JEE MAIN-2026

Test Date: 23rd Jan 2026 (Second Shift)

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

IMPORTANT INSTRUCTIONS

- The test is of **3 hours** duration.

- This test paper consists of 75 questions. Each subject (PCM) has 25 questions. The maximum marks are 300.

- This question paper contains Three Parts. Part-A is Physics, Part-B is Chemistry and Part-C is Mathematics. Each part has only two sections: Section-A and Section-B.

- Section - A: Attempt all questions.

- Section - B: Attempt all questions.

- Section - A (01–20) contains 20 multiple choice questions which have only one correct answer. Each question carries +4 marks for correct answer and –1 mark for wrong answer. Section - B (21–25) contains 5 Numerical value based questions. The answer to each question should be rounded off to the nearest integer. Each question carries +4 marks for correct answer and -1 mark for wrong answer.

Memory Based Questions

PHYSICS

1. When an unpolarized light falls at a particular angle on a glass plate (placed in air). It is observed that reflected beam is completely polarized the angle of refracted beam with respect to the normal is _____
   $\tan^{-1}(1.52) = 57.3^\circ$; (Refractive index of air and glass 1.00 and 1.52)

   Ans: (32.3°)

2. A parallel plate capacitor with plate separation $5\ mm$ is charged by a battery. On introducing a mica sheet of $2\ mm$ and maintaining the connections of the plates with the terminals of the battery, it is found that it draws 25% more charge from the battery. The dielectric constant of mica is _____
   (1) 1.0   (2) 2.0   (3) 1.5   (4) 2.5

   Ans: (2)

3. A metallic sphere of diameter $2\ mm$ and density $10.5\ g/cm^3$ is dropped in glycerine having viscosity 10 poise and density $1.5\ g/cm^3$. The terminal velocity attained by the sphere is _____ cm/s
   $\pi = \dfrac{22}{7}, g = 10 m/s^2$
   (1) 2.0   (2) 1.0   (3) 1.5   (4) 3.0

   Ans: (1)

4. A prism of angle 75° and refractive index $\sqrt{3}$ is coated with thin film of refractive index 1.5 only at the back exit surface. To get total internal reflection (TIR) at the back exit surface, the incident angle must be $(\sin 15^\circ = 0.25, \sin 25^\circ = 0.43)$
   (1) $\angle 15^\circ$ (2) 15° (3) $> 25^\circ$ (4) Between 15° and 20°

   Ans: (3)

5. Find the magnetic field at the centroid of an equilateral triangle of side length $4\sqrt{3}\ m$ and a current of $2\ A$ is flowing through it.

   **Ans:** $(3\sqrt{3} \times 10^{-7}\ T)$

6. A sky trooper jumps from an airplane and opens his parachute after $2\ s$ and deaccelerates with $3\ m/s^2$. When he reaches height of $10\ m$ from ground his speed becomes $8\ m/s$, find the initial height of airplane.

   Ans: (86 m)

7. A body of mass m kg initially at rest explodes and breaks into three fragments of masses in the ratio 2:2:3. The two pieces of equal masses fly perpendicular to each other with 1 m/s speed each. The velocity of heavier fragment is _____ m/s .

Ans: $\left(\dfrac{2\sqrt{2}}{3}\right)$

8. Provide the correct truth table _____
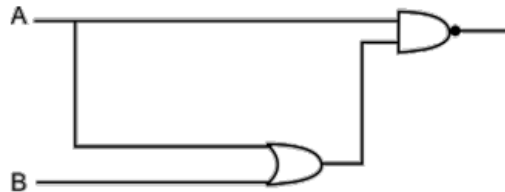
Ans: $\begin{pmatrix} A & B & C \\ 0 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & 0 \\ 1 & 1 & 0 \end{pmatrix}$

9. One mole of an ideal diatomic gas expands from volume V to 2V isothermally at temp $27^{\circ}C$, and does W J of work. If the gas undergoes expansion adiabatically from $27^{\circ}C$ doing the same amount of work, then find the final temp.

Ans: $(-56^{\circ}C)$

10. A circular loop of radius 7 cm is placed in uniform Magnetic field of 0.2 T directed perpendicular to plane of loop. The loop is converted into a square in 0.5 s , the induced emf in the loop is _____ mV

Ans: (1.32)

11. A point charge $7\mu C$ is placed at $(-9,0,0)$. Another point charge $-2\mu C$ is placed at $(9,0,0)$. Find potential energy of system.
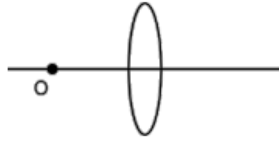
Ans: (7 mJ)

