

JEE MAIN 2026 · QUESTION PAPER

22 Jan 2026 **Shift 2**

74 questions in exam order, with answer key

Subject	Section A multiple choice	Section B numerical value
● Physics	20 Q1 to Q20	5 Q21 to Q25
● Chemistry	20 Q26 to Q45	5 Q46 to Q50
● Mathematics	19 Q51 to Q69	5 Q70 to Q74
In this PDF	74 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.

prepwise.in/pyqs/paper/2026-01-22-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?
prepwise.in/feedback · Terms: prepwise.in/terms

Q1 Electromagnetic Waves

[Step-by-step solution](#) · [prepwisar.in/questions/ON1p-IdM97](https://www.prepwisar.in/questions/ON1p-IdM97)

A laser beam has intensity of $4.0 \times 10^{14} \text{ W/m}^2$. The amplitude of magnetic field associated with beam is ____ T.

(Take $\epsilon_0 = 8.85 \times 10^{-12} \text{ C}^2/\text{Nm}^2$ and $c = 3 \times 10^8 \text{ m/s}$)

- (A) 1.83 (B) 2.0 (C) 5.5 (D) 18.3

Q2 Gravitation

[Step-by-step solution](#) · [prepwisar.in/questions/GI7On3ZYZQ](https://www.prepwisar.in/questions/GI7On3ZYZQ)

Given below are two statements:

Statement I: A satellite is moving around earth in the orbit very close to the earth surface. The time period of revolution of satellite depends upon the density of earth.

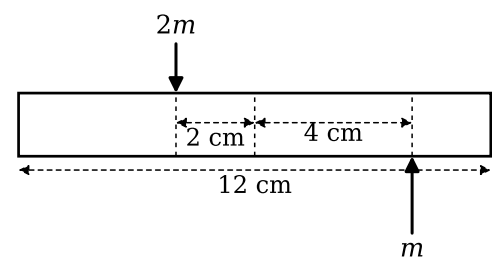
Statement II: The time period of revolution of the satellite is $T = 2\pi\sqrt{\frac{R_e}{g}}$ (for satellite very close to the earth surface), where R_e radius of earth and g acceleration due to gravity. In the light of the above statements, choose the correct answer from the options given below:

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

Q3 Rotational Motion

[Step-by-step solution](#) · [prepwisar.in/questions/y_Ykyi4scl](https://www.prepwisar.in/questions/y_Ykyi4scl)

A uniform bar of length 12 cm and mass 20 m lies on a smooth horizontal table. Two point masses m and $2m$ are moving in opposite directions with same speed of v and in the same plane as the bar, as shown in figure. These masses strike the bar simultaneously and get stuck to it. After collision the entire system is rotating with angular frequency ω . The ratio of v and ω is:



- (A) 33 (B) $2\sqrt{88}$ (C) 32 (D) 66

Q4 Wave Optics

[Step-by-step solution](#) · [prepwisar.in/questions/A3Ikut9T3](https://www.prepwisar.in/questions/A3Ikut9T3)

The wavelength of light, while it is passing through water is 540 nm. The refractive index of water is $4/3$. The wavelength of the same light when it is passing through a transparent medium having refractive index of $3/2$ is ____ nm.

- (A) 540 (B) 840 (C) 480 (D) 380

Q5 Wave Optics

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

Which of the following are true for a single slit diffraction?

- A. Width of central maxima increases with increase in wavelength keeping slit width constant.
B. Width of central maxima increases with decrease in wavelength keeping slit width constant.
C. Width of central maxima increases with decrease in slit width at constant wavelength.
D. Width of central maxima increases with increase in slit width at constant wavelength.
E. Brightness of central maxima increases for decrease in wavelength at constant slit width.

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

Q6 Atomic Physics[Step-by-step solution > prepwisar.in/questions/eevb-7hSi3](https://www.prepwisar.in/questions/eevb-7hSi3)

The smallest wavelength of Lyman series is 91 nm. The difference between the largest wavelengths of Paschen and Balmer series is nearly ____ nm.

- (A) 1784 (B) 1875 (C) 1217 (D) 1550

Q7 Current Electricity[Step-by-step solution > prepwisar.in/questions/iKUVKBPaw4](https://www.prepwisar.in/questions/iKUVKBPaw4)

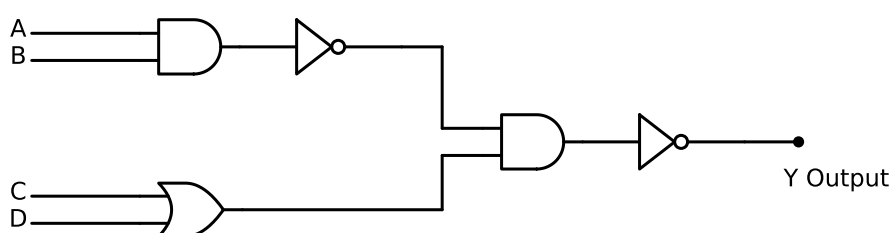
An electric power line having total resistance of 2Ω , delivers 1 kW of power at 250 V. The percentage efficiency of transmission line is ____.

