

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. – SEMESTER – VII • EXAMINATION – WINTER • 2014

Subject Code: 270004

Date: 02-12-2014

Subject Name: Pharmaceutical Analysis-III

Time: 10:30 am - 01:30 pm

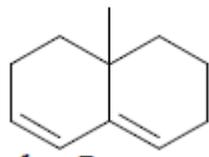
Total Marks: 80

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is mass spectroscopy? Enlist the ionization techniques used in MS. **06**
Explain Chemical ionization technique in detail.
- (b) Why isotope peaks are present in mass spectrum of a compound? **05**
- (c) Write short notes on any two **05**
(i) Mc-Lafferty rearrangement
(ii) Base Peak
(iii) Metastable ion
- Q.2** (a) State and explain Beer's law. Discuss the factors leading to deviation from this law. **06**
- (b) Give an account of the detectors used in UV VIS spectrophotometer. Add a note on monochromators. **05**
- (c) Calculate concentration in $\mu\text{g/ml}$ of drug (Mol.Wt-204.2) in 1M NaOH, giving absorbance of 0.613 in 3 cm cell of λ_{max} value of 277nm, the Molar absorptivity Value is 732 at 277nm. **05**
- Q.3** (a) Explain the theory of fluorescence and phosphorescence. Discuss the factors affecting fluorescence intensity. **06**
- (b) Draw a well labeled diagram of Spectrofluorimeter. Explain advantages and limitations of fluorescence spectroscopy. **05**
- (c) Write a note on pharmacopoeial applications of fluorimetry. **05**
- Q.4** (a) Explain the principle of Atomic absorption Spectroscopy. Give its applications. **06**
- (b) Give Differences between AAS and AES. **05**
- (c) Explain very briefly: ICP, radiation buffers, Laser and Zeeman. **05**
- Q.5** (a) Explain: Precession, Spin number, Magnetogyretic ratio and Diamagnetism. **06**
- (b) Discuss factors affecting chemical shift. **05**
- (c) Write a short note on C^{13} -NMR. **05**
- Q. 6** (a) Give a detailed account of various regions of electromagnetic spectrum. **06**
- (b) Explain types of stretching and bending vibration in IR spectroscopy. Explain Fingerprint Region. **05**
- (c) Give a brief account on sample handling in I.R Spectroscopy. **05**
- Q.7** (a) What type of electronic transitions are possible for each of the following compounds? **06**
- i. Cyclopentene
 - ii. Acetaldehyde
 - iii. Dimethyl ether
 - iv. Methyl vinyl ether
 - v. Triethylamine
 - vi. Cyclohexane

- (b) The observed value of λ_{max} of the following compound is 234nm. Explain. **05**



- (c) Calculate stretching frequency of C-H in alkane by hook's law($k= 5 \times 10^5$ dynes/cm) **05**
