

JEE MAIN 2026 · QUESTION PAPER

5 Apr 2026 **Shift 1**

73 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	4 Q46 to Q49
● Mathematics	20 Q50 to Q69	4 Q70 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.

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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 Alternating Current

[Step-by-step solution](#) › [prepwisar.in/questions/zuS2pDerLq](https://www.prepwisar.in/questions/zuS2pDerLq)

An a.c. source of angular frequency ω is connected across a resistor R and a capacitor C in series. The current is observed as I . Now the frequency of the source is changed to $\omega/4$, (keeping the voltage unchanged) the current is found to be $I/3$. The ratio of resistance to reactance at frequency ω is

- (A) $\sqrt{\frac{6}{7}}$ (B) $\sqrt{\frac{3}{5}}$ (C) $\sqrt{\frac{7}{8}}$ (D) $\sqrt{\frac{3}{4}}$

Q2 Electromagnetic Waves

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

A displacement current of 4.0 A can be set up in the space between two parallel plates of $6\mu\text{F}$ capacitor. The rate of change of potential difference across the plates of the capacitor is nearly $\alpha \times 10^6 \text{V/s}$. The value of α is ____.

- (A) 0.58 (B) 0.67 (C) 0.82 (D) 0.75

Q3 Gravitation

[Step-by-step solution](#) › [prepwisar.in/questions/dp3-UFgmTy](https://www.prepwisar.in/questions/dp3-UFgmTy)

When one moves from a point 16 km below the earth's surface to a point 16 km above the earth's surface. The change in g is approximately $\alpha\%$. The value of α is ____.

(Take radius of the earth = 6400km.)

- (A) 0.12 (B) 0.25 (C) 0.50 (D) 0.75

Q4 Wave Optics

[Step-by-step solution](#) › [prepwisar.in/questions/F3dlGjVxsd](https://www.prepwisar.in/questions/F3dlGjVxsd)

In Young's double slit experiment, the fringe width of the interference pattern produced on the screen is $2.4\mu\text{m}$. If the experiment is carried out in another medium having refractive index 1.2, the fringe width will be ____ μm .

- (A) 1.2 (B) 2 (C) 2.4 (D) 2.88

Q5 Atomic Physics

[Step-by-step solution](#) › [prepwisar.in/questions/NKo4jQXnII](https://www.prepwisar.in/questions/NKo4jQXnII)

In the hydrogen atom, the electron makes a transition from the higher orbit (i) to a lower orbit (f). The ratio of the radius of the orbits is given by $r_i : r_f = 16 : 4$. The wavelength of photon emitted due to this transition is ____ nm.

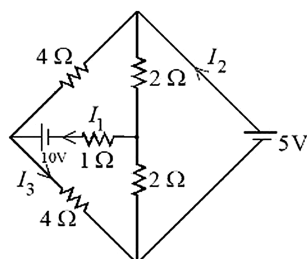
(Given Rydberg constant = $1.0973 \times 10^7/\text{m}$)

- (A) 121 (B) 242 (C) 486 (D) 974

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Q6 Current Electricity[Step-by-step solution > prepwiser.in/questions/QvVBQCNGPk](https://www.prepwiser.in/questions/QvVBQCNGPk)

Refer to the figure given below. The values of I_1 , I_2 and I_3 are ____.



(A) $I_1 = 2.5\text{A}, I_2 = 1.875\text{A}, I_3 = 1.875\text{A}$

(B) $I_1 = 1.875\text{A}, I_2 = 2.5\text{A}, I_3 = 1.875\text{A}$

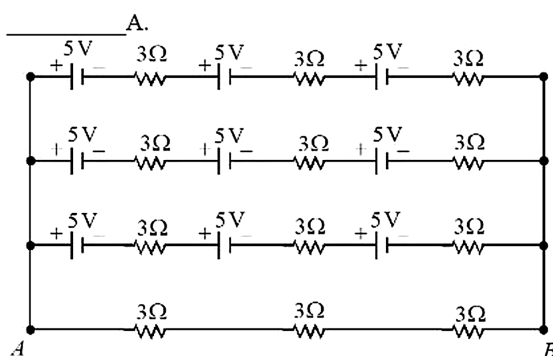
(C) $I_1 = 1.875\text{A}, I_2 = 1.875\text{A}, I_3 = 2.5\text{A}$

(D) $I_1 = 2.5\text{A}, I_2 = 2.5\text{A}, I_3 = 1.875\text{A}$

Q7 Current Electricity[Step-by-step solution > prepwiser.in/questions/rNTmqEI9Cg](https://www.prepwiser.in/questions/rNTmqEI9Cg)

