

CLASS: XII

SUBJECT: CHEMISTRY

Choose the correct answer:

- Wolframite ore is separated from tinstone by the process of
 - Smelting
 - Calcination
 - Roasting
 - Electro magnetic separation
- Bauxite has the composition
 - Al_2O_3
 - $Al_2O_3 \cdot nH_2O$
 - $Fe_2O_3 \cdot 2H_2O$
 - None of these
- In aluminothermic process, the ignition mixture is
 - $Mg + Al_2O_3$
 - $Mg + BaO_2$
 - $Ba + Mg$
 - $MgO + Mg$
- Which among the following is not a borane?
 - B_2H_6
 - B_3H_6
 - B_4H_{10}
 - None of these
- The basic structural unit of silicates is
 - $(SiO_3)^{2-}$
 - $(SiO_4)^{2-}$
 - $(SiO)^-$
 - $(SiO_4)^{4-}$
- Duralumin is an alloy of
 - Cu, Mn
 - Cu, Al, Mg
 - Al, Mn
 - Al, Cu, Mn, Mg
- CsCl has bcc arrangement, its unit cell edge length is 400 pm, its inter atomic distance is
 - 400 pm
 - 800 pm
 - $\sqrt{3} \times 100$ pm
 - $\left(\frac{\sqrt{3}}{2}\right) \times 400$ pm
- The yellow colour in NaCl crystal is due to
 - Excitation of electrons in F centers
 - reflection of light from Cl^- ion on the surface
 - refraction of light from Na^+ ion
 - all of the above
- Solid Co_2 is an example of
 - Covalent solid
 - metallic solid
 - molecular solid
 - ionic solid
- The rate constant of a reaction is $5.8 \times 10^{-2} s^{-1}$. The order of the reaction is
 - First order
 - Zero order
 - Second order
 - Third order
- For a reaction $Rate = K [acetone]^{3/2}$ then unit of rate constant and rate of reaction respectively is
 - $(mol L^{-1}S^{-1}), (mol^{-1/2}L^{1/2} S^{-1})$
 - $(mol^{-1/2}L^{1/2} S^{-1}), (mol L^{-1}S^{-1})$
 - $(mol^{1/2} L^{1/2} S^{-1}), (mol L^{-1}S^{-1})$
 - $(mol L S^{-1}), (mol^{-1/2}L^{1/2} S)$
- In a first order reaction $x \rightarrow y$ if K is the rate constant and the initial concentration of the reactant x is 0.1M then the half life is
 - $\left(\frac{\log 2}{K}\right)$
 - $\left(\frac{0.693}{(0.1)K}\right)$
 - $\left(\frac{\ln 2}{K}\right)$
 - None of these
- Carbolic acid is
 - Phenol
 - Picric acid
 - benzoic acid
 - Phenyl acetic acid
- Isopropyl benzene on air oxidation in the presence of dilute acid gives
 - C_6H_5COOH
 - $C_6H_5COCH_3$
 - $C_6H_5COC_6H_5$
 - C_6H_5OH
- $HO - CH_2 - CH_2 - OH$ on heating with periodic acid gives
 - methanoic acid
 - Glyoxal
 - methanal
 - CO_2

6x2=12

II. Answer any SIX of the following: (Q.no: 21 is compulsory)

- What are the difference between minerals and ores?
- What is borax beads test?
- What is meant by Catenation?
- What is unit cell?
- What are point defects?
- At atom crystallizes in FCC crystal lattice and has a density of $10g cm^{-3}$ with unit cell edge length of 100 pm. Calculate the number of atoms present in 1g of a crystal.
- Write the examples for the zero order reaction.
- How Picric acid is prepared?
- How do you differentiate three types of alcohols by Lucas test?

6x3=18

III. Answer any SIX of the following: (Q.No: 32 is compulsory)

- Explain Gravity separation process.
- Write Mond's Process for refining of nickel?
- What are the difference between Graphite and diamond?
- Explain Schottky defect.
- What are ionic solids? Give their general Characteristics.
- Show that for a first order reaction half life is independent of initial concentration.
- Explain the rate determining step with an example.
- A zero order reaction is 20% complete in 20 minutes. Calculate the value of the rate constant. In what time will the reaction be 80% complete?
- Give the equation for (i) Riemer – Tiemann reaction (ii) Coupling reaction

IV. Answer ALL the questions:

5x5=25

34. a) What is meant by Zone refining process? Explain. 3m
b) What are the metalurgical process for the extraction of metal? 2m
(OR)
c) Explain magnetic separation process. 3m
d) Write Van – Arkel method for refining of Zr / Ti. 2m
35. a) Write alum preparation and properties. 3m
b) How will you identify borate radical? 2m
(OR)
c) What are silicones? Write its types and explain. 3m
d) What are the uses of boran? 2m
36. a) Calculate the packing efficiency of BCC. 3m
b) Write Bragg's equation. 2m
(OR)
c) Calculate the packing efficiency of simple of simple cubic. 3m
d) Why ionic crystals hard and brittle? 2m
37. a) Derive integrated rate law for a zero order reaction $A \rightarrow \text{Product}$. 3m
b) Define average rate and instantaneous rate. 2m
(OR)
c) Derive the equation calculate activation energy E_a from rate constant K_1 and K_2 at temperature T_1 and T_2 using Arrhenius equation. 3m
d) Derive half life period for a zero order reaction. 2m
38. a) Phenol is distilled with Zn dust followed by Friedel – crafts alkylation with propyl chloride to give a compound B, B on oxidation gives (C). Identify A, B and C. 3m
b) Write Dow's process. 2m
(OR)
c) Write the victor Meyer's test for 1° , 2° and 3° alcohol. 3m
d) How will you convert 2m
(i) Glycerol to acrolein
(ii) Glycol to 1, 4 – dioxane.