

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}

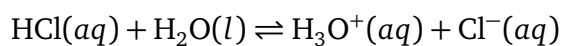
2. Calculate the pH of 0.01 M strong dibasic acid.

- (A) 5.5
- (B) 2.5
- (C) 2.0
- (D) 1.7

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}

4. Identify base₂ for the following equation according to Brønsted–Lowry theory:



- (A) $\text{H}_3\text{O}^+(aq)$
- (B) $\text{H}_2\text{O}(l)$
- (C) $\text{Cl}^-(aq)$
- (D) $\text{HCl}(aq)$

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

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 $\frac{\mu_0 e I v}{2\pi d}$
- (B) Repulsive, magnitude $\frac{\mu_0 e I v}{2\pi d}$
- (C) Attractive, magnitude $\frac{\mu_0 e I v}{4\pi d}$
- (D) Zero

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

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) $\frac{1}{2}, \frac{3}{4\sqrt{2}}$
(B) $\frac{1}{2}, \frac{-3}{4\sqrt{2}}$
(C) $\frac{1}{2}, \frac{3}{2\sqrt{2}}$
(D) $\frac{1}{2}, \frac{-3}{2\sqrt{2}}$
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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) $\sqrt{3} + 1$
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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) $\frac{8}{15}$

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

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