Refer to the figure given below, current between terminals A and B is

____ A.



(A) 12.5

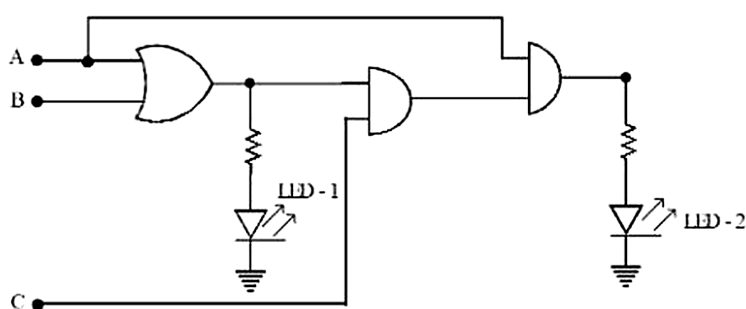
(B) 1.25

(C) 7.5

(D) 5

Q8 Semiconductors & Electronic Devices[Step-by-step solution > prepwiser.in/questions/8HND8FN3sw](https://www.prepwiser.in/questions/8HND8FN3sw)

For the given logic circuit, which of the following inputs combination will make both LED-1 and LED-2 to glow?



(A) $A = 0, B = 1, C = 1$

(B) $A = 1, B = 0, C = 0$

(C) $A = 1, B = 0, C = 1$

(D) $A = 1, B = 1, C = 0$

Given below are two statements: one is labelled as Assertion **A** and the other is labelled as Reason **R**

Statement I: Change in internal energy of a system containing n mole of ideal gas can be written as $\Delta U = nC_v(T_f - T_i) = \frac{nR}{\gamma-1}(T_f - T_i)$, where $\gamma = \frac{C_p}{C_v}$, T_i = initial temperature, T_f = final temperature.

Statement II: Relation between degree of freedom f and $\gamma (= C_p/C_v)$ is $\left(\gamma = 1 + \frac{2}{f}\right)$

Choose the correct answer from the options given below

- (A) Both **A** and **R** are true and **R** is the correct explanation of **A**
 (B) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
 (C) **A** is true but **R** is false
 (D) **A** is false but **R** is true

Consider the following statements:

- A. Zeroth law of thermodynamics gives concept of temperature
 B. First law of thermodynamics gives concept of internal energy
 C. In isothermal expansion of ideal gas, $\Delta Q \neq \Delta W$
 D. Product of intensive and extensive variables is extensive
 E. The ratio of any extensive variable to mass will be an extensive variable

Choose the correct combination of statements from the options given below:

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

An electron of mass m is moving in an electric field $\vec{E} = -2E_0\hat{i}$ ($E_0 = \text{constant} > 0$), with an initial velocity $\vec{V} = v_0\hat{i}$ ($v_0 = \text{constant} > 0$). If $\lambda_0 = \frac{h}{4mv_0}$, its de Broglie wavelength at time t is

_____.

(e = charge of electron)

- (A) $\frac{4\lambda_0}{\left[1 - \frac{E_0 e}{2m} \frac{t}{v_0}\right]}$ (B) $\frac{4\lambda_0}{\left[1 + \frac{E_0 e}{2m} \frac{t}{v_0}\right]}$ (C) $\frac{4\lambda_0}{\left[1 + \frac{2E_0 e}{m} \frac{t}{v_0}\right]}$ (D) $\frac{4\lambda_0}{\left[1 - \frac{2E_0 e}{m} \frac{t}{v_0}\right]}$

Light source having wavelength 331 nm is used to generate photo-electrons whose stopping potential is 0.2 V. The work function of the used metal in the experiment is $\alpha \times 10^{-19}$ J. The value of α is _____.

($h = 6.62 \times 10^{-34}$ Js, $e = 1.6 \times 10^{-19}$ C and $c = 3 \times 10^8$ m/s)

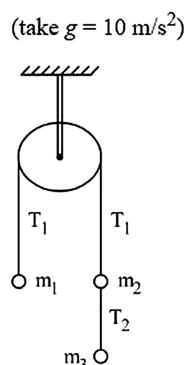
- (A) 3.68 (B) 4.68 (C) 5.68 (D) 2.68

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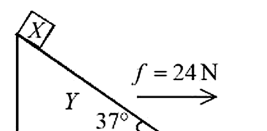
Q13 Newton's Laws of Motion[Step-by-step solution](https://www.prepwisar.in/questions/XoUjVrx7g7)

Three masses $m_1 = 4\text{kg}$, $m_2 = 4\text{kg}$ and $m_3 = 6\text{kg}$ are suspended from a fixed smooth frictionless pulley as shown in the figure below. The value of T_1/T_2 is

(take $g = 10\text{m/s}^2$)

**(A)** 5/3**(B)** 2/3**(C)** 3/5**(D)** 2/5**Q14** Newton's Laws of Motion[Step-by-step solution](https://www.prepwisar.in/questions/aXJe5912H)

A wedge Y with mass of 10 kg and all frictionless surfaces and the inclined surface making 37° with horizontal. A block X with mass 2 kg is placed at the highest point of the wedge as shown in figure is at rest. At $t = 0$ wedge (Y) is pulled toward right with constant force (f) of 24 N . Taking the block X at rest at $t = 0$, the time taken by it to slide down 8.8 m on the slope, while Y is on the move, is ____ s.



