

M. Sc. DEGREE (C.S.S.) EXAMINATION, NOVEMBER 2021
[2021 Admissions Regular and 2020 Admissions Improvement & Supplementary]
SEMESTER I - CORE COURSE (CHEMISTRY)
CH1C02TM20 - STRUCTURAL AND MOLECULAR ORGANIC CHEMISTRY

Time : 3 Hours

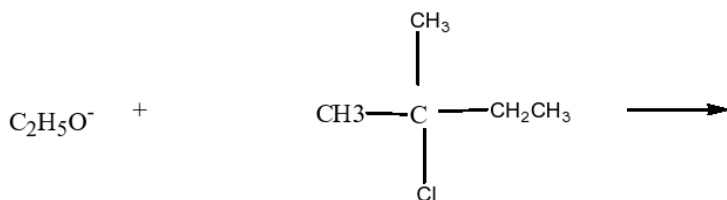
Maximum Weight : 30

Part A**I. Answer any Eight questions. Each question carries 1 weight****(8x1=8)**

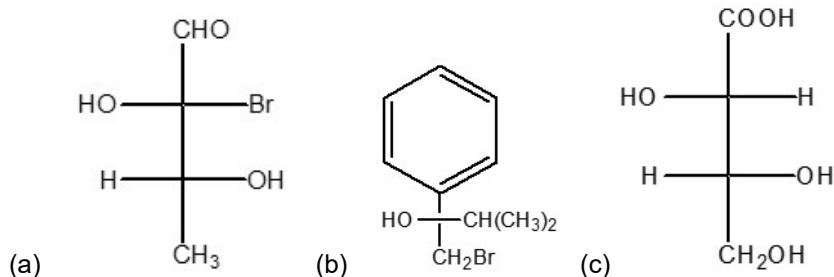
1. Discuss the MO picture of Butadiene.
2. Differentiate between different types of bonding in organic chemistry.
3. Explain Arenium ion intermediates.
4. Explain primary kinetic isotopic effect.
5. Explain with example carbon acids.
6. Explain the stereochemistry of Ansacompounds.
7. Explain prostereoisomerism.
8. Give different methods for the determination of configuration of geometrical isomers
9. Discuss the conformational stability of 1,2 dibromo cyclohexane.
10. Sketch the (e-e) conformation of 1,2 diphenyl cyclohexane and predict the stability.

Part B**II. Answer any Six questions. Each question carries 2 weight****(6x2=12)**

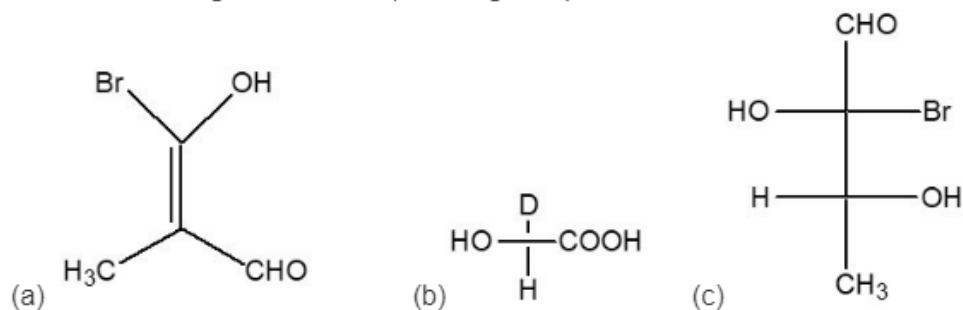
11. Predict the product and explain the mechanism



12. Discuss with suitable example non-Benzenoid aromatics.
13. Distinguish between endothermic and exothermic reactions based on energy diagram.
14. Discuss HSAB principle and its applications.
15. Give the absolute configuration of following compounds



16. Predict the configuration of following compounds.



17. Sketch the conformations of the following isomers and compare the stabilities a) cis and trans isomers of 1,2-dimethyl cyclohexane b) Chair and half chair conformation of cyclohexane
18. Differentiate cis and trans decalins with respect to their conformation and stability.

Part C

III. Answer any Two questions. Each question carries 5 weight

(2x5=10)

19. Explain addition-elimination and elimination -addition mechanism of nucleophilic aromatic substitution.
20. (a) Distinguish between AAC1 and BAL1 mechanism of ester hydrolysis with experimental evidence. (b) Briefly explain Norrish reactions with mechanism.
21. Discuss the R and S configuration using Cahn Ingold Prelongs rule taking suitable examples
22. Illustrate with suitable examples the conformation analysis of fused and bridged bicyclic systems.