 0 & 4 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 & 0 \\ 0 & -5\alpha & 0 \\ 0 & 4\alpha & -2\alpha \end{bmatrix} + \text{adj}(A)$. If $\det(B) = 66$, then $\det(\text{adj}(A))$ equals:

- (A) 289 (B) 361 (C) 441 (D) 529

A set of four observations has mean 1 and variance 13. Another set of six observations has mean 2 and variance 1. Then, the variance of all these 10 observations is equal to:

- (A) 5.96 (B) 6.14 (C) 6.04 (D) 6.24

Let $\vec{a} = 4\hat{i} - \hat{j} + 3\hat{k}$, $\vec{b} = 10\hat{i} + 2\hat{j} - \hat{k}$ and a vector $\vec{c}$ be such that $2(\vec{a} \times \vec{b}) + 3(\vec{b} \times \vec{c}) = \vec{0}$.

If $\vec{a} \cdot \vec{c} = 15$, then $\vec{c} \cdot (\hat{i} + \hat{j} - 3\hat{k})$ is equal to:

- (A) -6 (B) -5 (C) -4 (D) -3

Let $f : (1, \infty) \rightarrow \mathbf{R}$ be a function defined as $f(x) = \frac{x-1}{x+1}$. Let $f^{i+1}(x) = f(f^i(x))$, $i = 1, 2, \dots, 25$, where $f^1(x) = f(x)$. If $g(x) + f^{26}(x) = 0$, $x \in (1, \infty)$, then the area of the region bounded by the curves $y = g(x)$, $2y = 2x - 3$, $y = 0$ and $x = 4$ is:

- (A) $\frac{1}{8} + \log_e 2$ (B) $\frac{1}{4} + \log_e 2$ (C) $\frac{5}{6} + 3 \log_e 2$ (D) $\frac{5}{6} + \log_e 2$

The value of the integral $\int_0^2 \frac{\sqrt{x(x^2+x+1)}}{(\sqrt{x+1})(\sqrt{x^4+x^2+1})} dx$ is equal to:

- (A) $\frac{1}{3} \log_e(3 - 2\sqrt{2})$ (B) $\frac{2}{3} \log_e(4 + \sqrt{2})$ (C) $\frac{2}{3} \log_e(3 + 2\sqrt{2})$ (D) $\frac{1}{3} \log_e(1 + 6\sqrt{2})$

Let $f(x) = \begin{cases} \frac{1}{3}, & x \leq \pi/2 \\ \frac{b(1-\sin x)}{(\pi-2x)^2}, & x > \pi/2 \end{cases}$. If f is continuous at $x = \pi/2$, then the value of $\int_0^{3b-6} |x^2 + 2x - 3| dx$ is:

- (A) 5 (B) 2 (C) 3 (D) 4

Let $\alpha = 3 \sin^{-1} \left(\frac{6}{11} \right)$ and $\beta = 3 \cos^{-1} \left(\frac{4}{9} \right)$, where inverse trigonometric functions take only the principal values.

Given below are two statements:

Statement I: $\cos(\alpha + \beta) > 0$.

Statement II: $\cos(\alpha) < 0$.

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

- (A) Both Statement I and Statement II are true (B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false (D) Statement I is false but Statement II is true

Let O be the vertex of the parabola $y^2 = 4x$ and its chords OP and OQ are perpendicular to each other. If the locus of the mid-point of the line segment PQ is a conic C, then the length of its latus rectum is:

- (A) 1 (B) 2 (C) 4 (D) 8

Q60 Straight Lines[Step-by-step solution > prepwiser.in/questions/fgKXhDUt5B](https://www.prepwiser.in/questions/fgKXhDUt5B)

If a straight line drawn through the point of intersection of the lines $4x + 3y - 1 = 0$ and $3x + 4y - 1 = 0$, meets the co-ordinate axes at the points P and Q, then the locus of the mid point of PQ is:

- (A) $x + y - 7 = 0$ (B) $x + y - 14xy = 0$ (C) $2x + y + 14xy = 0$ (D) $x + 2y - 14xy = 0$

Q61 Binomial Theorem[Step-by-step solution > prepwiser.in/questions/gprBVUQeam](https://www.prepwiser.in/questions/gprBVUQeam)

If $26 \left(\frac{2^3}{3} ({}^{12}C_2) + \frac{2^5}{5} ({}^{12}C_4) + \frac{2^7}{7} ({}^{12}C_6) + \dots + \frac{2^{13}}{13} ({}^{12}C_{12}) \right) = 3^{13} - \alpha$, then α is equal to:

- (A) 45 (B) 48 (C) 51 (D) 54

Q62 Differential Equations[Step-by-step solution > prepwiser.in/questions/LijhJ-JA2C](https://www.prepwiser.in/questions/LijhJ-JA2C)

Let $y = y(x)$ be the solution of the differential equation

$x\sqrt{1-x^2}dy + (y\sqrt{1-x^2} - x\cos^{-1}x)dx = 0, x \in (0, 1), \lim_{x \rightarrow 1^-} y(x) = 1$. Then $y\left(\frac{1}{2}\right)$ equals:

- (A) $3 - \frac{\pi}{\sqrt{3}}$ (B) $4 - \sqrt{3}\pi$ (C) $4 - \frac{2\pi}{\sqrt{3}}$ (D) $3 - \frac{\pi}{2\sqrt{3}}$

Q63 Continuity & Differentiability[Step-by-step solution > prepwiser.in/questions/zQKO4oy_r_](https://www.prepwiser.in/questions/zQKO4oy_r_)

For the function $f(x) = e^{\sin|x|} - |x|, x \in \mathbf{R}$, consider the following statements:

Statement I: f is differentiable for all $x \in \mathbf{R}$.

Statement II: f is increasing in $\left(-\pi, -\frac{\pi}{2}\right)$.

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

- (A) Both Statement I and Statement II are true (B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false (D) Statement I is false but Statement II is true

Q64 Permutations & Combinations[Step-by-step solution > prepwiser.in/questions/4-9o8T20o0](https://www.prepwiser.in/questions/4-9o8T20o0)

A person has three different bags and four different books. The number of ways, in which he can put these books in the bags so that no bag is empty, is:

- (A) 18 (B) 36 (C) 39 (D) 72

Q65 Sequences & Series[Step-by-step solution > prepwiser.in/questions/4iAKogjVWv3](https://www.prepwiser.in/questions/4iAKogjVWv3)

Let $\alpha = 3 + 4 + 8 + 9 + 13 + 14 + \dots$ upto 40 terms. If $(\tan \beta)^{\frac{\alpha}{1020}}$ is a root of the equation $x^2 + x - 2 = 0, \beta \in \left(0, \frac{\pi}{2}\right)$, then $\sin^2 \beta + 3 \cos^2 \beta$ is equal to:

- (A) 2 (B) $\frac{7}{4}$ (C) $\frac{5}{2}$ (D) $\frac{3}{2}$

Q66 Three Dimensional Geometry[Step-by-step solution > prepwiser.in/questions/rzhpVPPB7f](https://www.prepwiser.in/questions/rzhpVPPB7f)

Let the foot of perpendicular from the point $(\lambda, 2, 3)$ on the line $\frac{x-4}{1} = \frac{y-9}{2} = \frac{z-5}{1}$ be the point $(1, \mu, 2)$. Then the distance between the lines $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z+4}{6}$ and $\frac{x-\lambda}{2} = \frac{y-\mu}{3} = \frac{z+5}{6}$ is equal to:

- (A) $\frac{12}{7}$ (B) $\frac{\sqrt{145}}{7}$ (C) $\frac{\sqrt{146}}{7}$ (D) $\frac{\sqrt{143}}{7}$