- (A) 96.9 (B) 92.5 (C) 86.5 (D) 100

Q8 Semiconductors & Electronic Devices[Step-by-step solution > prepwisar.in/questions/j0CtTAznyb](https://www.prepwisar.in/questions/j0CtTAznyb)

The correct truth table for the given input data of the following logic gate is:

Inputs



(A)

Inputs				Output
A	B	C	D	Y
1	1	0	1	1
0	0	1	1	0
1	0	1	0	0
1	1	1	1	1

(B)

Inputs				Output
A	B	C	D	Y
1	1	0	1	0
0	0	1	1	1
1	0	1	0	1
1	1	1	1	1

(C)

Inputs				Output
A	B	C	D	Y
1	1	0	1	1
0	0	1	1	0
1	0	1	0	1
1	1	1	1	0

(D)

Inputs				Output
A	B	C	D	Y
1	1	0	1	0
0	0	1	1	0
1	0	1	0	1
1	1	1	1	1

Q9 Kinetic Theory of Gases[Step-by-step solution > prepwisar.in/questions/FIga6O68qU](https://www.prepwisar.in/questions/FIga6O68qU)

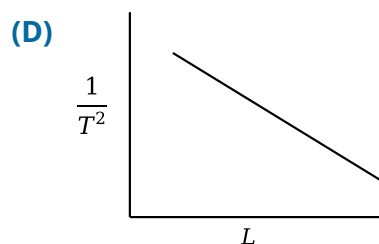
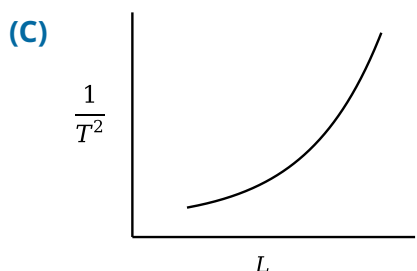
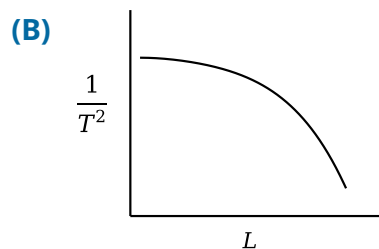
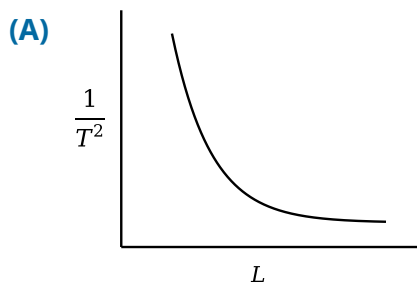
Consider two boxes containing ideal gases A and B such that their temperatures, pressures and number densities are same. The molecular size of A is half of that of B and mass of molecule A is four times that of B . If the collision frequency in gas B is $32 \times 10^{18}/s$ then collision frequency in gas A is ____ /s.

- (A) 8×10^{18} (B) 2×10^{18} (C) 32×10^{18} (D) 4×10^{18}

Attempt this paper online with instant answer checking > [prepwisar.in/pyqs/paper/2026-01-22-evening](https://www.prepwisar.in/pyqs/paper/2026-01-22-evening)

Q10 Experimental Skills[Step-by-step solution](https://www.prepwisar.in/questions/DM46ZD1yUm) > prepwisar.in/questions/DM46ZD1yUm

Using a simple pendulum experiment g is determined by measuring its time period T . Which of the following plots represent the correct relation between the pendulum length L and time period T ?

**Q11** Mechanical Waves[Step-by-step solution](https://www.prepwisar.in/questions/INF2iu_kDU) > prepwisar.in/questions/INF2iu_kDU

In an open organ pipe ν_3 and ν_6 are 3rd and 6th harmonic frequencies, respectively. If $\nu_6 - \nu_3 = 2200\text{Hz}$ then length of the pipe is ____ mm.

(Take velocity of sound in air is 330m/s.)

(A) 200

(B) 225

(C) 275

(D) 250

Q12 Dual Nature of Radiation & Matter[Step-by-step solution](https://www.prepwisar.in/questions/IWz1YKVAC_) > prepwisar.in/questions/IWz1YKVAC_

Light is incident on a metallic plate having work function $110 \times 10^{-20}\text{J}$. If the produced photoelectrons have zero kinetic energy then the angular frequency of the incident light is ____ rad/s. ($h = 6.63 \times 10^{-34}\text{J.s}$).

(A) 1.04×10^{13} (B) 1.66×10^{16} (C) 1.66×10^{15} (D) 1.04×10^{16} **Q13** Electrostatics I: Charges, Field & Gauss's Law[Step-by-step solution](https://www.prepwisar.in/questions/d3L4xYXeEs) > prepwisar.in/questions/d3L4xYXeEs

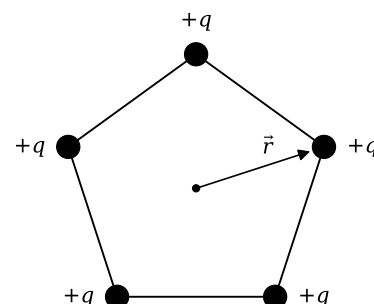
Five positive charges each having charge q are placed at the vertices of a pentagon as shown in the figure. The electric potential (V) and the electric field ($\vec{E}$) at the center O of the pentagon due to these five positive charges are:

(A) $V = \frac{5q}{4\pi\epsilon_0 r}$ and $\vec{E} = \frac{5\sqrt{3}q}{8\pi\epsilon_0 r^2} \hat{r}$

