

B.Sc. II-Semester (CBCS) Examination, May / June 2019

Subject : Chemistry

Time : 3 Hours

Paper - II

Max. Marks: 80

PART - A (5 x 4 = 20 Marks)

(Short Answer Type)

Note : Answer any FIVE of the following questions.

- 1 Write about the reactivity of Nitrous acid with FeSO_4 and $\text{K}_2\text{Cr}_2\text{O}_7$.
- 2 Give an account of Titanium triad.
- 3 What is Friedel Craft's Acylation reaction? Explain with one example.
- 4 Outline the mechanism of nitration of Benzene.
- 5 Derive Bragg's Equation.
- 6 Define Consolute Temperature and explain Trimethyl amine-water system.
- 7 Write a note on types of Semiconductors.
- 8 Discuss Superconductivity of Materials.

PART - B (4 x 15 = 60 Marks)

(Essay Answer Type)

Note: Answer ALL from the following questions.

- 9 (a) Explain in detail the structure, bonding and reactivity of Oxides and Oxyhalides of Xenon.

OR

- 10 (b) Discuss the variable oxidation states, magnetic properties and complex formation ability of d-block elements.

- 11 (a) What are Nucleophilic Substitution Reactions? Explain the mechanism of SN^1 and SN^2 reactions with an optically active Halide.

OR

- (b) Draw the Molecular Orbital Diagram of Naphthalene and explain the reactivity of Naphthalene towards the electrophilic substitution reactions.

- 12 (a) What are Azeotropic Mixtures? Explain the Fractional Distillation of $\text{HCl-H}_2\text{O}$ system.

OR

- (b) Define Boiling point. Derive an expression for the relation between elevation in boiling point and molecular weight of a non-volatile solute.

- 12 (a) Explain in detail the Band theory of metals.

OR

- (b) Discuss the classification of Composites in detail.