

(i) Printed Pages : 2

(ii) Questions : 9

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B.A./B.Sc. (General) 5th Semester
(2125)

CHEMISTRY

(Same for B.Sc. Microbial and Food Technology)

Paper—XVIII (Organic Chemistry—A)

Time Allowed : Three Hours]

[Maximum Marks : 22

Note :— Attempt any ONE question each from Units I to IV.
Unit-V is compulsory.

UNIT—I

- (a) Define chromophore and auxochrome with examples. 2
(b) Differentiate between bathochromic and hypsochromic shift. 2
- (a) Explain the role of solvent in UV spectroscopy. 2
(b) Calculate λ_{\max} for 1,3-butadiene using Woodward–Fieser rules. 2

UNIT—II

- (a) Explain stretching and bending vibrations in IR spectroscopy. 2
(b) Write IR absorptions of C=O and O–H groups. 2

4. (a) What is the fingerprint region in IR? 2
(b) Explain any two factors affecting IR absorption frequencies. 2

UNIT—III

5. (a) Define chemical shift and explain shielding/deshielding. 2
(b) Write a short note on spin-spin coupling and the N+1 rule. 2
6. The ^1H NMR spectrum of ethanol shows: δ 1.2 ppm (triplet, 3H), δ 3.6 ppm (quartet, 2H), δ 4.8 ppm (singlet, 1H) :
(a) Assign the peaks to the correct protons. 2
(b) Explain the splitting of CH_2 and CH_3 groups. 2

UNIT—IV

7. (a) What is epimerisation? Discuss with an example. 2
(b) What is mutarotation? Explain briefly. 2
8. (a) Compare starch and cellulose. 2
(b) Convert glucose to fructose. 2

UNIT—V

9. Define the following:
(1) Overtones
(2) Fermi Resonance
(3) Coupling constant
(4) Shielding
(5) Erythro diastereomer
(6) Why does the UV spectrum consist of bands and not peaks? 6