

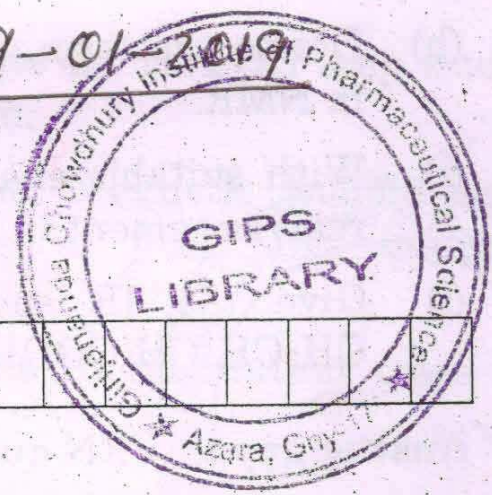
09-01-2019

Total No. of printed pages = 3

**MPH 101T**

Roll No. of candidate

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2018

**M.Pharm. 1st Semester End-Term Examination**

**MODERN PHARMACEUTICAL ANALYTICAL  
TECHNIQUES**

**(New Regulation)**

**(w.e.f. 2017-2018)**

Full Marks – 75

Time – Three hours

The figures in the margin indicate full marks  
for the questions.

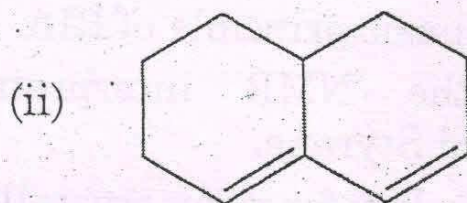
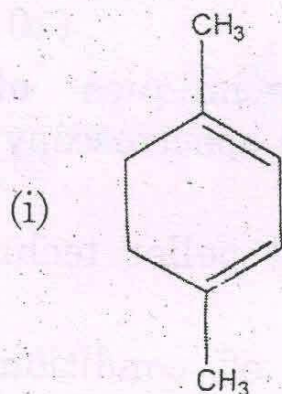
1. Answer ALL questions. (10 × 2 = 20)
  - (a) Name the various techniques of colour comparison in UV-visible spectroscopy. Discuss any one technique.
  - (b) Write about the pressed pellet techniques of IR spectroscopy.
  - (c) Write the importance of conditioning and preconditioning in HPTLC techniques.
  - (d) Write about the basic principle of RIA.
  - (e) Write down the NMR interpretation of Acetaldehyde and Styrene.
  - (f) Write the Bragg's law for x ray crystallography.
  - (g) Write about the application of TLC with the focus on quantitative analysis.

[Turn over

- (h) Define the term coupling constant and flipping in NMR.
- (i) With suitable example write about McLafferty rearrangement in Mass spectroscopy.
- (j) Give the IR spectroscopic interpretation of  $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$ .

2. Answer any SEVEN questions : (7 × 5 = 35)

- (a) Give an account of various types of burner used in flame photometry.
- (b) Diagrammatically represents the various transition of electrons in a molecule in fluorimetry.
- (c) Discuss the various types of elution procedure in column chromatography.
- (d) Write short note on Chemical shift and Spin-spin coupling.
- (e) Write about the various types of ion produced in Mass spectrometer.
- (f) Calculate the  $\lambda_{\text{max}}$  for the following compounds.



- (g) Write short note on HPLC Pump and sample injection system.
- (h) Discuss Nuclear Magnetic Double Resonance with reference to pure and impure ethyl alcohol.
- (i) Write about the fragmentation rules in Mass Spectroscopy.

3. Answer any TWO questions.  $(2 \times 10 = 20)$

(a) Differentiate between Dispersive and Fourier Transform IR spectrometer. Write about the various techniques of sample preparation. Give a schematic diagram of double beam IR Spectrophotometer. Write then application of IR spectroscopy.  $(2.5 + 2 + 2.5 + 3 = 10)$

(b) Discuss the theory of Mass Spectroscopy and derive the equation for  $m/e$  ratio. Discuss the various types of ionization techniques in MS.  $(5 + 5 = 10)$

(c) Write short note on :

(i) ELISA

(ii) Paper electrophoresis

(iii) Woodward-Feiser rules for calculating absorption maxima.  $(4 + 3 + 3 = 10)$