

QP CODE: 22001593



22001593

Reg No : .....

Name : .....

**M Sc DEGREE (CSS) EXAMINATION, JULY 2022**

**First Semester**

**CORE - CH500102 - STRUCTURAL AND MOLECULAR ORGANIC CHEMISTRY**

M Sc CHEMISTRY, M Sc ANALYTICAL CHEMISTRY, M Sc APPLIED CHEMISTRY, M Sc PHARMACEUTICAL CHEMISTRY, M Sc POLYMER CHEMISTRY

2019 ADMISSION ONWARDS

9A2E3A79

Time: 3 Hours

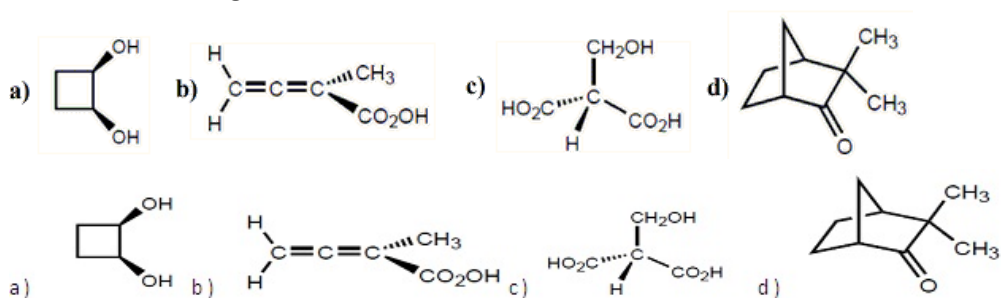
Weightage: 30

**Part A (Short Answer Questions)**

Answer any **eight** questions.

Weight 1 each.

1. Explain the aromaticity of cycloheptatrienyl cation
2. What is a Wheland complex?
3. Explain the steps involved in the esterification by  $B_{AC}^2$  mechanism.
4. What is photo Fries rearrangement?
5. Unlike ethyl methyl amine, 2-butanamine can be resolved into enantiomers. Why?
6. Which of the following molecules are chiral? Give reason.



7. What is prostereoisomerism?
8. Gauche conformer of 2-chloro ethanol is stabler then its anti. Explain.
9. Draw the conformations of adamantane and norbornane.
10. Axial conformer of cyclohexane reacts faster than equatorial. Why?

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

Answer any **six** questions.

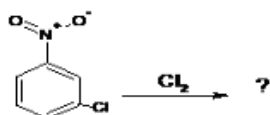
Weight 2 each.

11. Illustrate elimination -addition and addition-elimination mechanisms

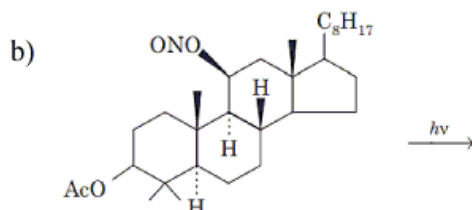
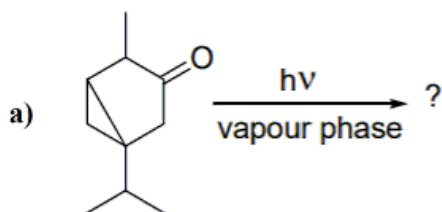




12. State Hammond Postulate. Explain the significance of Hammond postulate with examples
13. Discuss the photochemistry of Vision
14. Write a brief note on Akamptisomerism.
15. Briefly discuss geometrical isomerism and methods for the determination of configuration of geometrical isomers.
16. What are the major products of dehydrohalogenation of *trans*-1-chloro-2-methylcyclohexane under E2 conditions? Explain with structures.
17. Predict the product of the given reaction and explain.



18. Predict the products and mechanism of the following photochemical reactions:



(6×2=12 weightage)

### Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19. Write a note on various electron displacement effects in organic compounds and their applications.
20. Discuss the concept of hard/soft acids and bases and its applications in organic chemistry.
21. Discuss briefly the Norrish Type and Barton reactions.
22. Discuss the stereochemistry and chirality of allenes and biphenyls and explain their configurational assignment taking suitable example.

(2×5=10 weightage)

