

BACHELOR OF SCIENCE (CBCS-2018 COURSE)
S. Y. B. Sc. Sem-III : WINTER- 2022
SUBJECT : CHEMISTRY : ORGANIC & INORGANIC CHEMISTRY-III

Day : Thursday

Time : 10:00 AM-01:00 PM

Date : 15-12-2022

W-18351-2022

Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Answers to both the sections should be written in the **SEPARATE** answer book.
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SECTION – I

- Q.1** Attempt **ANY TWO** of the following: [12]
- a) Draw chair conformation of cyclohexane indicating axial and equatorial hydrogen with the help of potential energy diagram explain the stability of different conformers of cyclohexane.
 - b) What is homolysis and heterolysis? Discuss the formation of carbonium ion as intermediate.
 - c) Give any two methods for synthesis of pyridine and write action of following reagent on Pyridine:
i) $\text{H}_2\text{SO}_4, 350^\circ\text{C}$ ii) $\text{H}_2/\text{Pt}, 25^\circ\text{C}$
- Q.2** Attempt **ANY TWO** of the following: [12]
- a) Distinguish between electrophiles and nucleophiles.
 - b) Explain the t-butyl group in t-butyl cyclohexane is locked in equatorial position.
 - c) Write a note on Williamson synthesis of ether.
 - d) Describe effect of acidic and basic reagents on epoxides in detail.
- Q.3 A)** Attempt **ANY ONE** of the following: [06]
- i) What are different types of reactions? Write in detail about substitution reaction with example.
 - ii) Define and explain the following:
1) Effect of monosubstituted and disubstituted cyclohexane on conformation

SECTION – II

- Q.3 B)** Attempt **ANY ONE** of the following: [06]
- i) What are transition elements? Write general characteristics of d-block elements.
 - ii) Explain Baeyer's process for purification of aluminium.
- Q.4** Attempt **ANY TWO** of the following: [12]
- a) Explain the trends in Melting and Boiling points of d-block elements.
 - b) What is 'Roasting' in metallurgy? Explain different types of roasting in metallurgy.
 - c) Explain biological importance of iron.
- Q.5** Attempt **ANY FOUR** of the following: [12]
- a) Explain Electrostatic separation method in metallurgy.
 - b) What is Serpeck's process in metallurgy of Aluminium?
 - c) Comment on 'Reactivity' of d-block elements.
 - d) How Calcium and Magnesium are important in biological systems?
 - e) Define Ore and Mineral. Write any two types of ores?
 - f) Write different applications of Aluminium.

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