

Reg. No. : .....

Name : .....

Third Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/Improvement) Examination, November 2022  
(2019 Admission Onwards)  
CORE COURSE IN CHEMISTRY/POLYMER CHEMISTRY  
3B04CHE/PCH : Organic Chemistry – I

Time : 3 Hours

Max. Marks : 40

*Instruction : Answer the questions in English only.*

## SECTION – A

Very short answer type. **Each** carries 1 mark. Answer **all 4** questions.

- When benzene is treated with n-propyl chloride in presence of  $AlCl_3$ , the product is
- Give an example for edible dye.
- Give an example for a compound showing optical isomerism without any stereocentre.
- What is the hybridization of carbon in triplet carbene ? (4×1=4)

## SECTION – B

Short answer type. **Each** carries 2 marks. Answer **any 7** questions out of 10.

- Arrange the following in the increasing order of their  $K_a$  values. Justify your answer Fluoroacetic acid, Chloroacetic acid, Bromoacetic acid, Iodoacetic acid.
- Differentiate between asymmetric and dissymmetric molecules.
- What is meant by Ziegler Natta polymerization of alkenes ?
- Distinguish between chromophore and auxochrome. Give examples.

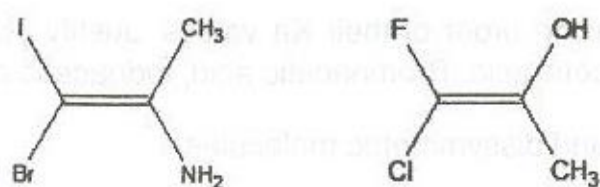
P.T.O.

- How methyl orange is synthesized ?
- What are active methylene compounds ? Give two examples.
- What is the difference between conformation and configuration ?
- What are antiaromatic compounds ? Give two examples.
- How isotope effects are used for the determination of reaction mechanisms ?
- Which will undergo nitration more readily: Toluene or benzene ? Why ? (7×2=14)

## SECTION – C

Short essay/problem type. **Each** carries 3 marks. Answer **any 4** questions out of 6.

- Why  $HCOOH$  can be esterified easily than trimethyl acetic acid ?
  - Why  $NF_3$  is a much weaker base than  $(CH_3)_3N$  ?
- Define specific rotation. Find out the specific rotation at 20°C for sodium (D line) light for a solution of 3 g of an enantiomer dissolved in ethanol to make 100 mL of solution. The observed rotation is  $+2.10^\circ$  in 10 cm polarimeter tube.
- What is Wittig reagent ? Give the preparation and synthetic application of it.
- Explain the number average molecular weight and weight average molecular weight of a polymer.
- Designate E, Z notation to each of the following.



- Explain the following statement:  $-NO_2$  group is a deactivating and meta directing whereas  $-Cl$  group is a deactivating o, p directing towards electrophilic substitution. (4×3=12)

## SECTION – D

Long essay/problem type. **Each** carries 5 marks. Answer **any 2** questions out of 4.

- What are free radicals ? Give an account of their structure and stability.
- Why carboxylic acid is stronger acid than phenol ?
  - Write a note on Reformatsky reaction. (2+3)
- Discuss the conformational analysis of n-butane and compare the relative stabilities of its various conformer.
  - Differentiate between racemization and resolution. (3+2)
- How benzene can be converted into benzene Sulphonic acid ? Explain with mechanism.
  - What are conducting polymers ? Give two examples. (3+2)