(B) $V = \frac{5q}{4\pi\epsilon_0 r}$ and $\vec{E} = 0$

(C) $V = 0$ and $\vec{E} = 0$

(D) $V = \frac{5q}{4\pi\epsilon_0 r}$ and $\vec{E} = \frac{5q}{4\pi\epsilon_0 r^2} \hat{r}$

**Q14** Electrostatics II: Potential & Capacitance[Step-by-step solution](https://www.prepwisar.in/questions/GQLnyBvbWH) > prepwisar.in/questions/GQLnyBvbWH

Three small identical bubbles of water having same charge on each coalesce to form a bigger bubble. Then the ratio of the potentials on one initial bubble and that on the resultant bigger bubble is:

(A) $1 : 3^{2/3}$ (B) $3^{2/3} : 1$ (C) $1 : 3^{1/3}$ (D) $1 : 2^{2/3}$

Attempt this paper online with instant answer checking > [prepwisar.in/pyqs/paper/2026-01-22-evening](https://www.prepwisar.in/pyqs/paper/2026-01-22-evening)

If ϵ , E and t represent the free space permittivity, electric field and time respectively, then the unit of $\frac{\epsilon E}{t}$ will be:

- (A) Am (B) A/m (C) A/m² (D) Am²

Given below are two statements:

Statement I: An object moves from position r_1 to position r_2 under a conservative force field $\vec{F}$. The work done by the force is $W = - \int_{r_1}^{r_2} \vec{F} \cdot d\vec{r}$.

Statement II: Any object moving from one location to another location can follow infinite number of paths. Therefore, the amount of work done by the object changes with the path it follows for a conservative force.

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

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

Given below are two statements:

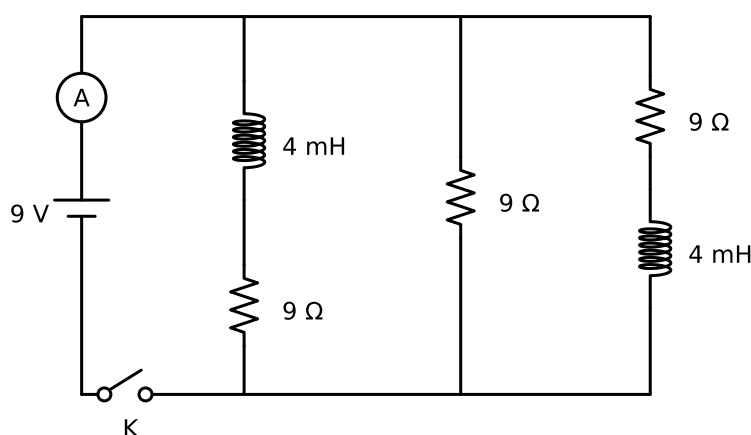
Statement I: For a mechanical system of many particles total kinetic energy is the sum of kinetic energies of all the particles.

Statement II: The total kinetic energy can be the sum of kinetic energy of the center of mass w.r.t to the origin and the kinetic energy of all the particles w.r.t. the center of mass as the reference.

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

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

Figure shows the circuit that contains three resistances (9Ω each) and two inductors (4 mH each). The reading of ammeter at the moment switch K is turned ON, is ____ A.



- (A) 2 (B) 3 (C) 1 (D) zero

In parallax method for the determination of focal length of a concave mirror, the object should always be placed:

- (A) between the focus (F) and the centre of curvature (C) of the mirror ONLY
- (B) between the pole (P) and the focus (F) of the concave mirror ONLY
- (C) at any point beyond the focus (F) of the mirror
- (D) beyond the centre of the curvature (C) of the mirror ONLY

When a part of a straight capillary tube is placed vertically in a liquid, the liquid raises upto certain height h . If the inner radius of the capillary tube, density of the liquid and surface tension of the liquid decrease by 1% each, then the height of the liquid in the tube will change by ____ %.

- (A) +3
- (B) +1
- (C) -1
- (D) -3

Physics Section B · Numerical value

Q21 to Q25

Two masses m and $2m$ are connected by a light string going over a pulley (disc) of mass $30m$ with radius $r = 0.1m$. The pulley is mounted in a vertical plane and it is free to rotate about its axis. The $2m$ mass is released from rest and its speed when it has descended through a height of $3.6m$ is ____ m/s. (Assume string does not slip and $g = 10m/s^2$)

A cylindrical conductor of length $2m$ and area of cross-section $0.2mm^2$ carries an electric current of $1.6A$ when its ends are connected to a $2V$ battery. Mobility of electrons in the conductor is $\alpha \times 10^{-3}m^2/V.s$. The value of α is:
(electron concentration = $5 \times 10^{28}/m^3$ and electron charge = $1.6 \times 10^{-19}C$)

An insulated cylinder of volume $60cm^3$ is filled with a gas at $27^\circ C$ and 2 atmospheric pressure. Then the gas is compressed making the final volume as $20cm^3$ while allowing the temperature to rise to $77^\circ C$. The final pressure is ____ atmospheric pressure.

A capacitor P with capacitance $10 \times 10^{-6}F$ is fully charged with a potential difference of $6.0V$ and disconnected from the battery. The charged capacitor P is connected across another capacitor Q with capacitance $20 \times 10^{-6}F$. The charge on capacitor Q when equilibrium is established will be $\alpha \times 10^{-5}C$ (assume capacitor Q does not have any charge initially), the value of α is ____.