12. The shaded region is removed from the disc of radius R . Then MOI of remaining disc?
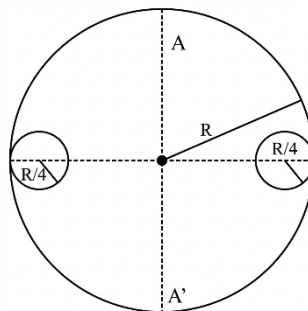
Ans: $\left(\dfrac{109}{256}MR^2\right)$

13. When an object is kept at a distance of 8 cm and 24 cm from a convex lens magnitude of magnification is same in both cases. Find Focal length.
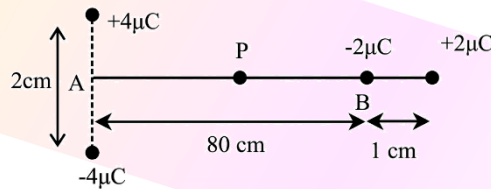

(1) 24 cm   (2) 32 cm   (3) 8 cm   (4) 16 cm

Ans: (4)

14. Work functions of 2 metals A, B are in the ratio of $1:2$. Kinetic energies of metals are in ratio 2.624:1. A Photon of energy of 6 eV is incident on the metals. Then the work function values of metal A and B are

Ans: ($\phi_A \approx 2.3$ eV, $\phi_B \approx 4.6$ eV)

15. Four charges are kept as shown in the figure. Find magnitude of electric field at point P. P is midpoint of line AB.

Ans: $\left(\dfrac{45\sqrt{5}}{8} \times 10^3 \text{ V/m} \right)$

CHEMISTRY

1. Identify the correct set of details from the following:

   A) $[Co(NH_3)_6]^{3+}$: Inner orbital complex:- d^2sp^3 hybridized

   B) $[MnCl_6]^{3-}$: Outer orbital complex:- sp^3d^2 hybridized

   C) $[CoF_6]^{3-}$: Outer orbital complex:- sp^3d^2 hybridized

   D) $[FeF_6]^{3-}$: Outer orbital complex:- sp^3d^2 hybridized

   E) $[Ni(CN)_4]^{2-}$: Inner orbital complex:- dsp^2 hybridized

   Choose the correct answer from the option given below:

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

   Ans: (2)

2. The oxidation state of chromium in the final product in the reaction between KI and acidified $K_2Cr_2O_7$ solution is

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

   Ans: (4)

3. Both human DNA and RNA are Chiral molecules. Chirality in DNA and RNA arise due to the presence of
   (1) Chiral Phosphate unit
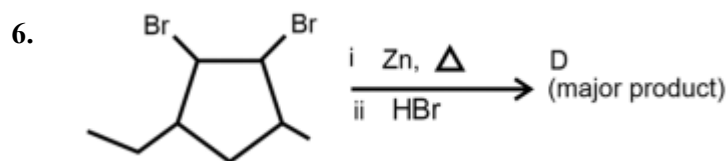   (2) D-sugar component
   (3) sugar component
   (4) Base unit

   Ans: (2)

4. In Carius method 0.2425 g of organic compound gave 0.5253 g silver chloride. The percentage of chloride in the organic compound
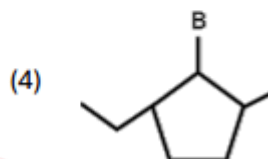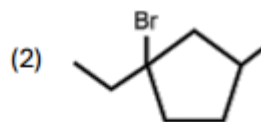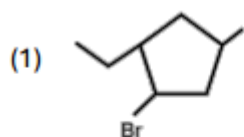   (1) 37.57%   (2) 87.65%   (3) 34.79%   (4) 53.58%

   Ans: (4)

5. Iodoform test can differentiate
   (1) Anisole & Acetone
   (2) CH_3 & $CH_3 - CH_2 - COOH$
   (3) cyclopropene & cyclobutene
   (4) Phenol & Benzoic Acid

   Ans: (1)

6.

Identify (D)

(1)

(2)

(3)

(4)

Ans: (2)

7. How many of the following complexes have unpaired electrons on their central atom?

$[Ni(CO)_4], [NiCl_4]^{2-}, [PtCl_4]^{2-}, [Pt(CN)_4]^{2-}$

Ans: (1)

8. Which of the following are isobars?

(1) $^{235}_{92}U$ & $^{238}_{92}U$

(2) $^{3}_{1}H$ & $^{2}_{1}H$

(3) $^{3}_{1}H$ & $^{3}_{2}He$

(4) $^{14}_{7}N$ & $^{15}_{7}N$

Ans: (3)

9. An element belongs to group-15. 'X', 'Y' and P (Phosphorus). The difference in electronegativity of X and P is higher than P and Y. Then X, Y are

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

Ans: (2)

10. Given below are two statements.

Statement I: $C(CH_3)_3^+$ is more stable than CH_3^+

Statement II: $C(CH_3)_3^+$ has 9 hyper conjugation structures while CH_3^+ has 0 hyper conjugation structures.

