

Total No. of Printed Pages:2

**SUBJECT CODE NO: -BB-2303**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. (CBCGS)(Pattern 2022) T.Y SEM V**  
**Examination November / December 2025**  
**Chemistry-XVII Organic Chemistry**

[Time: 1:30Hours]

[Max. Marks: 40]

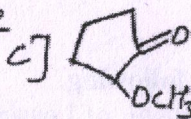
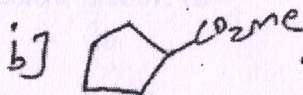
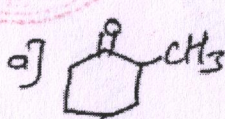
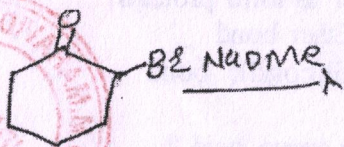
Please check whether you have got the right question paper.

N. B

1) All questions are compulsory.

**Q1 Answer the following Question.****10**

1. The major product formed in the following reaction is:



d] None of the above

- The Schmidt reaction involves the reaction of an aromatic compound with:
  - Sodium nitrite ( $\text{NaNO}_2$ ) and  $\text{HCl}$
  - Sodium azide ( $\text{NaN}_3$ ) and  $\text{H}_2\text{SO}_4$
  - Ammonia ( $\text{NH}_3$ ) and  $\text{H}_2\text{SO}_4$
  - Nitric acid ( $\text{HNO}_3$ ) and  $\text{H}_2\text{SO}_4$
- What is the purpose of using synthons in organic synthesis?
  - To predict the stereochemistry of a reaction
  - To identify the reagents needed for reaction
  - To represent the hypothetical fragments of molecules and plan synthetic routes
  - To determine the yield of a reaction
- What is the primary goal of Functional Group Interconversion (FGI) in organic synthesis?
  - To form carbon-carbon bonds
  - To break carbon-heteroatom bonds
  - To convert one functional group into another
  - To change the stereochemistry of a molecule
- What is the correct structural representation of glucose?
  - $\text{CH}_2\text{OH}(\text{CHOH})_4\text{CHO}$
  - $\text{CH}_2\text{OH}(\text{CHOH})_5\text{CHO}$
  - $\text{CH}_2\text{OH}(\text{CHOH})_4\text{COCH}_3$
  - $\text{CH}_2\text{OH}(\text{CHOH})_5\text{COCH}_3$

6. What is the common name for fructose  
a) Grape sugar      b) Fruit sugar      c) Cane sugar      d) Malt sugar
7. What type of bond is responsible for linking glucose units together in cellulose?  
a) Peptide bond      b) Ester bond      c) Ether bond      d) Glycosidic bond
8. Sucrose is-----sugar.  
a) Reducing      b) non-Reducing  
c) Reducing and non-reducing      d) None
9. What type of bond links amino acids together to form proteins?  
a) Ester bond      b) Ether bond  
c) Peptide bond      d) Glycosidic bond
10. At physiological pH, What is the form of an amino acid ?  
a) Fully protonated      b) Fully deprotonated  
c) Zwitterion      d) Neutral molecule

**Q2 Solve Any four of the following.**

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1. Describe mechanism of Lossen rearrangement.
2. Discuss synthetic applications of DMSO-DCC / DMSO-Ac<sub>2</sub>O.
3. Propose a possible retrosynthesis for acetophenone.
4. Explain, with suitable example zwitterion.
5. Discuss tertiary structure of proteins.

**Q3 Solve any two of the following:**

8

1. Explain different types of intermediates in rearrangement.
2. Propose a possible retrosynthesis for benzyl benzoate and show forward synthesis also.
3. Explain reaction of amino acids with Sanger's reagent.

**Q4 Solve any two of the following:**

10

1. Give the synthetic applications of Li(t-BuO)<sub>3</sub>AlH.
2. Discuss reactions of glucose with acid, base, and phenylhydrazine.
3. Explain concept of ampholytes and isoelectric pH.