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A candidate has to go to the examination centre to appear in an examination. The candidate uses only one means of transportation for the entire distance out of bus, scooter and car. The probabilities of the candidate going by bus, scooter and car, respectively, are $\frac{2}{5}$, $\frac{1}{5}$ and $\frac{2}{5}$. The probabilities that the candidate reaches late at the examination centre are $\frac{1}{5}$, $\frac{1}{3}$ and $\frac{1}{4}$ if the candidate uses bus, scooter and car, respectively. Given that the candidate reached late at the examination centre, the probability that the candidate travelled by bus is:

(A) $\frac{11}{37}$

(B) $\frac{12}{37}$

(C) $\frac{13}{37}$

(D) $\frac{14}{37}$

Consider the relation R on the set $\{-2, -1, 0, 1, 2\}$ defined by $(a, b) \in R$ if and only if $1 + ab > 0$.

Then, among the statements:

I. The number of elements in R is 17

II. R is an equivalence relation

(A) Only I is true

(B) Only II is true

(C) Both I and II are true

(D) Neither I nor II is true

Mathematics Section B · Numerical value

Q69 to Q73

If $\int_{\pi/6}^{\pi/4} \left(\cot \left(x - \frac{\pi}{3} \right) \cot \left(x + \frac{\pi}{3} \right) + 1 \right) dx = \alpha \log_e(\sqrt{3} - 1)$, then $9\alpha^2$ is equal to ____.

Let f be a polynomial function such that $\log_2(f(x)) = \left(\log_2 \left(2 + \frac{2}{3} + \frac{2}{9} + \dots \infty \right) \right) \cdot \log_3 \left(1 + \frac{f(x)}{f(1/x)} \right)$, $x > 0$ and $f(6) = 37$. Then $\sum_{n=1}^{10} f(n)$ is equal to ____.

Let a line L_1 pass through the origin and be perpendicular to the lines

$$L_2 : \vec{r} = (3 + t)\hat{i} + (2t - 1)\hat{j} + (2t + 4)\hat{k} \text{ and}$$

$$L_3 : \vec{r} = (3 + 2s)\hat{i} + (3 + 2s)\hat{j} + (2 + s)\hat{k}, t, s \in \mathbf{R}.$$

If (a, b, c) , $a \in \mathbf{Z}$, is the point on L_3 at a distance of $\sqrt{17}$ from the point of intersection of L_1 and L_2 , then $(a + b + c)^2$ is equal to ____.

Consider the circle $C: x^2 + y^2 - 6x - 8y - 11 = 0$. Let a variable chord AB of the circle C subtend a right angle at the origin. If the locus of the foot of the perpendicular drawn from the origin on the chord AB is the circle $x^2 + y^2 - \alpha x - \beta y - \gamma = 0$, then $\alpha + \beta + 2\gamma$ is equal to ____.

The sum of squares of all the real solutions of the equation $\log_{(x+1)}(2x^2 + 5x + 3) = 4 - \log_{(2x+3)}(x^2 + 2x + 1)$ is equal to ____.

Answer key: JEE Main 2026 · 8 Apr · Shift 2

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Physics

1. C	2. D	3. B	4. C	5. B	6. C	7. A	8. C
9. D	10. D	11. B	12. D	13. B	14. A	15. B	16. A
17. A	18. D	19. D	20. 2	21. 203	22. 2	23. 200	24. 9

Chemistry

25. C	26. C	27. C	28. C	29. A	30. B	31. A	32. B
33. B	34. B	35. B	36. C	37. A	38. C	39. A	40. C
41. C	42. A	43. C	44. 16	45. 4	46. 6	47. 3	48. 1126

Mathematics

49. B	50. B	51. C	52. C	53. C	54. B	55. A	56. C
57. D	58. A	59. B	60. B	61. C	62. A	63. A	64. B
65. A	66. C	67. B	68. A	69. 12	70. 395	71. 4	72. 18
73. 2							

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