



<b>QP CODE: 25804440</b>	25804440	<b>Reg No</b>	:	.....
		<b>Name</b>	:	.....

**INTEGRATED MSc DEGREE EXAMINATION, OCTOBER 2025**

**Fifth Semester**

INTEGRATED MSc BASIC SCIENCES - CHEMISTRY

**CORE - ICH5CR03 - ORGANIC CHEMISTRY-II**

2020 Admission Onwards

55E4B5CD

Time: 3 Hours

Weightage: 30

**Part A (Short Answer Questions)**

Answer any **eight** questions.

Weight **1** each.

1. Draw the structure of picric acid. Write any two uses.
2. Explain why chiral tertiary amines cannot be resolved.
3. Predict the products formed on nitration of aniline. Give reason for your answer.
4. Draw the cyclic and haworth structure of glucose.
5. Discuss the steps to convert glucose to arabinose.
6. Convert pentanoic acid to butanoic acid
7. Prepare adipic acid from cyclohexanol and THF. Give three synthetic uses of adipic acid.
8. List any five synthetic uses of diethyl malonate.
9. How are alkene epoxides prepared through the reaction with halohydrins? Provide an example.
10. What happens when ethylene oxide reacts with a)  $\text{HCl}, \text{H}_2\text{O}/\text{H}^+$  b)  $\text{C}_6\text{H}_5\text{MgBr}$

(8×1=8 weightage)

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

Answer any **six** questions.

Weight **2** each.

11. Discuss the steps in the synthesis of methylamine using Gabriel phthalimide and Hofman bromamide reaction. Describe the mechanism.
12. Write a note on different methods to prepare benzyl halides from diazonium salts.





13.	Discuss the properties of aspartame and sucralose. Which is more suitable for use in cooking and baking? Why?
14.	Discuss the mechanism of (i) Perkin condensation reaction (ii) Reformatsky reaction.
15.	Explain the significance of citric acid as a naturally occurring hydroxy acid. Explain its synthesis from glycerol. Discuss its structure, and its importance in various industries such as food, pharmaceuticals, and cosmetics.
16.	Write any two methods of preparation, important reactions and uses of benzene sulphonic acid.
17.	Discuss a method to prepare ethyl acetoacetate from ethyl acetate? Discuss the reactions of ethyl acetoacetate.
18.	Discuss any 5 reactions of thioethers citing examples with equations.
(6×2=12 weightage)	

### Part C (Essay Type Questions)

Answer any **two** questions.

Weight 5 each.

19.	Explain the structure, preparation and uses of diazoacetic ester and diazomethane.
20.	Describe in detail the structure of a) cellulose b) starch c) maltose d) sucrose
21.	Discuss any 4 methods of preparation of carboxylic acids with mechanisms.
22.	Investigate the role of thiols in industrial processes, such as their use in the production of polymers and pharmaceuticals. Discuss also the toxicological properties of thiols and the potential health hazards associated with exposure to certain thiols.
(2×5=10 weightage)	