(take $\tan(37^\circ) = 3/4$ and $g = 10\text{m/s}^2$)

(A) 2**(B)** 4**(C)** $\sqrt{2}$ **(D)** $2\sqrt{2}$ **Q15** Experimental Skills[Step-by-step solution](https://www.prepwisar.in/questions/o_ZDm_-w_Z)

In a Vernier calipers, when both jaws touch each other, zero of the Vernier scale is shifted to the right of zero of the main scale and 7^{th} Vernier division coincides with a main scale reading. If the value of 1 main scale division is 1 mm and there are 10 Vernier scale divisions, then the Vernier caliper has

(A) 0.07 cm negative zero error**(B)** 0.7 cm negative zero error**(C)** 0.07 cm positive zero error**(D)** 0.7 cm positive zero error**Q16** Units, Dimensions & Errors[Step-by-step solution](https://www.prepwisar.in/questions/Jd5DF9NtpK)

L , C and R represents physical quantities inductance, capacitance and resistance respectively. The dimensional formula $\text{ML}^2\text{T}^{-4}\text{A}^{-2}$ corresponds to ____.

(A) $\frac{R}{\sqrt{LC}}$ **(B)** $\frac{R}{LC}$ **(C)** $\frac{C}{\sqrt{LR}}$ **(D)** $\frac{1}{R}\sqrt{\frac{L}{C}}$ **Q17** Ray Optics[Step-by-step solution](https://www.prepwisar.in/questions/qysyfrUciG)

A ray of light passing through an equilateral prism is having velocity $2.12 \times 10^8\text{m/s}$ in the prism material, then the minimum angle of deviation is ____ degrees.

(A) 45**(B)** 30**(C)** 28**(D)** 58

Q18 Ray Optics[Step-by-step solution](#) › prepwiser.in/questions/8VaIAC9vTk

A compound microscope is designed with two symmetric biconvex lenses. The objective lens is cut vertically, creating two identical plano-convex lenses. One of them is used in place of original objective lens. To retain same magnification keeping the object distance unchanged, the tube length has to be

- (A) increased two times (B) increased $\frac{3}{2}$ times
(C) decreased two times (D) decreased $\frac{3}{2}$ times

Q19 Elasticity[Step-by-step solution](#) › prepwiser.in/questions/WswW3NFimN

The Young's modulus of steel wire of radius r and length L is Y .

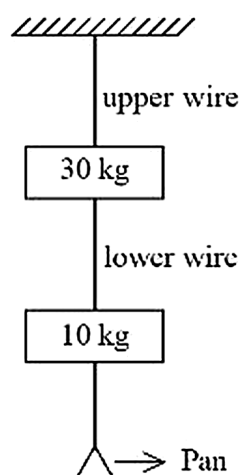
If the radius r and length L of the wire are doubled then the value of Y

- (A) increases by two times (B) reduces by half
(C) remains unchanged (D) becomes one fourth

Q20 Elasticity[Step-by-step solution](#) › prepwiser.in/questions/92i_nujOMb

Two wires as shown in the figure below, made of steel and have breaking stress of $12 \times 10^8 \text{ N/m}^2$. Area of cross-section of upper wire is 0.008 cm^2 and of lower wire is 0.004 cm^2 . The maximum mass that can be added to pan without breaking any wire is ____ kg.

(take $g = 10 \text{ m/s}^2$)



- (A) 56 (B) 38 (C) 96 (D) 5.6

Physics Section B · Numerical value

Q21 to Q25

Q21 Moving Charges & Magnetism**NUMERICAL**[Step-by-step solution](#) › prepwiser.in/questions/D3VvB_lmoH

The charged particle moving in a uniform magnetic field of $(3\hat{i} + 2\hat{j})\text{T}$ has an acceleration $(4\hat{i} - \frac{x}{2}\hat{j})\text{ m/s}^2$. The value of x is

Q22 Mechanical Waves**NUMERICAL**[Step-by-step solution](#) › prepwiser.in/questions/8PSUgsp_v_

A transverse wave on a string is described by $y = 3 \sin(36t + 0.018x + \pi/4)$, where x, y are in cm and t in seconds. The least distance between the two successive crests in the wave is ____ cm. (Nearest integer)

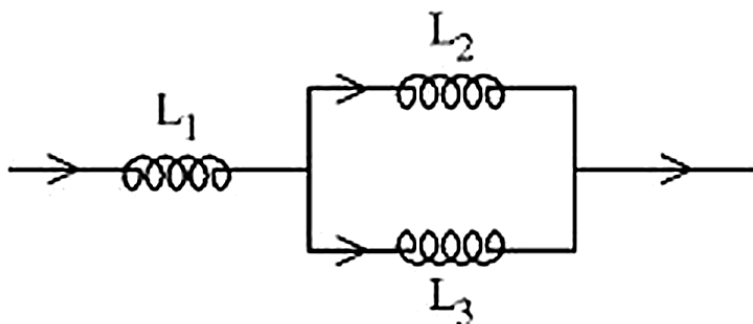
($\pi = 3.14$)

From 18 m height above the ground a ball is dropped from rest. The height above the ground at which the magnitude of velocity equal to the magnitude of acceleration (in the same set of units) due to gravity is ____ m.