A conducting circular loop is rotated about its diameter at a constant angular speed of $100rad/s$ in a magnetic field of $0.5T$ perpendicular to the axis of rotation. When the loop is rotated by 30° from the horizontal position, the induced EMF is $15.4mV$. The radius of the loop is ____ mm.
(Take $\pi = \frac{22}{7}$)

Q26 Aldehydes & Ketones[Step-by-step solution](#) > [prepwise.in/questions/pfhc0UTNN0](https://www.prepwise.in/questions/pfhc0UTNN0)

The compound A, $C_8H_8O_2$ reacts with acetophenone to form a single product via cross-Aldol condensation. The compound A on reaction with conc. NaOH forms a substituted benzyl alcohol as one of the two products. The compound A is:

- (A) 2-hydroxy acetophenone (B) 4-hydroxy benzaldehyde
(C) 4-methyl benzoic acid (D) 4-methoxy benzaldehyde

Q27 Coordination Compounds[Step-by-step solution](#) > [prepwise.in/questions/svlrNCUIaI](https://www.prepwise.in/questions/svlrNCUIaI)

$[Ni(PPH_3)_2Cl_2]$ is a paramagnetic complex. Identify the INCORRECT statements about this complex.

- A. The complex exhibits geometrical isomerism.
B. The complex is white in colour.
C. The calculated spin-only magnetic moment of the complex is 2.84 BM.
D. The calculated CFSE (Crystal Field Stabilization Energy) of Ni in this complex is $-0.8\Delta_o$.
E. The geometrical arrangement of ligands in this complex is similar to that in $Ni(CO)_4$.

Choose the correct answer from the options given below:

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

Q28 Ionic Equilibrium[Step-by-step solution](#) > [prepwise.in/questions/Of54vKTWm8](https://www.prepwise.in/questions/Of54vKTWm8)

Which of the following mixture gives a buffer solution with $pH = 9.25$?

Given: $pK_b(NH_4OH) = 4.75$

- (A) $0.5M NH_4OH(0.2L) + 0.2M HCl(0.5L)$ (B) $0.2M NH_4OH(0.5L) + 0.1M HCl(0.5L)$
(C) $0.2M NH_4OH(0.4L) + 0.1M HCl(1L)$ (D) $0.4M NH_4OH(1L) + 0.1M HCl(1L)$

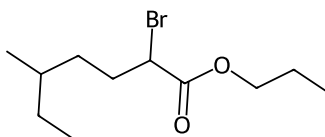
Q29 Atomic Structure[Step-by-step solution](#) > [prepwise.in/questions/LS-psjdNeZ](https://www.prepwise.in/questions/LS-psjdNeZ)

The energy of first (lowest) Balmer line of H atom is xJ . The energy (in J) of second Balmer line of H atom is:

- (A) $\frac{x}{1.35}$ (B) $1.35x$ (C) x^2 (D) $2x$

Q30 General Organic Chemistry (GOC)[Step-by-step solution](#) > [prepwise.in/questions/_z7kFUzJbb](https://www.prepwise.in/questions/_z7kFUzJbb)

The IUPAC name of the following compound is:



- (A) 2-bromo-5-methylhexylpropanoate (B) n-propyl-1-bromo-4-methylhexanoate
(C) n-propyl-2-bromo-5-methylheptanoate (D) 2-bromo-5-methylpropanoate

Attempt this paper online with instant answer checking > [prepwise.in/pyqs/paper/2026-01-22-evening](https://www.prepwise.in/pyqs/paper/2026-01-22-evening)

Correct statements regarding Arrhenius equation among the following are:

- A. Factor $e^{-E_a/RT}$ corresponds to fraction of molecules having kinetic energy less than E_a .
 B. At a given temperature, lower the E_a , faster is the reaction.
 C. Increase in temperature by about 10°C doubles the rate of reaction.
 D. Plot of $\log k$ vs $\frac{1}{T}$ gives a straight line with slope $= -\frac{E_a}{R}$.

Choose the correct answer from the options given below:

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

Given below are two statements:

Statement I: The first ionization enthalpy of Cr is lower than that of Mn.

Statement II: The second and third ionization enthalpies of Cr are higher than those of Mn.

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

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

Identify the correct statements:

- A. Hydrated salts can be used as primary standard.
 B. Primary standard should not undergo any reaction with air.
 C. Reactions of primary standard with another substance should be instantaneous and stoichiometric.
 D. Primary standard should not be soluble in water.
 E. Primary standard should have low relative molar mass.

Choose the correct answer from the options given below:

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

When 1 g of compound (X) is subjected to Kjeldahl's method for estimation of nitrogen, 15 mL 1 M H_2SO_4 was neutralized by ammonia evolved. The percentage of nitrogen in compound (X) is:

- (A) 0.21 (B) 21 (C) 42 (D) 0.42

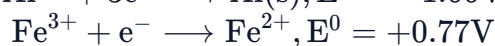
Match List - I with List - II.

