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Total No. of Pages : 02

Total No. of Questions : 06

M.Pharm(Pharmaceutical Chemistry) (2017 &amp; Onwards) (Sem.-2)

**ADVANCED SPECTRAL ANALYSIS**

Subject Code : MPC-201T

M.Code : 74955

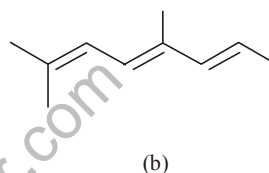
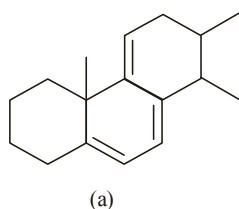
Time : 3 Hrs.

Max. Marks : 75

**INSTRUCTIONS TO CANDIDATES :**

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

1. a) Describe Woodward-Fieser rule for the calculation of  $\lambda_{\max}$  for conjugated dienes. 5
- b) Use the Woodward-Fieser rule to calculate  $\lambda_{\max}$  for following compounds : 5



- c) Describe the frequency shift related to stretching frequencies of C=O under the influence of intermolecular and intramolecular hydrogen bond in common organic compounds. 5
2. a) What is the principle of COSY experiment of 2D-NMR? Describe its advantages over the other experiments. 7
- b) Predict the multiplicity of signals in <sup>1</sup>H NMR spectra of :
  - i) CH<sub>3</sub>COCH(CH<sub>3</sub>)<sub>2</sub> 4
  - ii) CH<sub>3</sub>COOCH(CH<sub>3</sub>)<sub>2</sub> 4
3. a) Explain the importance of following in interpretation of mass spectra of organic compounds :
  - i) Isotopic peak 4
  - ii) McLafferty rearrangement 4
- b) Predict the masses of ions produced in mass spectrum of hexene by McLafferty rearrangement. 7

4. Explain the principle and describe the applications of :
- a) LC-MS 7.5
  - b) Super critical fluid chromatography. 7.5
5. a) Describe the principle and instrumentation of DSC. 7.5
- b) Describe the instrumentation and applications of Raman spectroscopy. 7.5
6. a) Explain the principle and describe procedure of radioimmunoassay of insulin. 7.5
- b) Describe the applications of ion exchange chromatography. 7.5

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**