

Roll No.

Total Pages : 3

322602

May 2026

B.Sc. Chemistry VI Semester

Organic Chemistry-V (BCH-602)

Time : 3 Hours]

[Maximum Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) What are anomers? (1.5)
- (b) What are edible dyes? Write examples. (1.5)
- (c) What are auxochromes? Give examples. (1.5)
- (d) How the PVC is prepared? (1.5)
- (e) What is finger print region in IR spectroscopy? (1.5)
- (f) What is Beer-Lambert's law? (1.5)
- (g) What are biodegradable polymers? (1.5)
- (h) What is Ziegler Natta Catalyst? (1.5)

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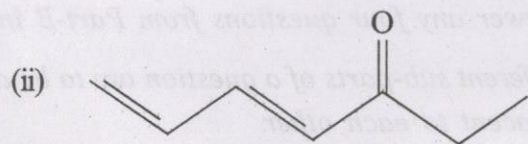
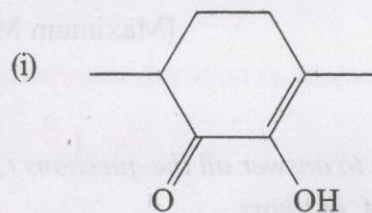
(i) Write the structure of L-Fructose. (1.5)

(j) What is Chemical Shift? (1.5)

PART-B

2. (a) Explain various types of electronic transitions in UV spectroscopy with examples. (6)

(b) Predict the I_{\max} values in following molecules: (4)



(c) What are the applications of UV spectroscopy? (5)

3. (a) Explain the factors affecting the stretching frequencies in IR spectroscopy. (4)

(b) What is the principle of NMR spectroscopy? (5)

(c) Explain anisotropy effect in alkenes, alkynes and aldehydes. (6)

4. (a) What is effect of H-bonding in IR spectroscopy? (5)

(b) Explain the ^1H NMR spectrum of ethyl acetate, ethanol and Cyclobuta-1,3-diene in detail. (6)

(c) What are the applications of NMR spectroscopy? (4)

5. Write a brief note on following:

(i) Mutarotation.

(ii) Epimers.

(iii) Ruff degradation.

(iv) Killani-Fischer synthesis.

(v) Biological importance of Carbohydrates. (15)

6. (a) Write the synthesis and use of (i) Malachite Green (ii) Methyl Orange (iii) Alizarin. (12)

(b) What are mordant and vat dyes? (3)

7. (a) What are thermosetting polymers? Explain the preparation of any two thermosetting plastics. (5)

(b) Explain Ziegler-Natta polymerization of alkenes. (3)

(c) What are synthetic fabrics? Explain the synthesis of Buna-S and Chloroprene. (7)