(Take $g = 10\text{ m/s}^2$ and neglect the air resistance)

In the given circuit below inductance values of L_1 , L_2 and L_3 are same. The magnetic energy stored in the entire circuit is (U_t) and that stored in the L_2 inductor is (U_l). U_t/U_l is ____.

(Ignore the mutual inductance if any)



A cube has side length 5 cm and modulus of rigidity 10^5 N/m^2 . The displacement produced by a force of 10 N in the upper face of cube is ____ mm.

Chemistry Section A · Multiple choice

Q26 to Q45

The correct statements about metal carbonyls are

- A. The metal-carbon bonds in metal carbonyls possess both σ and π character.
- B. Due to synergic bonding interactions between metal and CO ligand, the metal-carbon bond becomes weak.
- C. The metal-carbon σ bond is formed by the donation of lone pair of electrons on the carbonyl carbon into a vacant orbital of metal.
- D. The metal-carbon π bond is formed by the donation of electrons from filled d-orbital of metal into vacant π^* orbital of CO.

Choose the correct answer from the options given below:

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

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Given below are two statements:

Statement I: Each electron in e_g orbitals destabilizes the orbitals by $+0.6\Delta_o$ and each electron in the t_{2g} orbitals stabilizes the orbitals by $-0.4\Delta_o$ in an octahedral field on the basis of crystal field theory.

Statement II: All the d - orbitals of the transition metals have the same energy in their free atomic state but when a complex is formed the ligands destroy the degeneracy of these orbitals on the basis of crystal field theory.

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

M_3A_2 is a sparingly soluble salt of molar mass $y\text{gmol}^{-1}$ and solubility $x\text{gL}^{-1}$. The ratio of the molar concentration of the anion (A^{3-}) to the solubility product of the salt is

- (A) $\frac{1}{54} \cdot \frac{y^4}{x^4}$ (B) $\frac{y^5}{108x^4}$ (C) $108 \cdot \frac{x^5}{y^5}$ (D) $\frac{1}{108} \frac{y^4}{x^4}$

Arrange the following resultant mixtures in increasing order of their pH values

A. $10\text{mL}0.2\text{M}\text{Ca}(\text{OH})_2 + 25\text{mL}0.1\text{M}\text{HCl}$

B. $10\text{mL}0.01\text{M}\text{H}_2\text{SO}_4 + 10\text{mL}0.01\text{M}\text{Ca}(\text{OH})_2$

C. $10\text{mL}0.1\text{M}\text{H}_2\text{SO}_4 + 10\text{mL}0.1\text{M}\text{KOH}$

Choose the correct answer from the options given below:

- (A) $B < C < A$ (B) $C < A < B$ (C) $C < B < A$ (D) $A < C < B$

Given below are two statements:

Statement I: Sodium dichromate and potassium dichromate are classified as primary standards in titrimetric analysis.

Statement II: Phenolphthalein is a weak base, therefore it dissociates in acidic medium.

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

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Arrange the following atomic orbitals of multi electron atoms in order of increasing energy.

- A. $n = 3, l = 2, m = +1$
 B. $n = 4, l = 0, m = 0$
 C. $n = 6, l = 1, m = 0$
 D. $n = 5, l = 1, m = +1$
 E. $n = 2, l = 1, m = +1$

Choose the correct answer from the options given below:

- (A) $C < D < B < A < E$ (B) $B < A < E < C < D$
 (C) $E < C < D < B < A$ (D) $E < B < A < D < C$

Identify the correct statements from the following:

- A. Heisenberg uncertainty principle is applicable to electrons.
 B. The size of $2p_x$ orbital is less than the size of $3p_x$ orbital.
 C. The energy of 2 s orbital of H atom is equal to the energy of 2 s orbital of Li.
 D. The electronic configuration of Cr is $[\text{Ar}]3d^5 4s^1$

Choose the correct answer from the options given below:

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

Given below are two statements:

Statement I: On the basis of inductive effect, the order of stability of alkyl carbanions is $\text{CH}_3^- > \text{CH}_3 - \text{CH}_2^- > (\text{CH}_3)_2\text{CH}^- > (\text{CH}_3)_3\text{C}^-$.

Statement II: Allyl and benzyl carbanions are more stabilised by inductive effect and not by resonance effect.

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

First order gas phase reaction



p_i = initial pressure of gas A, p_t = total pressure of the reaction mixture at time t

Expression of rate constant (k) is

- (A) $\frac{1}{t} \ln \frac{p_i}{2p_i - p_t}$ (B) $\frac{1}{t} \ln \frac{2p_i}{p_i - p_t}$ (C) $\frac{1}{t} \ln \frac{p_i}{3p_i - 2p_t}$ (D) $\frac{1}{t} \ln \frac{3p_i}{4p_i - p_t}$

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Which of the following is NOT a physical or chemical characteristics of interstitial compounds?