List - I		List - II	
Reaction of Glucose with		Product formed	
A.	Hydroxylamine	I.	Gluconic acid
B.	Br_2 water	II.	Glucose pentacetate
C.	Excess acetic anhydride	III.	Saccharic acid
D.	Concentrated HNO_3	IV.	Glucosime

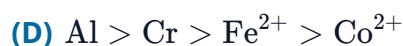
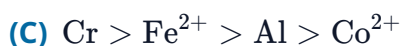
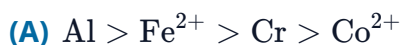
Choose the correct answer from the options given below:

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

Consider the following reduction processes:



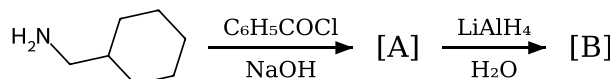
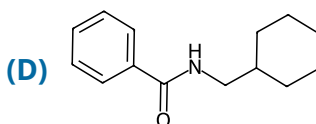
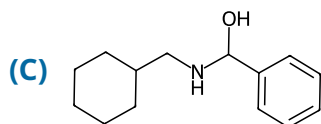
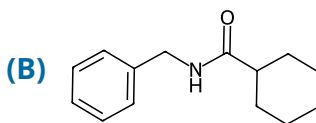
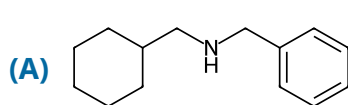
The tendency to act as reducing agent decreases in the order:



Q37 Amines & Diazonium Salts

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

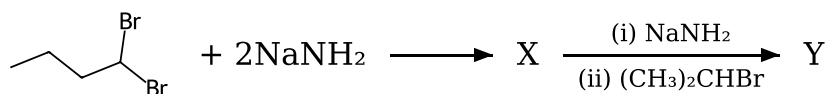
The final product [B] is:



Q38 Hydrocarbons: Alkenes & Alkynes

Step-by-step solution > [prepwiser.in/questions/MZX48rD5iI](https://www.prepwiser.in/questions/MZX48rD5iI)

Consider the following reaction:



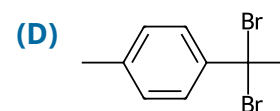
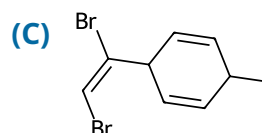
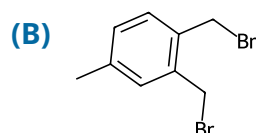
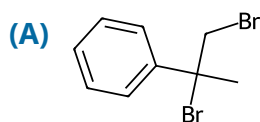
The product Y formed is:



Q39 Hydrocarbons: Alkenes & Alkynes

Step-by-step solution > [prepwiser.in/questions/fa68rfj2BL](https://www.prepwiser.in/questions/fa68rfj2BL)

The dibromo compound [P] (molecular formula: $\text{C}_9\text{H}_{10}\text{Br}_2$) when heated with excess sodamide followed by treatment with dilute HCl gives [Q]. On warming [Q] with mercuric sulphate and dilute sulphuric acid yield [R] which gives positive Iodoform test but negative Tollen's test. The compound [P] is:



Attempt this paper online with instant answer checking > [prepwiser.in/pyqs/paper/2026-01-22-evening](https://www.prepwiser.in/pyqs/paper/2026-01-22-evening)

Given below are two statements:

Statement I: Elements 'X' and 'Y' are the most and least electronegative elements, respectively among N, As, Sb and P. The nature of the oxides X_2O_3 and Y_2O_3 is acidic and amphoteric, respectively.

Statement II: BCl_3 is covalent in nature and gets hydrolysed in water. It produces $[B(OH)_4]^-$ and $[B(H_2O)_6]^{3+}$ in aqueous medium.

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

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

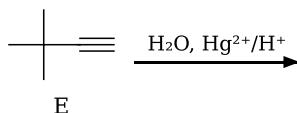
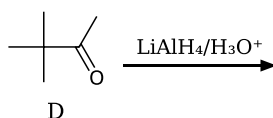
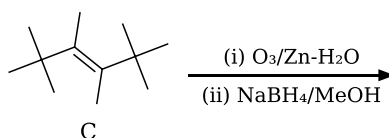
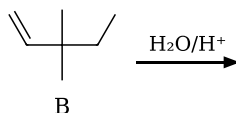
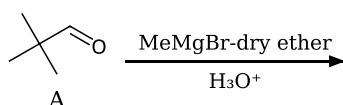
At T(K), 100g of 98% H_2SO_4 (w/w) aqueous solution is mixed with 100 g of 49% H_2SO_4 (w/w) aqueous solution. What is the mole fraction of H_2SO_4 in the resultant solution?

(Given : Atomic mass H = 1u; S = 32u; O = 16u).

(Assume that temperature after mixing remains constant)

- (A) 0.9 (B) 0.663 (C) 0.1 (D) 0.337

3, 3-Dimethyl-2-butanol cannot be prepared by:



Choose the correct answer from the options given below:

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

Among H_2S , H_2O , NF_3 , NH_3 and $CHCl_3$, identify the molecule (X) with lowest dipole moment value. The number of lone pairs of electrons present on the central atom of the molecule (X) is:

- (A) 3 (B) 2 (C) 0 (D) 1

Given below are two statements:

Statement I: $C < O < N < F$ is the correct order in terms of first ionization enthalpy values.

Statement II: $S > Se > Te > Po > O$ is the correct order in terms of the magnitude of electron gain enthalpy values.

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

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



36.0 g of 'A' (Molar mass: 60g mol^{-1}) and 56.0 g of 'B' (Molar mass: 80g mol^{-1}) are allowed to react. Which of the following statements are correct?

