

# KNOWLEDGE HORIZON CLASSES

## Test Series

- Q1.** In the primitive unit cell, the points are present at the
- corners of the unit cell
  - centre of the unit cell
  - centre of each face of the unit cell
  - one set of faces of the unit cell
- Q2.** In the primitive cubic unit cell of closet packed atoms, the radius of atom ( $r$ ) is related to the edge length ( $a$ ) of unit cell by the expression
- $r = a/2$
  - $r = a/2\sqrt{2}$
  - $r = \sqrt{3}a/4$
  - $r = 4a/\sqrt{3}$
- Q3.** Which of the following is true?
- Molarity of a solution is independent of temperature
  - Molality of a solution is independent of temperature
  - Mole fraction of a solute in a solution is dependent on temperature
  - The unit of molality is  $\text{mol dm}^{-3}$
- Q4.** The freezing [point of a 0.05 molal solution of a nonelectrolyte in water is
- $-1.86\text{ }^\circ\text{C}$
  - $-0.93\text{ }^\circ\text{C}$
  - $-0.093\text{ }^\circ\text{C}$
  - $0.93\text{ }^\circ\text{C}$
- Q5.** Which of the reactions occurs at anode when the electrolysis of  $\text{CuSO}_4$  solutions is carried out using copper electrodes?
- $\text{Cu} \rightarrow \text{Cu}^{2+} + 2\text{e}^-$
  - $2\text{SO}_4^{2-} + 2\text{H}_2\text{O} \rightarrow 2\text{H}_2\text{SO}_4 + \text{O}_2 + 4\text{e}^-$
  - $2\text{H}_2\text{O} \rightarrow \text{O}_2 + 4\text{H}^+ + 4\text{e}^-$
  - $2\text{Cu} \rightarrow \text{Cu}_2^{2+} + 2\text{e}^-$
- Q6.** A current of 9.65 A is passed for 3 hours between nickel electrodes in 0.5 dm<sup>3</sup> of a 2 mol dm<sup>-3</sup> solution of  $\text{Ni}(\text{NO}_3)_2$ . The molarity of solution after electrolysis would be
- 0.46 M
  - 0.92 M
  - 1.25 M
  - 0.625 M
- Q7.** For the reaction  $2\text{A} \rightarrow 3\text{B}$ , the rate of reaction may be represented as

- (i)  $r = -d[A]/dt = d[B]/dt$   
(ii)  $r = -d[A]/dt = (1/3)d[B]/dt$   
(iii)  $r = -(1/2)d[A]/dt = (1/3)d[B]/dt$   
(iv)  $r = (1/2)d[A]/dt = -(1/3)d[B]/dt$
- Q8.** The half-life of a first order reaction  $A \rightarrow B$  is given as  
(i)  $t_{1/2} = 0.693/k$  (ii)  $t_{1/2} = 0.693 \ln k$   
(iii)  $t_{1/2} = 0.693/k$  (iv)  $t_{1/2} = \log 2/k$
- Q9.** Chemisorption  
(i) involves the weak attractive interactions between the adsorbent and adsorbate  
(ii) is irreversible in nature  
(iii) decreases with increase in temperature  
(iv) involves multilayer adsorption
- Q10.** The impurities present in the mineral are called  
(i) flux (ii) gangue  
(iii) alloy (iv) slag
- Q11.** The actual reducing agent of haematite in blast furnace is  
(i) C (ii) CO  
(iii) Al (iv) CO<sub>2</sub>
- Q12.** Select the compound with the lowest boiling point.  
(i) NH<sub>3</sub> (ii) PH<sub>3</sub>  
(iii) AsH<sub>3</sub> (iv) SbH<sub>3</sub>
- Q13.** The aqua regia is  
(i) 3 parts conc. HNO<sub>3</sub> + 1 part conc. HCl  
(ii) 1 part conc. HNO<sub>3</sub> + 3 parts conc. HCl  
(iii) 2 parts conc. HNO<sub>3</sub> + 2 parts conc. HCl  
(iv) 2.5 parts conc. HNO<sub>3</sub> + 0.5 part conc. HCl
- Q14.** The last element of the third transition series is  
(i) Zn (ii) Cd  
(iii) Hg (iv) Au
- Q15.** Chlorophyll is a  
(i) magnesium complex (ii) cobalt complex  
(iii) iron complex (iv) chromium complex
- Q16.** A complex involving  $dsp^2$  hybridization has  
(i) a square planar geometry (ii) a tetrahedral geometry  
(iii) an octahedral geometry (iv) trigonal planar geometry

