

MHT CET 2026 Mathematics Memory Based Question Paper PDF

Chemistry

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}

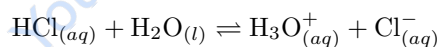
2. Calculate the pH of 0.01 M strong dibasic acid.

(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

Physics

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:
- $\frac{5}{6}r$
 - $\frac{3}{4}r$
 - $\frac{7}{12}r$
 - $\frac{12}{5}r$
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:
- Attractive, magnitude $\frac{\mu_0 e I v}{2\pi d}$
 - Repulsive, magnitude $\frac{\mu_0 e I v}{2\pi d}$
 - Attractive, magnitude $\frac{\mu_0 e I v}{4\pi d}$
 - 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:
- 4 : 1
 - 2 : 1
 - 1 : 2
 - 1 : 4
9. An electron revolves in a circular orbit of radius r with frequency f . Its equivalent magnetic dipole moment is:
- $\pi e f r^2$
 - $\frac{1}{2} e f r^2$
 - $2\pi e f r^2$
 - $e f r^2$
10. A step-down transformer reduces 220 V to 110 V. If the primary current is 5 A and the efficiency is 80
- 10 A
 - 8 A
 - 4 A
 - 12.5 A

Mathematics

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:
- $\frac{1}{2}, \frac{3}{4\sqrt{2}}$
 - $\frac{1}{2}, \frac{-3}{4\sqrt{2}}$
 - $\frac{1}{2}, \frac{3}{2\sqrt{2}}$
 - $\frac{1}{2}, \frac{-3}{2\sqrt{2}}$

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) $\frac{8}{15}$
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) $\frac{4}{3} \left(\frac{x-1}{x+2} \right)^{5/4} + C$