[Total No. of Questions - 14] [Total No. of Printed Pages - 2]
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M. Pharmacy 1st Semester Examination

Advanced Pharmaceutical Instrumental Analysis

MP-011

Time : 3 Hours **Max. Marks : 90**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt all questions. Any one question from Section A, any three question from Section B and any six questions from Section C.

SECTION - A (Long Answer)

1. Discuss the term HETP and retention time with reference to Gas chromatography. Write Principle and Instrumentation of HPTLC with basic difference between HPTLC and TLC?

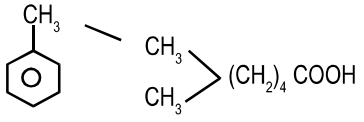
2. Write down the principle and instrumentation of UV spectrometer. Give different rule of woodward fischer's rule of λ_{max} calculation for α, β unsaturated dienes with example?

(1×30=30)

SECTION - B (Short Answer)

3. Write principle of FTIR. Describe different Sampling Techniques in IR-spectroscopy.

4. Write instrumentation of Mass spectrometry with its application in pharmacy. Give fragmentation pattern of following compounds.



5. Draw a neat labelled diagram of HNMR spectrometer and describe its working. Write down the factor affecting chemical shift of organic compound.

6. How will you distinguish the following pair of compounds using IR spectral data?

   (a) ethanol and phenol

   (b) Aniline and Toluene

   (c) Benzophenone and Benzaldehyde

   (d) Acetamide and Benzoic acid. **(3×10=30)**

SECTION - C (Short Notes)

7. Give a detailed account on Detectors used in Gas chromatography.

8. Write down the applications of TGA, TDA, DSC in Pharmacy.

9. Write different ion sources in Mass spectrometry.

10. Elaborate on factors affecting Electrophoretic mobility.

11. What are the different Elution Techniques in Ion Exchange chromatography? Give its applications.

12. Write principle of HPLC. Give a detailed account on coloums used in HPLC.

13. Give applications of TEM and SEM.

14. Give advantages of HPLC method over other chromatographic methods. **(6×5=30)**