

Reg. No

Name

22U320

B.Sc. DEGREE END SEMESTER EXAMINATION : OCTOBER 2022

SEMESTER 3 : CHEMISTRY

COURSE : 19U3RCHE3 : ORGANIC CHEMISTRY - I

(For Regular - 2021 Admission and Improvement / Supplementary - 2020 / 2019 Admissions)

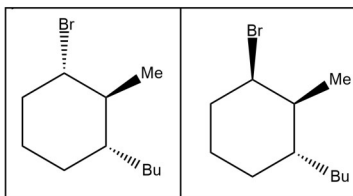
Time : Three Hours

Max. Marks: 60

PART A

Answer All (1 mark each)

1. In strongly acidic medium, aniline exists mainly as
2. The electrophile generated in the sulphonation of benzene is
3. Arrange the following in the decreasing order of acid strengths : CH_3COOH , $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$, $\text{CH}_3\text{CH}_2\text{CH}(\text{Cl})\text{CH}_2\text{COOH}$, $\text{ClCH}_2\text{CH}_2\text{COOH}$, $\text{CH}_3\text{CH}_2\text{COOH}$, $\text{CH}_3\text{CH}(\text{Cl})\text{CH}_2\text{COOH}$
4. Draw the structure of (Z)-2-methyl-2-buten-1-ol
5. What are the possible conformations of ethane?
6. What is the stereochemical relationship between the following molecules.



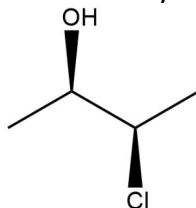
7. Write the Structural formulae of the following compound
2-amino-3-bromo-4-methylpentanoylchloride
8. Define resonance energy.

(1 x 8 = 8)

PART B

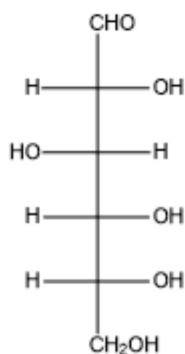
Answer any 6 (2 marks each)

9. Draw the erythro and threo forms of the molecule given below.



10. Draw the structure of bicyclo (4. 3. 1) decane
11. Discuss how the electrophile is generated during the sulphonation of benzene.
12. Methyl group do not possess an unshared pair of electrons but it is an ortho para directing group towards electrophilic substitution reactions in benzene. Account.
13. Write the Structural formulae of the following compounds
a) 2-ethyl-4,5-dimethylheptanal and b) 4-hydroxy-3,5-dimethoxybenzaldehyde
14. Which is more stable, 2 - butene or 1- butene? Explain.
15. Explain addition reaction with examples

16. Assign R and S terminology to the third and the fourth carbon in D-glucose.



(2 x 6 = 12)

PART C

Answer any 4 (5 marks each)

17. Explain Huckel's rule of aromaticity with reference to benzenoid and non benzenoid compounds.
18. Explain what you understand by Rectus and Sinister system of designating chiral centres? State and illustrate the sequence rules.
19. Discuss the different types of carbenes and their structure.
20. Explain the following:
Ionic addition of HBr on $\text{BrCH}_2\text{CH}=\text{CH}_2$ gives 1,2 -dibromopropane while radical addition gives 1,3 dibromopropane.
21. Explain the mechanism of sulphonation of Naphthalene.
22. State the necessary and sufficient conditions for a compound to show enantiomerism. Illustrate your answer with two examples.

(5 x 4 = 20)

PART D

Answer any 2 (10 marks each)

23. How do you account for the relative stability of primary, secondary and tertiary alkyl carbocations?
24. What do you understand by pericyclic reactions? Discuss various types of pericyclic reactions.
25. Explain the various methods used for racemization and resolution.
26. Elaborate any three mechanisms involved in Aromatic Nucleophilic Substitution.

(10 x 2 = 20)