- (A) They have high melting points, higher than those of pure metals.
- (B) They are very soft and ionic in nature.
- (C) They retain metallic conductivity.
- (D) They are chemically inert and usually non-stoichiometric.

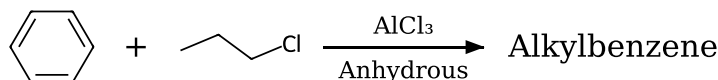
Identify the correct statements.

- A. Glucose exists in two anomeric forms.
- B. Anomers of glucose differ in configuration at C – 1 in cyclic hemiacetal structure.
- C. Melting point of α - anomer of glucose is greater than β - anomer.
- D. Specific rotation of α - anomer is $+19^\circ$ while for β - anomer is $+112^\circ$
- E. α and β - anomers of glucose are prepared by crystallization of saturated glucose solution at 303 K and 371 K respectively.

Choose the correct answer from the options given below:

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

For the following Friedel Craft's alkylation reaction, which of the statements are correct?



- A. Major product is n-propyl benzene.
- B. iso-propyl carbocation intermediate is also generated.
- C. Multiple substitution is inevitable.
- D. Introducing electron-donating substituent on benzene will not produce any alkyl benzene.

Choose the correct answer from the options given below:

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

Correct statements from the following are:

- A. Nitrogen in oxidation states from +1 to +4 disproportionates in acid medium.
- B. Nitrogen has the ability to form $d\pi - p\pi$ multiple bonds with itself and other elements with small size and high electronegativity.
- C. N-N single bond is stronger than P-P single bond.
- D. Nitrogen has highest density in its group due to small size.
- E. The maximum covalency of nitrogen is four since it has only four valence orbitals for bonding.

Choose the correct answer from the options given below:

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

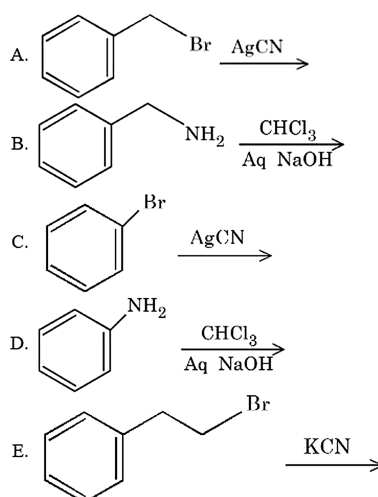
Consider compounds A, B and C with following structural formulae



For the conversion of B from A, reagent (D) required is ____ and structural formula of product (E) obtained when C undergoes same reaction using excess reagent (D) is ____.

- (A) $\xrightarrow{\text{D}}$ Conc. H_2SO_4 $\xrightarrow{\text{E}}$ $\text{CH}_2 = \text{CH} - \text{CH}(\text{OH})\text{CH}_3$
- (B) $\xrightarrow{\text{D}}$ PCC $\xrightarrow{\text{E}}$ $\text{HO} - \text{CH}_2 - \text{CH}_2 - \text{CH} = \text{CH}_2$
- (C) $\xrightarrow{\text{D}}$ PCC $\xrightarrow{\text{E}}$ $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$
- (D) $\xrightarrow{\text{D}}$ Conc. H_2SO_4 or H_3PO_4 $\xrightarrow{\text{E}}$ $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$

Benzyl isocyanide can be obtained from

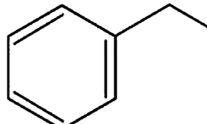
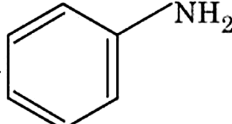
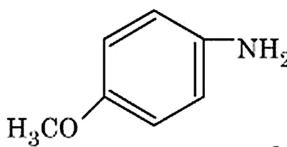
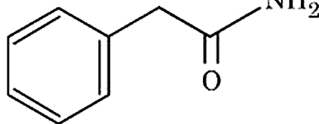
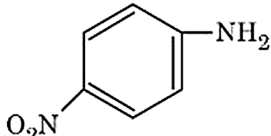


Choose the correct answer from the options given below:

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

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Identify the incorrect statements.

- A.  is a stronger base than 
- B.  can be synthesized by Gabriel phthalimide synthesis.
- C.  $\xrightarrow{\text{Br}_2, \text{NaOH}}$ primary aromatic amine
- D.  $\xrightarrow[\text{(ii) } \Delta]{\text{(i) NaNO}_2, \text{HCl}, 0^\circ\text{C}}$ product will dissolve in NaOH

Choose the correct answer from the options given below:

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

Given below are two statements:

Statement I: The correct order of electronegativity of fluorine, oxygen and nitrogen is $F > O > N$.

Statement II: The oxidation state of oxygen in OF_2 is +2 and in Na_2O is -2.

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

How many grams of residue is obtained by heating 2.76 g of silver carbonate?

(Given : Molar mass of C, O and Ag are 12, 16 and 108g mol^{-1} respectively)

- (A) 1.08g (B) 2.16g (C) 3.24g (D) 4.32g

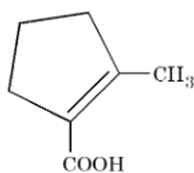
What is the mole fraction of water in 10% by weight (w/w) of aqueous urea solution?

