

MHT CET 2026 Mathematics Answer Key PDF

Chemistry

1. Option (d) 36

Explanation: The Effective Atomic Number (EAN) is calculated using the relation $\text{EAN} = Z - x + 2(\text{CN})$. For cobalt in $[\text{Co}(\text{NH}_3)_6]^{3+}$, we have $Z = 27$, oxidation state $x = +3$, and coordination number $\text{CN} = 6$, yielding $\text{EAN} = 27 - 3 + 12 = 36$.

2. Option (c) 4000 kg/m^3

Explanation: The volume of the cube is $V = a^3 = (0.04 \text{ m})^3 = 6.4 \times 10^{-5} \text{ m}^3$ and its mass is $m = 0.256 \text{ kg}$. Substituting these values into the density formula $\rho = m/V$ yields the density of the material as 4000 kg/m^3 .

3. Option (c) 3

Explanation: Potassium sulfate (K_2SO_4) is a strong electrolyte that dissociates completely in water according to the equation $\text{K}_2\text{SO}_4 \rightarrow 2\text{K}^+ + \text{SO}_4^{2-}$. This complete dissociation produces 3 ions, giving a Van't Hoff factor of $i = 3$.

4. Option (c) Aldehydes

Explanation: The Rosenmund reduction is a catalytic hydrogenation reaction where an acyl chloride is selectively reduced to an aldehyde. This process is carried out using hydrogen gas in the presence of palladium poisoned with barium sulfate (Pd/BaSO_4).

5. Option (b) Na metal

Explanation: During the electrolysis of molten sodium chloride, sodium ions (Na^+) migrate to the negatively charged cathode where they undergo reduction to produce liquid sodium metal (Na(l)) as the primary product.