SUBJECT – CHEMISTRY

I SEMESTER EXAMINATION-2017-18

STD.-XII **MARKS- 70**

DATE- 07/10/17 **TIME- 3 hrs.**

SECTION I

Q.1 Select and write the most appropriate answer from the given alternative for each sub question. **(7)**

1. Semiconductor are manufacture by addition of impurities of
   a) p- block elements b) actinoids c) lanthanoids d) s-block elements
2. Which is the most abundant noble gas?
   a) Argon b) Helium c) Neon d) Krypton
3. Which one has the highest bond energy?
   a) O-O b) S-S c) Se-Se d) Te-Te
4. Silica is
   a) An acidic flux b) a basic flux c) a reducing agent d) an oxidising agent
5. If the number of lattice points in the unit cell is 9,it must be
   a) Simple cubic b) body centred cubic c) face centred cubic d) hcp
6. The p-p-p angle in white phosphorous is
   a) 120^{o} b) $109^{o}28'$ c) 90^{o} d) 60^{o}
7. Highest carbon content iron is
   a) Stainless steel b) Wrought iron c) Cast iron d) Mild iron

Q.2 Attempt any Six **(12)**

1. Name the elements in 15^{th} group
2. What is the difference between minerals and ores?
3. What is the radius ratio?
4. Give examples of crystalline and amorphous solids.
5. What is a unit cell?
6. Write the formula of the following ores
   1. Zinc blende b. lime stone
7. Explain the structure of SO_2 molecule.
8. Explain Ozone as protective umbrella for UV from sun.

Q.3 Attempt any Three **(9)**

1. An element A and B constitute bcc type crystalline structure. Element A occupies body centre position and B is at the corners of cube. What is the formula of the compound? What are the coordination number of A and B?
2. Silver crystallises in fcc structure with edge length of unit cell, 4.07×10^{-8} cm and if density of metallic silver is 10.5g cm^{-3}. Calculate atomic mass of silver.
3. What is smelting? Explain with an example.
4. Explain the structure of interhalogen compound of the type XX'_5

Q.4 Attempt any one **(7)**

1. Explain the anomalous nature of nitrogen.
2. What are semiconductors? Describe two types of semiconductor.

OR

1. Write name and draw the structure of different oxides of nitrogen.
2. What is the polling process?

SECTION II

Q.1 Select and write the most appropriate answer from the given alternative for each sub question. **(7)**

1. When conc.H_2SO_4 is added to $KMnO_4$ explosion occurs. The compound formed is

a) $MnSO_4$ b) MnO_2 c) Mn_2O_3 d) Mn_2O_7

2. The metal ion which is not coloured ,is

a) Fe^{3+} b) V^{2+} c) Zn^{2+} d) Ti^{3+}

3. According to R,S convention, which of the following groups has highest priority

a) CH_2O b) COOH c) $COCH_3$ d) $COOCH_3$

4. Which of the following alcohol is prepared by acid catalysed hydration of alkenes?

a) Butane-1-ol b) propane-1-ol c) ethanol d) methanol

5. Benzaldehyde when treated with alkaline $KMnO_4$ yields

a) Benzyl alcohol b) Benzoic acid c) CO_2 and H_2O d) salicylic acid

6. Secondary nitroalkanes react with nitrous acid to form

a) Red solution b) blue solution c) green solution d) yellow solution

7. The polymer used in paints is

a) Nylon b) Glyptal c) Neoprene d) Terylene

Q.2 Attempt any Six **(12)**

1. Write a note on vulcanization of rubber.
2. Why chromium has electronic configuration $3d^5\ 4s^1$ and not $3d^4\ 4s^2$?
3. Predict the products in the following reaction

$$CH_3\text{-}CH_2\text{-}CH{=}CH\text{-}CH_2\text{-}COOH \xrightarrow{LiAlH_4,\text{ether },H_3O^+}$$

4. Write the IUPAC name of N,N-dimethylethylamine.
5. Give the distinguishing between phenol and ethanol?
6. Write the reaction to prepare Novolac polymer.
7. Write a note on Sandmeryer's reaction
8. What are actinoids?

Q.3 Attempt any Three **(9)**

1. How is butanoic acid prepared starting from
   a. An alcohol b. An alkyl halide c. An alkene
2. How is diethyl ether prepared by continuous etherification process?
3. How is ethyl bromide prepared from
   a. Ethyl alcohol b. ethane c. ethene.
4. Explain, most of the transition metal compounds are remarkably coloured.

Q.4 Attempt any one **(7)**

1. How do thermosetting polymers differ from thermoplastic polymers? Explain with examples.
2. What is the action of following reagents on aniline?
   a. Conc.H_2SO_4 b. Aqueous bromine c. Acetic acid

OR

1. Write a note on oxidation of primary, secondary and tertiary alcohol.
2. Explain the action of nitrous acid on primary, secondary and tertiary nitroalkanes.