[Given: Molar mass of H, O, C and N are 1, 16, 12 and 14g mol^{-1} respectively.]

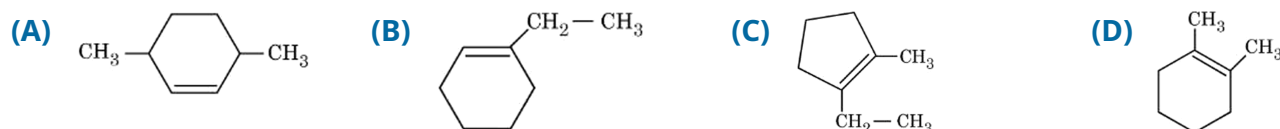
- (A) 0.825 (B) 0.032 (C) 0.867 (D) 0.967

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"P" is a hydrocarbon of molecular formula: C_8H_{14} . On ozonolysis, "P" forms "Q". "Q" on treatment with alkali under reflux condition produces "R", which on treatment with $I_2/NaOH$ gives a yellow precipitate. Acidification of the solution gives "S". The structure of "S" is given below:-



The correct structure of "P" is



Chemistry Section B · Numerical value

Q46 to Q49

Q46 Chemical Equilibrium NUMERICAL

[Step-by-step solution](https://www.prepwiser.in/questions/O5U3emL8yK) > prepwiser.in/questions/O5U3emL8yK

The values of pressure equilibrium constant recorded at different temperatures for the following equilibrium reaction have been given below $A(g) \rightleftharpoons B(g) + C(g)$

$\frac{1}{T} (K^{-1})$	$\log_{10} K_p$
0.05	3.5
0.06	2.5
0.07	1.5

The magnitude of $\frac{\Delta H^\circ}{R}$ calculated from the above data is _____. (Nearest integer)

Q47 Chemical Kinetics NUMERICAL

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

If the half life of a first order reaction is 6.93 minutes then the time required for completion of 99% of the reaction will be _____ minutes.

(Given : $\log 2 = 0.3010$)

Q48 Alcohols, Phenols & Ethers NUMERICAL

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

One mole of phenol is treated with dilute HNO_3 at 298 K to give a mixture of products. The mixture is separated by steam distillation. The steam volatile compound (X) is separated. The increase in percentage of oxygen in (X) with respect to phenol is _____ $\times 10^{-1}\%$

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

Q49 Chemical Bonding & Molecular Structure NUMERICAL

[Step-by-step solution](https://www.prepwiser.in/questions/7sxQGOjOAx) > prepwiser.in/questions/7sxQGOjOAx

Consider the following species:



Number of species having sp^3d hybridized central atom is _____.

Q50 Applications of Derivatives

[Step-by-step solution](#) › [prepwisar.in/questions/N2mZGDIeAY](https://www.prepwisar.in/questions/N2mZGDIeAY)

Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be a differentiable function such that $f\left(\frac{x+y}{3}\right) = \frac{f(x)+f(y)}{3}$ for all $x, y \in \mathbb{R}$, and $f'(0) = 3$. Then the minimum value of the function $g(x) = 3 + e^x f(x)$, is:

- (A) $3\left(\frac{e+1}{e}\right)$ (B) $3\left(\frac{e-1}{e}\right)$ (C) $\frac{3-e}{e}$ (D) $3e$

Q51 Complex Numbers

[Step-by-step solution](#) › [prepwisar.in/questions/EdvqLLQi-h](https://www.prepwisar.in/questions/EdvqLLQi-h)

Let $a, b \in \mathbb{C}$. Let α, β be the roots of the equation $x^2 + ax + b = 0$. If $\beta - \alpha = \sqrt{11}$ and $\beta^2 - \alpha^2 = 3i\sqrt{11}$, then $(\beta^3 - \alpha^3)^2$ is equal to:

- (A) 160 (B) 176 (C) 194 (D) 187

Q52 Ellipse

[Step-by-step solution](#) › [prepwisar.in/questions/njIy4dZdrG](https://www.prepwisar.in/questions/njIy4dZdrG)

Let a focus of the ellipse $E : \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ be $S(4, 0)$ and its eccentricity be $\frac{4}{5}$. If the point $P(3, \alpha)$ lies on E and O is the origin, then the area of $\triangle POS$ is equal to:

- (A) $12/5$ (B) $14/5$ (C) $24/5$ (D) $48/5$

Q53 Matrices

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

Let A be a 3×3 matrix such that

$$A^T \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 5 \\ 2 \\ 2 \end{bmatrix}, A^T \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 3 \\ 1 \\ 1 \end{bmatrix}, A \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 3 \\ 4 \\ 4 \end{bmatrix} \text{ and } A \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 1 \\ 3 \\ 1 \end{bmatrix}.$$

If $\det(A) = 1$, then $\det(\text{adj}(A^2 + A))$ is equal to:

