E 8510 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2019

Third Semester

Core Course—FUNDAMENTALS OF ORGANIC CHEMISTRY

[Common for the Programmes of B.Sc. Chemistry Model I and Model II, B.Sc. Petrochemicals, B.Sc. Chemistry Environmental and Water Management]

(2013—2016 Admissions)

Time : Three Hours Maximum Marks : 60

Part A

Answer **all** *questions.*

Each question carries 1 *mark.*

1. Give the IUPAC name of the compound : CH_3-CH(OH)(CH_3)-CH_2 CHO.
2. What are electrophiles ? Give an example.
3. Distinguish between inductive and indutomeric effects.
4. Draw the structure of (S)-1-bromo-1-chloropropane
5. Draw the conformers of cyclohexane.
6. What are ring deactivating groups ?
7. What is (are) the product (s) obtained when naphthalene is sulphonated ?
8. What is Huckel's rule ?

(8 × 1 = 8)

Part B

Answer any **six** *questions.*

Each question carries 2 *marks.*

9. Write down the rules involving in giving the IUPAC name of bicycloalkanes
10. What are the different types of organic reactions ? Give one examples each.
11. What are free radicals ? How they differ from carbocations and carbanions ?
12. Distinguish between enatiomers and stereoisomers.
13. What are the factors affecting the stability of a stereoisomer ?

Turn over

14. What do you mean by configuration in stereochemistry ?

15. What is dihedral angle ? What is its significance ?

16. Discuss the stereochemistry of the product(s) obtained by hydrolysis of $C_6H_{11}CH(Cl)CH_3$.

17. Why is it difficult to obtain ortho bromoaniline from aniline ?

18. Discuss the aromaticity of tropylium cation

(6 × 2 = 12)

Part C

Answer any **four** *questions.*
Each question carries 4 *marks*

19. Briefly discuss the mesomeric effect and resonance. How these effects affect the reaction ?

20. Discuss the effect of nucleophile and leaving group in organic substitution reactions.

21. Briefly explain the mechanisms of E1 and E2 reactions.

22. Discuss the geometrical isomerism exhibited by unsymmetrical keoximes.

23. Discuss the stereochemistry of biphenyls.

24. Explain the orientation behavior of nitro and nitryl group on phenols.

(4 × 4 = 16)

Part D

Answer any **two** *questions.*
Each question carries 12 *marks.*

25. (a) Explain the mechanism of addition of bromine to double bond.

    (b) Discuss various types of polymerization.

26. (a) What is racemisation ? Discuss two methods used for racemisation.

    (b) Discuss any *one* of the methods for asymmetric synthesis.

27. (a) By taking examples explain the orientation of aromatic substitutions.

    (b) What are the methods used to distinguish geometrical isomers in of organic compounds ?

28. (a) Discuss the reactivity of naphthalene towards electrophilic substitution.

    (b) Explain the mechanism of Friedel- Craft's alkylation.

(2 × 12 = 24)