2183 –C72 – IIISS – N – 16

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

CHEMISTRY (Optional)

me : 3 Hours] [Max. Marks : 80

All questions are Compulsory.
Answer **all** *the questions in the same answer book.*
Draw neat diagrams and give equations wherever necessary.

Answer any **ten** the following questions : $10 \times 2 = 20$

1. What is inorganic Benzene? Write it's structure.
2. What are the important ores of Nickel and Plutonium? Write their formula.
3. What are the steps involved in a pyro-metallurgical process?
4. Count the number of particles per unit cell of F.C.C. Lattice.
5. What are disteriomers? Give an example.
6. State Saytzeff's rule. Give an example.
7. Give the synthesis of Nitroglycerine.
8. Phenols are more acidic than alcohol. Give reason.
9. Define heat capacity.
10. State Joule-Thomson effect.
11. State Grothus-Drapper's Law.
12. Why aqueous Solution of Ammonium Chloride is acidic?

II. Answer any six of the following. Each question carries 5 marks : $6 \times 5 = 30$

1. Explain Steno's Law of Constancy of Internal Angles.
2. Explain Schottky Defect.
3. Write the advantages of powder metallurgy.
4. Explain 'R' and 'S' notations for compounds with one asymetric center with example.
5. Write the machanism and Stereochemistry of SN_1 reaction.
6. Explain the mechanism of Gattermann Synthesis.
7. Write a note on Flourescence and Phosphorescence.
8. Derive Gibb's-Helmoltz equation.
9. Derive the relation between Kh, Kw, Ka, and Kb for the salt of weak acid and weak base.

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III. 1. Explain Ellingham's diagram. Write the imporant features.

Or

2. Explain the following : 3+3

a) Stoichiometric crystals.

b) Space lattice

c) Silicates

IV. 1. What is optical activity? Explain 'D' and 'L' configuation taking suitable example.

2. Give the method of synthesis of epoxide. Explain the mechanism of acid catalysed open of epoxide.

Or

1. Explain the mechanism of Ladrer mannase acid catalysed reaction.

2. Write the mechanism of elimination-addition of nucleophilic aromatic substitution reaction through Benzyne intermediate.

V. 1. Derive an expression $W = R(T_2 - T_1)\ 1n\ \frac{v_2}{v_1}$ with the help of Carnot's cycle.

Or

1. Calculate the pH of 0.01 m aqueous solution of NH_4Cl at 25°C.Given $Kb = 1.8 \times 10^{-5}$, $Kw = 1.008 \times 10^{-14}$

2. State and explain Beer-Lambert's Law.