

XII - CHEMISTRY

Time Allowed : 1.30 Hours

Maximum Marks : 50

1) Answer all the questions. Choose the correct answer. (15x1=15)

- Which of the metal is extracted by Hall-Heroult process?
 a) Al b) Ni c) Cu d) Zn
- The process of converting hydrated Alumina into anhydrous alumina is called
 a) Roasting b) Smelting c) Auto-reduction d) Calcination
- Electro chemical process is used to convert
 a) Iron b) Lead c) Sodium d) Silver
- Which of the following is not sp^2 hybridised?
 a) graphite b) Graphene c) Fullerene d) Dry ice
- In diborane, the number of electrons that accounts for banana bonds is
 a) six b) two c) four d) three
- Assertion (A) : Boron shows non-metallic character
 Reason (R) : Atomic radius of boron is small and its nuclear charge is high
 a) Both A and R are correct, R explains A.
 b) A is correct but R is wrong
 c) A is wrong but R is correct
 d) Both A and R are correct but R does not explains A
- The vacant space in bcc lattice unit cell is
 a) 48% b) 23 % c) 32% d) 26%
- In covalent solids, the constituents are
 a) ions. b) atoms c) molecules d) metals
- The yellow colour in NaCl crystal is due to
 a) excitation of electrons in F centres
 b) reflection of light from Cl^- ion on the surface
 c) refraction of light from Na^+ ion
 d) all of the above
- For a first order reaction the rate constant is 6.909min^{-1} , the time taken for 75% conversion in minutes is
 a) $\left(\frac{3}{2}\right)\log 2$ b) $\left(\frac{2}{3}\right)\log 2$ c) $\left(\frac{3}{2}\right)\log\left(\frac{3}{4}\right)$ d) $\left(\frac{2}{3}\right)\log\left(\frac{4}{3}\right)$
- Chemical reactions with very high E_a values are generally
 a) very fast b) very slow
 c) moderately fast d) spontaneous
- For a reaction Rate = $K[\text{acetone}]^{3/2}$ then unit of rate constant and rate of reaction respectively is
 a) $(\text{mol L}^{-1} \text{S}^{-1}), (\text{mol}^{-1/2} \text{L}^{1/2} \text{S}^{-1})$ b) $(\text{mol}^{-1/2} \text{L}^{1/2} \text{S}^{-1}), (\text{mol L}^{-1} \text{S}^{-1})$
 c) $(\text{mol}^{1/2} \text{L}^{1/2} \text{S}^{-1}), (\text{mol} \cdot \text{L} \text{S}^{-1})$ d) $(\text{mol L S}^{-1}), (\text{mol}^{1/2} \text{L}^{1/2} \text{S})$

13. Carbonic acid is
- Phenol
 - Picric acid
 - Benzoic acid
 - Phenyl acetic acid
14. Hydroboration of an alkene follows
- Saytzeff's rule
 - Markownikoff's rule
 - anti-Markownikoff's rule
 - Popoff's rule
15. Williamson synthesis of preparing dimethyl ether is a/an/
- SN¹ reaction
 - SN² reaction
 - electrophilic addition
 - electrophilic substitution

PART - II

Answer any **four** questions. Question Number 21 is **compulsory**. (4x2=8)

- Which type of ores can be concentrated by froth floatation method? Give two examples for such ores.
- How will you identify borate radical?
- Calculate the number of atoms in a fcc unit cell.
- Mention the factors affecting reaction rate.
- How will you convert ethylene glycol to 1, 4 - dioxane?
- In the reaction. Ethanol $\xrightarrow{\text{PCl}_5}$ X $\xrightarrow{\text{alc.KOH}}$ Y. Identify 'X' and 'Y'.

PART - III

Answer any **four** questions. Question Number 27 is **compulsory**. (4x3=12)

- What is Elingham diagram?
- Give the uses of Borax.
- Write any three characteristics of ionic crystals.
- Distinguish order and molecularity of a reaction.
- Write about Swern oxidation.
- The rate constant for a first order reaction is $1.54 \times 10^{-3} \text{ S}^{-1}$. Calculate its half life time.

PART - IV

Answer **all** the questions. Draw diagrams wherever necessary. (3x5=15)

- How the ores are concentrated by magnetic separation method? (OR)
 - Write any two difference between diamond and graphite. (2)
 - Write a note on Zeolites. (3)
- Write about Bragg's equation. (2)
 - Write a note on Frenkel defect. (3)
 - (OR)
 - Derive the integrated rate law for a first order reaction. (2)
- Write a note on Riemer - Tiemann reaction. (2)
 - How will you distinguish 1°, 2°, 3° alcohols by Lucas test? (3)
 - (OR)
 - Write all possible ether isomers having the molecular formula C₄H₁₀O (3)
 - Write the uses of glycerol. (2)