- A. 'A' is the limiting reagent.
B. 77.0g of AB_2 is formed.
C. Molar mass of AB_2 is 140g mol^{-1} .
D. 15.0g of A is left unreacted after the completion of reaction.

Choose the correct answer from the options given below:

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

Chemistry Section B · Numerical value

Q46 to Q50

Consider $A \xrightarrow{k_1} B$ and $C \xrightarrow{k_2} D$ are two reactions. If the rate constant (k_1) of the $A \longrightarrow B$ reaction can be expressed by the following equation $\log_{10} k = 14.34 - \frac{1.5 \times 10^4}{T/K}$ and activation energy of $C \longrightarrow D$ reaction (E_{a2}) is $\frac{1}{5}$ th of the $A \longrightarrow B$ reaction (E_{a1}), then the value of (E_{a2}) is _____ kJ mol^{-1} . (Nearest Integer)

Among the following oxides of 3d elements, the number of mixed oxides are _____.

Ti_2O_3 , V_2O_4 , Cr_2O_3 , Mn_3O_4 , Fe_3O_4 , Fe_2O_3 , Co_3O_4

Consider the following electrochemical cell:



The pH above which, oxygen gas would start to evolve at anode is _____ (nearest integer).

Given: $E_{M^{2+}/M}^\circ = 0.994V$
 $E_{O_2/H_2O}^\circ = 1.23V$ } standard reduction potential and $\frac{RT}{F}(2.303) = 0.059V$ at the given condition]

Attempt this paper online with instant answer checking > [prepwise.in/pyqs/paper/2026-01-22-evening](https://www.prepwise.in/pyqs/paper/2026-01-22-evening)

Q49 Chemical Thermodynamics **NUMERICAL**[Step-by-step solution](#) › prepwiser.in/questions/OsN5wvFWWz

If the enthalpy of sublimation of Li is 155kJmol^{-1} , enthalpy of dissociation of F_2 is 150kJmol^{-1} , ionization enthalpy of Li is 520kJmol^{-1} , electron gain enthalpy of F is -313kJmol^{-1} , standard enthalpy of formation of LiF is -594kJmol^{-1} . The magnitude of lattice enthalpy of LiF is ____ kJmol^{-1} . (Nearest Integer)

Q50 Mole Concept & Stoichiometry **NUMERICAL**[Step-by-step solution](#) › prepwiser.in/questions/ZtQtJhbB7e

The mass of benzanilide obtained from the benzylation reaction of 5.8 g of aniline, if yield of product is 82%, is ____ g (nearest integer).

(Given molar mass in gmol^{-1} H : 1, C : 12, N : 14, O : 16)

Mathematics Section A · Multiple choice

Q51 to Q69

Q51 Complex Numbers[Step-by-step solution](#) › prepwiser.in/questions/szUfR0bUN7

Let $S = \{z \in \mathbb{C} : 4z^2 + \bar{z} = 0\}$. Then $\sum_{z \in S} |z|^2$ is equal to:

- (A) $\frac{5}{64}$ (B) $\frac{1}{16}$ (C) $\frac{7}{64}$ (D) $\frac{3}{16}$

Q52 Ellipse[Step-by-step solution](#) › prepwiser.in/questions/1GvGPmHcac

Let S and S' be the foci of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$ and $P(\alpha, \beta)$ be a point on the ellipse in the first quadrant. If $(SP)^2 + (S'P)^2 - SP \cdot S'P = 37$, then $\alpha^2 + \beta^2$ is equal to:

- (A) 13 (B) 15 (C) 11 (D) 17

Q53 Determinants[Step-by-step solution](#) › prepwiser.in/questions/2N8gzUWnk1

Let n be the number obtained on rolling a fair die. If the probability that the system

$$\begin{aligned}x - ny + z &= 6 \\x + (n - 2)y + (n + 1)z &= 8 \\(n - 1)y + z &= 1\end{aligned}$$

has a unique solution is $\frac{k}{6}$, then the sum of k and all possible values of n is:

- (A) 22 (B) 20 (C) 24 (D) 21

Q54 Determinants[Step-by-step solution](#) › prepwiser.in/questions/KoaIIA4SO7

If $X = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$ is a solution of the system of equations $AX = B$, where $\text{adj}A = \begin{bmatrix} 4 & 2 & 2 \\ -5 & 0 & 5 \\ 1 & -2 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 4 \\ 0 \\ 2 \end{bmatrix}$, then $|x + y + z|$ is equal to:

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

Q55 Statistics[Step-by-step solution](#) › prepwiser.in/questions/BySDpqcpj

If the mean deviation about the median of the numbers $k, 2k, 3k, \dots, 1000k$ is 500, then k^2 is equal to:

- (A) 1 (B) 16 (C) 9 (D) 4

Q56 Vectors[Step-by-step solution](#) › prepwiser.in/questions/GSLUNzX70X

Let $\vec{a} = 2\hat{i} - \hat{j} + \hat{k}$ and $\vec{b} = \lambda\hat{j} + 2\hat{k}$, $\lambda \in \mathbf{Z}$ be two vectors. Let $\vec{c} = \vec{a} \times \vec{b}$ and $\vec{d}$ be a vector of magnitude 2 in yz -plane. If $|\vec{c}| = \sqrt{53}$, then the maximum possible value of $(\vec{c} \cdot \vec{d})^2$ is equal to:

- (A) 52 (B) 26 (C) 104 (D) 208

Q57 Area Under Curves[Step-by-step solution](#) › prepwiser.in/questions/DuBAq2Wcrr

The area of the region $A = \{(x, y) : 4x^2 + y^2 \leq 8 \text{ and } y^2 \leq 4x\}$ is:

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

Q58 Relations & Functions (Basic)[Step-by-step solution](#) › prepwiser.in/questions/U8qrueUbYR

Let $f(x) = [x]^2 - [x + 3] - 3$, $x \in \mathbf{R}$, where $[.]$ is the greatest integer function. Then

- (A) $f(x) = 0$ for finitely many values of x (B) $f(x) < 0$ only for $x \in [-1, 3]$
(C) $\int_0^2 f(x) dx = -6$ (D) $f(x) > 0$ only for $x \in [4, \infty)$

Q59 Functions (Advanced)[Step-by-step solution](#) › prepwiser.in/questions/_tBUOspPg

Let the domain of the function $f(x) = \log_3 \log_5 (7 - \log_2 (x^2 - 10x + 85)) + \sin^{-1} \left(\left| \frac{3x-7}{17-x} \right| \right)$ be $(\alpha, \beta]$. Then $\alpha + \beta$ is equal to:

- (A) 12 (B) 8 (C) 10 (D) 9

Q60 Functions (Advanced)[Step-by-step solution](#) › prepwiser.in/questions/83YgZ1jjMb

Let f and g be functions satisfying $f(x+y) = f(x)f(y)$, $f(1) = 7$ and $g(x+y) = g(xy)$, $g(1) = 1$, for all $x, y \in \mathbf{N}$. If $\sum_{x=1}^n \left(\frac{f(x)}{g(x)} \right) = 19607$, then n is equal to:

- (A) 6 (B) 7 (C) 4 (D) 5

Q61 Parabola[Step-by-step solution](#) › prepwiser.in/questions/NDIPao67ss

Let the locus of the mid-point of the chord through the origin O of the parabola $y^2 = 4x$ be the curve S . Let P be any point on S . Then the locus of the point, which internally divides OP in the ratio 3 : 1, is:

- (A) $2x^2 = 3y$ (B) $2y^2 = 3x$ (C) $3y^2 = 2x$ (D) $3x^2 = 2y$

Q62 Quadratic Equations & Polynomial Inequalities[Step-by-step solution](#) › prepwiser.in/questions/vv2KUWyFgi

Let α, β be the roots of the quadratic equation $12x^2 - 20x + 3\lambda = 0$, $\lambda \in \mathbf{Z}$. If $\frac{1}{2} \leq |\beta - \alpha| \leq \frac{3}{2}$, then the sum of all possible values of λ is:

- (A) 3 (B) 6 (C) 1 (D) 4

Q63 Straight Lines[Step-by-step solution](#) › prepwiser.in/questions/jN4stdoGSZ

Among the statements

(S1): If $A(5, -1)$ and $B(-2, 3)$ are two vertices of a triangle, whose orthocentre is $(0, 0)$, then its third vertex is $(-4, -7)$

and

(S2): If positive numbers $2a, b, c$ are three consecutive terms of an A.P., then the lines $ax + by + c = 0$ are concurrent at $(2, -2)$,

- (A) both are incorrect (B) only (S2) is correct (C) both are correct (D) only (S1) is correct

Q64 Binomial Theorem[Step-by-step solution](#) › [prepwiser.in/questions/_zoJSY8e-](#)

Let C_r denote the coefficient of x^r in the binomial expansion of $(1+x)^n$, $n \in \mathbb{N}$, $0 \leq r \leq n$. If $P_n = C_0 - C_1 + \frac{2^2}{3}C_2 - \frac{2^3}{4}C_3 + \dots + \frac{(-2)^n}{n+1}C_n$, then the value of $\sum_{n=1}^{25} \frac{1}{P_{2n}}$ equals.

- (A) 675 (B) 580 (C) 525 (D) 650

Q65 Limits[Step-by-step solution](#) › [prepwiser.in/questions/YAK06OPz-](#)

If $\lim_{x \rightarrow 0} \frac{e^{(a-1)x} + 2 \cos bx + (c-2)e^{-x}}{x \cos x - \log_e(1+x)} = 2$, then $a^2 + b^2 + c^2$ is equal to:

- (A) 3 (B) 5 (C) 9 (D) 7

Q66 Continuity & Differentiability[Step-by-step solution](#) › [prepwiser.in/questions/oB04q72oYT](#)

Let $[\cdot]$ denote the greatest integer function, and let $f(x) = \min\{\sqrt{2}x, x^2\}$.

Let $S = \{x \in (-2, 2) : \text{the function } g(x) = |x| [x^2] \text{ is discontinuous at } x\}$.

