



K20U 1812

Reg. No. :

Name :

**III Semester B.Sc. Degree CBCSS (OBE) – Regular
Examination, November 2020
(2019 Admission Only)
CORE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
3B03CHE/PCH : Organic Chemistry – I**

Time : 3 Hours

Total Marks : 40

Instruction : Answer the questions in English only.

SECTION – A

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

1. Among methyl, ethyl, isopropyl and tert-butyl cations, which is the most stable ?
2. What is the general term used to describe a synthetic process in which an optically active chiral compound is produced from an achiral compound ?
3. Which is the least stable conformer of ethane ?
4. What is the product formed when N-bromosuccinimide is heated with propene ?
(4×1=4)

SECTION – B

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

5. Why is trimethylamine less basic than dimethylamine ?
6. What are electrophiles ? Give two examples.
7. Distinguish between a singlet carbene and a triplet carbene.
8. What is tropylium ion ? Explain its aromaticity on the basis of Hückel's rule.
9. Differentiate between asymmetric and dissymmetric molecules.
10. Draw the Fischer projections of the optical isomers of 2-bromobutane.

P.T.O.



11. Give any two postulates of Baeyer's strain theory.
12. What are conducting polymers ? Give two examples.
13. How is Nylon-66 prepared ?
14. Give the structure of methyl orange. (7×2=14)

SECTION – C

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

15. Explain the term hyperconjugation and its significance with illustrative examples.
16. What are annulenes ? Give the names and structures of two annulenes that are aromatic.
17. Discuss the optical isomerism of lactic acid.
18. Give the preparation and applications of the following :
 - a) Phenol-formaldehyde resin
 - b) Buna-S.
19. Explain the term chromophore and auxochrome with suitable examples.
20. What is Wittig reagent ? Give the preparation and synthetic application of Wittig reagent. (4×3=12)

SECTION – D

Long essay type – **Each** carries **5** marks – Answer **2** questions out of 4.

21. Discuss the generation, structure and stability of carbocations.
22. a) Explain the mechanism of Sulphonation of benzene.
b) Explain the term ortho-para ratio.
23. a) What is optical activity ? Which types of organic molecules exhibit optical isomerism ?
b) Draw different conformations of cyclohexane. Which is more stable ? Why ?
24. a) Explain Reformatsky reaction.
b) How are the following obtained with the help of ethyl acetoacetate :
 - i) Crotonic acid
 - ii) Glutaric acid
 - iii) 3-methylpentan-2-one. (2×5=10)