In the light of the above statements, which is the correct option.

(1) Both statement-I and statement-II are correct

(2) Both statement-I and statement-II are incorrect

(3) Statement-I is correct and statement-II is incorrect

(4) Statement-I is incorrect and statement-II is correct

Ans: (3)

11. Given below are two statements.

**Statement I:** Size of O^{2-} is smaller than F^-

Statement II: Electronegativity of F is more than that of oxygen.

In the light of the above statements, which is the correct option.

(1) Both statement-I and statement-II are correct

(2) Both statement-I and statement-II are incorrect

(3) Statement-I is correct and statement-II is incorrect

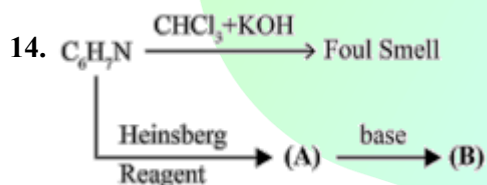(4) Statement-I is incorrect and statement-II is correct

Ans: (4)

12. The major product in the following sequence of reactions:

$$\xrightarrow{KMnO_4} \xrightarrow[\text{heat}]{NH_3 \text{ excess}} \xrightarrow{Br_2KOH} \text{Major product}$$
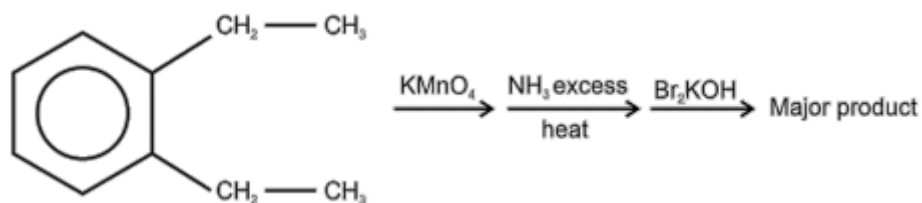
Ans: o-Phenylenediamine or Benzene-1, 2 -diamine (Option dependent)

13. An ideal solution is formed by mixing 3 mole of A and 1 mole of B and the vapour pressure of solution is found to be $500 \, mm \, Hg$. After further addition of 1 mole A, pressure of solution becomes $520 \, mm \, Hg$. Find P_A°.

Ans: ($600 \, mm \, Hg$)

14. $C_6H_7N \xrightarrow{CHCl_3 + KOH}$ Foul Smell

$$\xrightarrow[\text{Reagent}]{\text{Heinsberg}} \textbf{(A)} \xrightarrow{\text{base}} \textbf{(B)}$$

Number of hydrogen atoms in B.

Ans: (10)

15. For XeO_2F_2, select the correct statement(s).

(A) It shows a see-saw shape.

(B) Number of lone pair(s) of electron on Xe is 1.

(C) $\angle FXeF = 180^\circ$ (approx.)

(D) It has a tetrahedral shape.

(1) (A), (C), (D) Only

(2) (A), (B) only

(3) (A), (B), (C) only

(4) (B), (C), (D) only

Ans: (3)

16. It is noted that Pb^{2+} is more stable than Pb^{4+} but Sn^{2+} is less stable than Sn^{4+} in the following reactions:

$PbO_2 + Pb \rightarrow 2PbO; \Delta_r G^{\circ} (1)$

$SnO_2 + Sn \rightarrow 2SnO; \Delta_r G^{\circ} (2)$ Correct statement
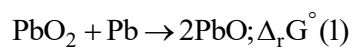
(1) $\Delta_r G^{\circ} (1) > 0, \Delta_r G^{\circ} (2) < 0$

(2) $\Delta_r G^{\circ} (1) > 0, \Delta_r G^{\circ} (2) > 0$

(3) $\Delta_r G^{\circ} (1) < 0, \Delta_r G^{\circ} (2) < 0$

(4) $\Delta_r G^{\circ} (1) < 0, \Delta_r G^{\circ} (2) > 0$

Ans: (4)

17. If $K_2Cr_2O_7 (200 \text{ cm}^3, x \times 10^{-3} \text{ M})$ react with $0.6 \text{ M}, 750 \text{ cm}^3$ Mohr's salt, then the value of x is:

Ans: (375)

MATHEMATICS

1. If $A = \begin{bmatrix} 0 & -2 & 3 \\ -2 & 0 & 1 \\ -1 & 1 & 0 \end{bmatrix}$ and $B(I-A) = I + A$ then $B = ?$

   Ans: $B = \dfrac{1}{3}\begin{bmatrix} -3 & 2 & 2 \\ -6 & 5 & -10 \\ -6 & 6 & -9 \end{bmatrix}$

2. The sum of all the real solutions of equation
   $\log_{(x+3)}(6x^2 + 28x + 30) = 5 - 2\log_{(6x+10)}(x^2 + 6x + 9)$ is:
   (1) 2   (2) 4   (3) 1   (4) 0