Then $\sum_{x \in S} f(x)$ equals

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

Q67 Three Dimensional Geometry[Step-by-step solution](#) › [prepwiser.in/questions/6YpVitSPm6](#)

Let L be the line $\frac{x+1}{2} = \frac{y+1}{3} = \frac{z+3}{6}$ and let S be the set of all points (a, b, c) on L , whose distance from the line $\frac{x+1}{2} = \frac{y+1}{3} = \frac{z-9}{0}$ along the line L is 7. Then $\sum_{(a,b,c) \in S} (a+b+c)$ is equal to:

- (A) 28 (B) 6 (C) 40 (D) 34

Q68 Hyperbola[Step-by-step solution](#) › [prepwiser.in/questions/vz_Ce5drG5](#)

Let $P(10, 2\sqrt{15})$ be a point on the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$, whose foci are S and S' . If the length of its latus rectum is 8, then the square of the area of $\Delta PSS'$ is equal to:

- (A) 4200 (B) 1462 (C) 900 (D) 2700

Q69 Relations & Functions (Basic)[Step-by-step solution](#) › [prepwiser.in/questions/sdj7L8R-my](#)

The number of elements in the relation $R = \{(x, y) : 4x^2 + y^2 < 52, x, y \in \mathbb{Z}\}$ is

- (A) 86 (B) 67 (C) 89 (D) 77

Mathematics Section B · Numerical value

Q70 to Q74

Q70 Vectors **NUMERICAL**[Step-by-step solution](#) › [prepwiser.in/questions/x9xTemPKhI](#)

Let a vector $\vec{a} = \sqrt{2}\hat{i} - \hat{j} + \lambda\hat{k}$, $\lambda > 0$, make an obtuse angle with the vector $\vec{b} = -\lambda^2\hat{i} + 4\sqrt{2}\hat{j} + 4\sqrt{2}\hat{k}$ and an angle θ , $\frac{\pi}{6} < \theta < \frac{\pi}{2}$, with the positive z -axis. If the set of all possible values of λ is $(\alpha, \beta) - \{\gamma\}$, then $\alpha + \beta + \gamma$ is equal to ____.

Q71 Definite Integration **NUMERICAL**[Step-by-step solution](#) › [prepwiser.in/questions/FRZzc3uuPE](#)

Let $[.]$ be the greatest integer function. If $\alpha = \int_0^{64} (x^{1/3} - [x^{1/3}]) dx$, then $\frac{1}{\pi} \int_0^{\alpha\pi} \left(\frac{\sin^2 \theta}{\sin^6 \theta + \cos^6 \theta} \right) d\theta$ is equal to ____.

Q72 Sequences & Series **NUMERICAL**[Step-by-step solution](#) › [prepwiser.in/questions/fbjHJ91TTP](#)

Suppose a, b, c are in A.P. and $a^2, 2b^2, c^2$ are in G.P. If $a < b < c$ and $a + b + c = 1$, then $9(a^2 + b^2 + c^2)$ is equal to ____.

Let S be the set of the first 11 natural numbers. Then the number of elements in $A = \{B \subseteq S : n(B) \geq 2 \text{ and the product of all elements of } B \text{ is even}\}$ is ____.

Let $\cos(\alpha + \beta) = -\frac{1}{10}$ and $\sin(\alpha - \beta) = \frac{3}{8}$, where $0 < \alpha < \frac{\pi}{3}$ and $0 < \beta < \frac{\pi}{4}$. If $\tan 2\alpha = \frac{3(1-r\sqrt{5})}{\sqrt{11}(s+\sqrt{5})}$, $r, s \in N$, then $r + s$ is equal to ____.

Answer key: JEE Main 2026 · 22 Jan · Shift 2

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

Numbers match the question numbers above. For full working, open the solution link at the top right of each question.

Attempt this paper online with instant answer checking › prepwiser.in/pyqs/paper/2026-01-22-evening

Physics

1. A	2. C	3. A	4. C	5. C	6. C	7. A	8. A
9. D	10. A	11. B	12. D	13. B	14. A	15. C	16. C
17. D	18. C	19. C	20. B	21. 2	22. 1	23. 7	24. 4
25. 14							

Chemistry

26. D	27. B	28. B	29. B	30. C	31. C	32. A	33. D
34. C	35. D	36. D	37. A	38. A	39. D	40. B	41. D
42. A	43. D	44. D	45. D	46. 57	47. 3	48. 4	49. 1031
50. 10							

Mathematics

51. D	52. A	53. A	54. B	55. D	56. D	57. A	58. B
59. D	60. D	61. B	62. A	63. C	64. A	65. D	66. C
67. D	68. D	69. D	70. 5	71. 36	72. 9	73. 1979	74. 20

PrepWiser is an independent practice platform and is not affiliated with the National Testing Agency (NTA). Questions are from official JEE Main papers; answers follow NTA's final answer keys.



Attempt this paper online

Done with the paper version? Take the same paper online: check each answer instantly and read step-by-step solutions where available. It is free, and you can start without signing up.



- 1 Scan the code to open this paper online, or go to prepwisser.in/pyqs/paper/2026-01-22-evening.
- 2 Mark the questions you got wrong. Each one names its chapter at the top left.
- 3 Practise those chapters next with the free chapter-wise PYQ PDFs at prepwisser.in/pyq-pdfs.

Also free on PrepWiser

All JEE Main 2026 papers

Every shift of 2026 as a PDF, and the year's questions chapter-wise: prepwisser.in/pyq-pdfs/jee-main/2026/

Chapter-wise PYQ PDFs

Every chapter with answer keys, 2020 to 2026: prepwisser.in/pyq-pdfs/

Daily Arena

10 questions from one chapter, every day: prepwisser.in/arena

Spotted a mistake in this PDF? Tell us at prepwisser.in/feedback.