



## Standard - 12

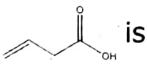
## CHEMISTRY

Maximum Marks: 70

Time: 3.00 Hours

## Part - I

Answer all the questions. Choose the most appropriate answer from the given four alternatives and write the option code and corresponding answer:  $15 \times 1 = 15$

- Which of the following pair of metals is purified by Van Arkel method?
  - Ag & Au
  - Zr & Ti
  - Ni & Fe
  - Ga & In
- Duralumin is an alloy of
  - Cu, Mn
  - Cu, Al, Mg
  - Al, Mn
  - Al, Cu, Mn, Mg
- The basicity of pyrophosphorous acid ( $H_4P_2O_5$ ) is
  - 4
  - 2
  - 3
  - 5
- The magnetic moment of  $Mn^{2+}$  ion is
  - 5.92 BM
  - 2.80 BM
  - 8.95 BM
  - 3.90 BM
- Fac-Mer isomerism is shown by
  - $[CO(en)_3]^{3+}$
  - $[CO(NH_3)_4(Cl)_2]^+$
  - $[CO(NH_3)_3(Cl)_3]$
  - $[CO(NH_3)_5Cl]SO_4$
- The vacant space in FCC lattice unit cell is
  - 48%
  - 23%
  - 32%
  - 26%
- Assertion: Rate of reaction doubles when the concentration of the reactant is doubles if it is a first order reaction.  
Reason: Rate constant also doubles.
  - Both assertion and reason are true and reason is the correct explanation of assertion
  - Both assertion and reason are true but reason is not the correct explanation of assertion
  - Assertion is true but reason is false
  - Both assertion and reason are false
- The pH of 0.001 M HCl solution is
  - 9
  - 3
  - 5
  - 2
- The emf of the standard hydrogen electrode is
  - 1.0
  - 0
  - 1.1
  - +1.0
- Fog is colloidal solution of
  - solid in gas
  - gas in gas
  - liquid in gas
  - gas in liquid
- On reacting with neutral ferric chloride, phenol gives
  - red colour
  - violet colour
  - dark green colour
  - no colouration
- The IUPAC name of  is
  - But-3-enoic acid
  - But-1-en-4-oic acid
  - But-2-en-1-oic acid
  - But-3-en-1-oic acid
- Secondary nitro alkanes react with nitrous acid to form
  - red solution
  - blue solution
  - green solution
  - yellow solution
- Which of the following vitamins is Fat soluble?
  - vitamin C
  - vitamin  $B_{12}$
  - vitamin D
  - vitamin  $B_6$
- The polymer used in making blankets (artificial wool) is
  - polystyrene
  - PAN
  - Polyester
  - Polythene

## Part - II

Answer any six questions. Question No 24 is compulsory:

6×2=12

- Give the uses of argon.
- Transition metals show high melting points why?
- Write the IUPAC names for the following complexes.
  - $[Ag(NH_3)_2]^+$
  - $[CO(NH_3)_5Cl]^{2+}$

V12C

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- 19) What is meant by the term 'Coordination number'? What is the coordination number of atoms in a bcc structure?
- 20) Define half life of a reaction.
- 21) Define pH.
- 22) Explain Brownian moment.
- 23) How is Neoprene prepared?
- 24) Find the oxidation state of Halogen in the following compounds:  
(i)  $\text{OF}_2$  (ii)  $\text{I}_2\text{O}_4$

**Part - III****Answer any six questions. Question No 33 is compulsory:****6×3=18**

- 25) Why HF is stored in wax bottles and not in glass bottles?
- 26) In an octahedral crystal field, draw the figure to show splitting of 'd' orbitals.
- 27) What are ionisation isomers? Give an example.
- 28) Find the hybridisation and structure of the following compounds.  
a)  $\text{XeF}$  b)  $\text{XeF}_4$  c)  $\text{XeF}_2$  d)  $\text{XeOF}_2$  e)  $\text{XeOF}_4$  f)  $\text{XeO}_3$
- 29) Differentiate isotropy from Anisotropy.
- 30) What are the general characteristics of a catalyst?
- 31) Write coupling reaction of phenol.
- 32) How is Nylon-6, 6 prepared?

- 33) From the following reaction, identify A and B
- $$\text{CH}_3\text{CN} \xrightarrow[\text{H}_2]{\text{Sn/HCl}} \text{A}$$
- $$\xrightarrow[\text{H}_2]{\text{Zn/NH}_4\text{Cl}} \text{B}$$

**Part - IV****Answer all the questions:****5×5=25**

- 35) a) Write a note about froth floatation method.  
(OR)
- b) i) Give the structure of CO and  $\text{CO}_2$ .  
ii) Write the uses of Boric acid.
- 35) a) i) Write chromyl chloride test.  
ii) Why ionic crystals are hard and brittle?  
(OR)
- b) Derive integrated rate law for a first order reaction  $\text{A} \rightarrow \text{product}$
- 36) a) i) Derive the relation between pH and pOH  
ii) Write the pH value of the following substances  
a) Stomach acid b) Urine  
c) Black Coffee d) Baking Soda  
(OR)
- b) Describe adsorption theory of catalysis.
- 37) a) Discuss the mechanism of Aldol condensation.  
(OR)
- b) i) Write Stephen's reaction.  
ii) Write a short note on peptide bond.
- 38) a) How is the structure of Glucose determined?  
(OR)
- b) i) Write a note on Vulcanization of rubber.  
ii) How do you classify the following into various class of drugs?  
a) Milk of Magnesia b) Aspirin  
c) Penicillin d) Procaine

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