MHT CET 2026 May 15 Shift 2

Question Paper (Memory-Based)

Conducted by Maharashtra State CET Cell

General Instructions

(i) **Duration:** The total duration of the examination is 3 hours (180 minutes).

(ii) **Total Marks:** The complete paper carries a maximum of 200 marks.

(iii) **Structure:** The paper has 3 Sections:

- **Section A:** 50 Multiple Choice Questions (Physics)
- **Section B:** 50 Multiple Choice Questions (Chemistry)
- **Section C:** 50 Multiple Choice Questions (Mathematics)

(iv) **Compulsory Questions:** All 150 questions are compulsory.

(v) Each question has four options. Only **one** option is correct.

(vi) **Right Answer:** +1 marks for Physics and Chemistry Questions. +2 marks for Mathematics Questions.

(vii) **Incorrect Answer:** (No Negative marking).

1. Twelve identical wires, each of resistance r, are joined to form a skeleton of a cube. The equivalent resistance between two diagonally opposite corners of the cube is:

(A) 5/6 r

(B) 3/4 r

(C) 7/12 r

(D) 12/5 r

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2. A long straight wire carries a current I. A proton travels with velocity v parallel to the wire at a distance d from it, in the same direction as the current. The magnetic force acting on the

proton is:

(A) Attractive, magnitude $(\mu_0 e\nu)/2\pi d$

(B) Repulsive, magnitude $(\mu_0 e\nu)/2\pi d$

(C) Attractive, magnitude $(\mu_0 e\nu)/4\pi d$

(D) Zero

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3. A circular coil of N turns and radius R carries a current I. It is unwound and rewound to make another coil of radius R/2. For the same current, the ratio of the magnetic field at the center of the new coil to that of the old coil is:

(A) 4:1

(B) 2:1

(C) 1:2

(D) 1:4

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4. A disc of mass M and radius R has a concentric hole of radius R/2. Its moment of inertia about an axis passing through its center and perpendicular to its plane is:

(A) $15/32\ MR^2$

(B) $13/32\ MR^2$

(C) $5/16\ MR^2$

(D) $5/8\ MR^2$

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5. A uniform solid sphere of mass M and radius R is placed on a smooth horizontal surface. It is struck by a horizontal cue at a height h above the center. For the sphere to roll without slipping immediately after the impact, the value of h must be:

(A) R/2

(B) 2R/5

(C) 2R/3

(D) 3R/5

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6. Which of the following compound is isomeric with ether

(A) Carboxylic acid

(B) Alcohols

(C) Ester

(D) Aldehydes

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7. Work done during reversible isothermal expansion of one mole of hydrogen gas at 25°C from pressure 0.5 atm to 1.0 atm (Given R = 2.0 cal).

(A) 395.12

(B) 413.14

(C) 100

(D) None of these

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8. Which pair of elements to group 16 from following is metalloids in nature?

(A) Se and Po

(B) Se and O

(C) Te and Po

(D) Te and Se

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9. Colourless among the following

(A) Mn+2

(B) Ti+4

(C) Cu2+

(D) Fe+3

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10. What type of unit cell is formed by silver

(A) FCC

(B) SC

(C) BCC

(D) Base cented

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11. Let z be a complex number such that $|z| + z = 3 + i$, $i = \sqrt{-1}$, then $|z|$ is equal to

(a) $\frac{\sqrt{41}}{4}$
(b) $\frac{5}{3}$
(c) $\frac{\sqrt{34}}{3}$
(d) $\frac{5}{4}$

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12. The negation of statement pattern $(p \wedge \sim q) \rightarrow (p \vee \sim q)$ is

(a) A tautology
(b) A contingency
(c) A contradiction
(d) Equivalent to $p \vee q$

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13. If $A = \begin{bmatrix} 1 & 2 \\ -1 & 4 \end{bmatrix}$ and $A^{-1} = \alpha I + \beta A$, $\alpha, \beta \in \mathbb{R}$ where I is the identity matrix of order 2, then $4(\alpha + \beta) =$
(A) $\frac{8}{3}$
(B) $\frac{4}{3}$
(C) $\frac{16}{3}$
(D) $\frac{2}{3}$

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14. $y = \cos^{-1} x$, then $\frac{d^2y}{dx^2} =$

(A) $-\frac{x}{(1-x^2)^{3/2}}$

(B) $\frac{x}{(1-x^2)^{9/2}}$

(C) $-\frac{1}{(1-x^2)^{5/2}}$

(D) $\frac{1}{(1-x^2)^{7/2}}$

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15. Evaluate the Integral $\int \frac{4x-5}{2x+1}\,dx$

(A) $2x-\frac{7}{2}\log|2x+1|+C$

(B) $2x+\frac{7}{2}\log|2x+1|+C$

(C) $4x-\frac{5}{2}\log|2x+1|+C$

(D) $2x-\frac{5}{2}\log|2x+1|+C$