- (A) 16 (B) 25 (C) 49 (D) 64

Q54 Determinants

[Step-by-step solution](#) › [prepwisar.in/questions/RSSXDDw6VT](https://www.prepwisar.in/questions/RSSXDDw6VT)

Consider the system of linear equations in x, y, z :

$$\begin{aligned} x + 2y + tz &= 0 \\ 6x + y + 5tz &= 0 \\ 3x + t^2y + f(t)z &= 0 \end{aligned}$$

where $f : \mathbb{R} \rightarrow \mathbb{R}$ is a differentiable function. If this system has infinitely many solutions for all $t \in \mathbb{R}$, then f

- (A) is a constant function (B) is strictly increasing on $\mathbb{R}$
(C) is strictly decreasing on $\mathbb{R}$ (D) has two critical points

Q55 Statistics

[Step-by-step solution](#) › [prepwisar.in/questions/u7yxQw-a1E](https://www.prepwisar.in/questions/u7yxQw-a1E)

The mean deviation about the mean for the data

x_i	5	7	9	10	12	15
f_i	8	6	2	2	2	6

is equal to:

- (A) $\frac{40}{13}$ (B) $\frac{42}{13}$ (C) $\frac{44}{13}$ (D) $\frac{46}{13}$

Q56 Vectors[Step-by-step solution](#) › prepwiser.in/questions/PNhOMTj4Io

Let $\vec{a} = \sqrt{7}\hat{i} + \hat{j} - \hat{k}$ and $\vec{b} = \hat{j} + 2\hat{k}$. If $\vec{r}$ is a vector such that $\vec{r} \times \vec{a} + \vec{a} \times \vec{b} = \vec{0}$ and $\vec{r} \cdot \vec{a} = 0$, then $|\vec{r}|^2$ is equal to:

- (A) 44 (B) 54 (C) 86 (D) 132

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

The area of the region $R = \{(x, y) : xy \leq 27, 1 \leq y \leq x^2\}$ is equal to:

- (A) $78 \log_e 3 - \frac{52}{3}$ (B) $54 \log_e 3 - \frac{52}{3}$ (C) $54 \log_e 3 - \frac{26}{3}$ (D) $54 \log_e 3 + \frac{26}{3}$

Q58 Definite Integration[Step-by-step solution](#) › prepwiser.in/questions/VpFGwevjHH

The value of the integral $\int_0^\infty \frac{\log_e(x)}{x^2+4} dx$ is:

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

Q59 Definite Integration[Step-by-step solution](#) › prepwiser.in/questions/ns5pdQU0pn

The value of the integral $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \left(\frac{4 - \operatorname{cosec}^2 x}{\cos^4 x} \right) dx$ is:

- (A) $\frac{11}{\sqrt{3}}$ (B) $\frac{16}{\sqrt{3}}$ (C) $\frac{32}{3\sqrt{3}}$ (D) $\frac{64}{3\sqrt{3}}$

Q60 Straight Lines[Step-by-step solution](#) › prepwiser.in/questions/T67EI2jDoU

In an equilateral triangle PQR , let the vertex P be at $(3, 5)$ and the side QR be along the line $x + y = 4$. If the orthocentre of the triangle PQR is (α, β) , then $9(\alpha + \beta)$ is equal to:

- (A) 16 (B) 27 (C) 36 (D) 48

Q61 Limits[Step-by-step solution](#) › prepwiser.in/questions/j81AUEE5uT

The product of all possible values of α , for which

$$\lim_{x \rightarrow 0} \left(\frac{1 - \cos(\alpha x) \cos((\alpha+1)x) \cos((\alpha+2)x)}{\sin^2((\alpha+1)x)} \right) = 2, \text{ is:}$$

- (A) -2 (B) 1 (C) -1 (D) $\frac{5}{4}$

Q62 Sequences & Series[Step-by-step solution](#) › prepwiser.in/questions/ccAFKhknVt

Let the sum of the first n terms of an A.P. be $3n^2 + 5n$. Then the sum of squares of the first 10 terms of the A.P. is:

- (A) 10220 (B) 12860 (C) 15220 (D) 19780

Q63 Sequences & Series[Step-by-step solution](#) › prepwiser.in/questions/PWnLvO1Qdo

$\sum_{n=1}^{10} \left(\frac{528}{n(n+1)(n+2)} \right)$ is equal to:

- (A) 65 (B) 130 (C) 220 (D) 440

Q64 Trigonometric Equations[Step-by-step solution](#) › prepwiser.in/questions/ki3jv-LpCb

The sum of all the integral values of p such that the equation $3 \sin^2 x + 12 \cos x - 3 = p, x \in \mathbb{R}$, has at least one solution, is:

- (A) -54 (B) -60 (C) -75 (D) -84

Q65 Three Dimensional Geometry[Step-by-step solution](#) › [prepwisar.in/questions/HRbEnS9Tq0](https://www.prepwisar.in/questions/HRbEnS9Tq0)

The square of the distance of the point $P(5, 6, 7)$ from the line $\frac{x-2}{2} = \frac{y-5}{3} = \frac{z-2}{4}$ is equal to:

(A) 3**(B)** 5**(C)** 6**(D)** 8**Q66** Three Dimensional Geometry[Step-by-step solution](#) › [prepwisar.in/questions/2kQNeuyVRN](https://www.prepwisar.in/questions/2kQNeuyVRN)

The square of the distance of the point of intersection of the lines $\vec{r} = (\hat{i} + \hat{j} - \hat{k}) + \lambda(a\hat{i} - \hat{j})$, $a \neq 0$ and $\vec{r} = (4\hat{i} - \hat{k}) + \mu(2\hat{i} + a\hat{k})$ from the origin is:

(A) 5**(B)** 10**(C)** 17**(D)** 26**Q67** Circles[Step-by-step solution](#) › [prepwisar.in/questions/QzFJL2hPhT](https://www.prepwisar.in/questions/QzFJL2hPhT)

Let P be a moving point on the circle $x^2 + y^2 - 6x - 8y + 21 = 0$. Then, the maximum distance of P from the vertex of the parabola $x^2 + 6x + y + 13 = 0$ is equal to:

(A) 8**(B)** 10**(C)** 12**(D)** 9**Q68** Probability: Advanced[Step-by-step solution](#) › [prepwisar.in/questions/dOANQ1w9MR](https://www.prepwisar.in/questions/dOANQ1w9MR)

A letter is known to have arrived by post either from KANPUR or from ANANTPUR. On the envelope just two consecutive letters AN are visible. The probability, that the letter came from ANANTPUR, is:

(A) $\frac{7}{10}$ **(B)** $\frac{10}{17}$ **(C)** $\frac{12}{19}$ **(D)** $\frac{7}{19}$ **Q69** Trigonometric Ratios & Identities[Step-by-step solution](#) › [prepwisar.in/questions/8y-Oqo4IiS](https://www.prepwisar.in/questions/8y-Oqo4IiS)

Let $\tan A, \tan B$, where $A, B \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$, be the roots of the quadratic equation $x^2 - 2x - 5 = 0$. Then $20 \sin^2\left(\frac{A+B}{2}\right)$ is equal to:

(A) $10 + \sqrt{10}$ **(B)** $10 - 2\sqrt{10}$ **(C)** $10 - 3\sqrt{10}$ **(D)** $10 - \sqrt{10}$ **Mathematics Section B · Numerical value**

Q70 to Q73

Q70 Relations & Functions (Basic) **NUMERICAL**[Step-by-step solution](#) › [prepwisar.in/questions/axRaTO3xwf](https://www.prepwisar.in/questions/axRaTO3xwf)

Let $A = \{1, 2, 3, 4, 5, 6\}$. The number of one-one functions $f : A \rightarrow A$ such that $f(1) \geq 3$, $f(3) \leq 4$ and $f(2) + f(3) = 5$, is ____.

Q71 Inverse Trigonometric Functions **NUMERICAL**[Step-by-step solution](#) › [prepwisar.in/questions/FvN7jzYeTu](https://www.prepwisar.in/questions/FvN7jzYeTu)

If $\frac{\pi}{4} + \sum_{p=1}^{11} \tan^{-1}\left(\frac{2^{p-1}}{1+2^{2p-1}}\right) = \alpha$, then $\tan \alpha$ is equal to ____.

Q72 Binomial Theorem **NUMERICAL**[Step-by-step solution](#) › [prepwisar.in/questions/zQXWYFFAeR](https://www.prepwisar.in/questions/zQXWYFFAeR)

If the sum of the coefficients of x^7 and x^{14} in the expansion of $\left(\frac{1}{x^3} - x^4\right)^n$, $x \neq 0$, is zero, then the value of n is ____.

Q73 Permutations & Combinations **NUMERICAL**[Step-by-step solution](#) › [prepwisar.in/questions/EJ3LCu65E4](https://www.prepwisar.in/questions/EJ3LCu65E4)

Two players A and B play a series of games of badminton. The player, who wins 5 games first, wins the series. Assuming that no game ends in a draw, the number of ways, in which player A wins the series is ____.

Answer key: JEE Main 2026 · 5 Apr · Shift 1

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Physics

1.	C	2.	B	3.	B	4.	B	5.	C	6.	A	7.	B	8.	C
9.	B	10.	C	11.	C	12.	C	13.	A	14.	A	15.	C	16.	A
17.	B	18.	A	19.	C	20.	B	21.	12	22.	349	23.	13	24.	6
25.	2														

Chemistry

26.	B	27.	A	28.	A	29.	C	30.	B	31.	D	32.	B	33.	C
34.	A	35.	B	36.	D	37.	B	38.	D	39.	D	40.	A	41.	C
42.	A	43.	B	44.	D	45.	D	46.	230	47.	46	48.	175	49.	4

Mathematics

50.	B	51.	B	52.	C	53.	D	54.	B	55.	C	56.	A	57.	B
58.	B	59.	C	60.	D	61.	C	62.	C	63.	B	64.	C	65.	C
66.	C	67.	C	68.	B	69.	C	70.	72	71.	2048	72.	21	73.	126

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