   Ans: (4)

3. The number of ways in which 16 identical oranges can be distributed to four children such that each child gets at least one orange, is
   (1) 455   (2) 429   (3) 384   (4) 403

   Ans: (1)

4. If the points of intersection of the ellipses $x^2 + 2y^2 - 6x - 12y + 23 = 0$ and $4x^2 + 2y^2 - 20x - 12y + 35 = 0$ lie on a circle of radius r and centre (a, b) then the value of $ab + 18r^2$ is
   (1) 51   (2) 52   (3) 55   (4) 53

   Ans: (3)

5. Let $\vec{a}, \vec{b}, \vec{c}$ be three vectors such that $\vec{a} \times \vec{b} = 2(\vec{a} \times \vec{c})$. If $|\vec{a}| = 1$, $|\vec{b}| = 4$, $|\vec{c}| = 2$ and the angle between $\vec{b}$ and $\vec{c}$ is $60°$, then $|\vec{a} \cdot \vec{c}|$ is equal to
   (1) 1   (2) 2   (3) 4   (4) 0

   Ans: (1)

6. The area of the region enclosed between the circle $x^2 + y^2 = 4$ and $x^2 + (y-2)^2 = 4$ is
   (1) $\dfrac{4}{3}(2\pi - 3\sqrt{3})$ (2) $\dfrac{2}{3}(2\pi - 3\sqrt{3})$ (3) $\dfrac{4}{3}(2\pi - \sqrt{3})$ (4) $\dfrac{2}{3}(4\pi - 3\sqrt{3})$

   Ans: (4)

7. An equilateral triangle OAB is inscribed in the parabola $y^2 = 4x$ with the vertex 'O' at the vertex of the parabola. Then the minimum distance of the circle having AB as a diameter from the origin is.
   (1) $2(3 + \sqrt{3})$ (2) $4(6 + \sqrt{3})$ (3) $4(3 - \sqrt{3})$ (4) $2(8 - 3\sqrt{3})$

   Ans: (3)

8. Let $A(1,2)$ and $C(-3,-6)$ be two diagonally opposite vertices of a rhombus, whose sides AD and BC are parallel to the line $7x - y = 14$. If $B(\alpha, \beta)$ and $D(\gamma, \delta)$ are the other two vertices, then $|\alpha + \beta + \gamma + \delta|$ is equal to.

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

Ans: (1)

9. If the mean and the variance of the data in the following table are 14 and 19 respectively, then the value of $\lambda + \mu$ is

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

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

Ans: (3)

10. The system of linear equations $x + y + z = 6, 2x + 5y + az = 36, x + 2y + 3z = b$ has
(1) infinitely many solutions for $a = 8, b = 16$
(2) unique solutions for $a = 8, b = 16$
(3) unique solutions for $a = 8, b = 14$
(4) infinitely many solutions for $a = 8, b = 14$

Ans: (4)

11. If $i = \sqrt{-1}$ and $Z = \dfrac{\sqrt{3}}{2} + \dfrac{i}{2}$, then $(Z^{201} - i)^8$ is equal to

Ans: (256)

12. If $I(x) = \int \dfrac{3dx}{(4x+6)(\sqrt{4x^2 + 8x + 3})}$ where $I(0) = \dfrac{\sqrt{3}}{4} + 20$ and $I(\frac{1}{2}) = \dfrac{a\sqrt{2}}{b} + c$, for $a, b, c \in N, \gcd(a, b) = 1$, $a + b + c$ is equal to

Ans: (31)

13. The minimum value of $\cos^2\theta + 6\sin\theta\cos\theta + 3\sin^2\theta + 3$ is
(1) -1　　　　　　(2) 1　　　　　　(3) $5 + \sqrt{10}$　　　　　　(4) $5 - \sqrt{10}$

Ans: (4)

14. Let $\displaystyle\sum_{k=1}^{n} a_k = \alpha n^2 + \beta n$ and $a_{10} = 59$ and $a_6 = 7a_1$, then find $\alpha + \beta =$

Ans: (5)

15. If $f(x) = \begin{cases} \dfrac{a\,|\,x\,|+x^2 - 2(\sin|\,x\,|)(\cos|\,x\,|)}{x}, & x \neq 0 \\ b, & x = 0 \end{cases}$ is continuous at $x = 0$, then $a + b$ is equal to

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

Ans: (4)

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

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

Ans: (3)

17. Consider two sets $A = \{x \in Z : | (|\,x - 3\,| - 3) | \leq 1\}$ and

$B = \{x \in R - \{1, 2\} : \dfrac{(x-2)(x-4)}{x-1}\log_e(|\,x-2\,|) = 0\}$.

onto functions $f : A \to B$

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

Ans: (3)

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