MHT CET 2026 May 14 Shift 1

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).

(viii) **Unanswered/Marked for Review:** 0 marks.

1. Calculate the solubility in mol dm^{-3} of sparingly soluble salt BA if its solubility product is 4.9×10^{-13} at the same temperature.

(A) 7.0×10^{-7}

(B) 7.5×10^{-7}

(C) 8.0×10^{-7}

(D) 4.9×10^{-7}

2. Calculate the pH of 0.01 M strong dibasic acid.

(A) 5.5

(B) 2.5

(C) 2.0

(D) 1.7

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3. The solubility product of $PbCl_2$ at 298 K is 3.2×10^{-5}. What is its solubility in mol dm^{-3}?

(A) 8×10^{-6}

(B) 2×10^{-2}

(C) 5.6×10^{-3}

(D) 5.0×10^{-2}

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4. Identify $base_2$ for the following equation according to Brønsted–Lowry theory:

$HCl(aq) + H_2O(l) \rightleftharpoons H_3O^+(aq) + Cl^-(aq)$

(A) $H_3O^+(aq)$

(B) $H_2O(l)$

(C) $Cl^-(aq)$

(D) $HCl(aq)$

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5. What is the pH of 2×10^{-3} M solution of a monoacidic weak base if it ionises to the extent of 5%?

(A) 14

(B) 10

(C) 4

(D) 2

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

(A) $\frac{5}{6}r$

(B) $\frac{3}{4}r$

(C) $\frac{7}{12}r$

(D) $\frac{12}{5}r$

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7. 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 $\frac{\mu_0 eIv}{2\pi d}$

(B) Repulsive, magnitude $\frac{\mu_0 eIv}{2\pi d}$

(C) Attractive, magnitude $\frac{\mu_0 eIv}{4\pi d}$

(D) Zero

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8. 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 centre 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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9. An electron revolves in a circular orbit of radius r with frequency f. Its equivalent magnetic dipole moment is:

(A) $\pi e f r^2$
(B) $\frac{1}{2} e f r^2$
(C) $2\pi e f r^2$
(D) $e f r^2$

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10. A step-down transformer reduces 220 V to 110 V. If the primary current is 5 A and the efficiency is 80%, the secondary current is:

(A) 10 A
(B) 8 A
(C) 4 A
(D) 12.5 A

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11. If $I = \int \frac{\sin x + \sin^3 x}{\cos 2x}\, dx = P \cos x + Q \log \left| \frac{\sqrt{2}\cos x - 1}{\sqrt{2}\cos x + 1} \right| + C$, then the values of P and Q are respectively:

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

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12. In a triangle $\triangle ABC$, if a, b, and c are in arithmetic progression, then $\cos A + 2\cos B + \cos C =$

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

13. If the area of triangle ABC is $b^2-(c-a)^2$, then $\tan B =$

(A) 1

(B) $\frac{13}{15}$

(C) $\frac{1}{4}$

(D) $\frac{8}{15}$

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14. In a $\triangle ABC$, $a=1$, $b=\sqrt{3}$ and $\angle C=\frac{\pi}{6}$. Then the measure of the third side $c=$

(A) 4

(B) 3

(C) 1

(D) 2

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15. The integral $\int \frac{1}{\sqrt[4]{(x-1)^3(x+2)^5}}\,dx$ is equal to (where C is a constant of integration):

(A) $\frac{3}{4}\left(\frac{x+2}{x-1}\right)^{1/4}+C$

(B) $\frac{3}{4}\left(\frac{x+2}{x-1}\right)^{5/4}+C$

(C) $\frac{4}{3}\left(\frac{x-1}{x+2}\right)^{1/4}+C$

(D) $\frac{4}{3}\left(\frac{x-1}{x+2}\right)^{5/4}+C$
