QP Code: 831006 **Reg. No…….**

Eighth Semester B. Pharm Degree Regular Examinations May 2022
Advanced Instrumentation Techniques

(2017 Scheme)

Time: 3 Hours **Max. Marks: 75**

- ***Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space***
- ***Answer all parts of a single question together • Leave sufficient space between answers***
- ***Draw diagrams wherever necessary***

Essays **(2x10=20)**

1. Explain the principle and instrumentation of mass spectroscopy.
2. What are the different types of liquid – liquid extraction. Explain with at least two major advantages of each.

Short Notes **(7x5=35)**

3. Which types of compounds are active in NMR spectroscopy and why.
4. What is chemical shift and how is it helpful in interpreting NMR spectrum.
5. What are the following in Mass Spectrometry.
    - Metastable peak
    - Molecular ion peak
    - M+ peak
    - Daughter ion peak
6. What is the role of matrix used in MALDI. List the desirable characteristics of a matrix to be used. Name some matrices used in conventional MALDI technique.
7. Fast Atom Bombardment ionization technique.
8. Thermobalance used in Thermo Gravimetric Analysis.
9. How is HPLC pump calibrated. Explain.

Answer Briefly **(10x2=20)**

10. How many signals will CH_3CH_2OH show in proton NMR and why.
11. What is gyromagnetic ratio.
12. Water and ethanol are the most common solvents used in NMR work. Is it true. Why or why not.
13. Amongst methyl chloride and methyl bromide, which one will a higher chemical shift and why.
14. Bragg's Equation in X-ray diffraction
15. What are the properties measured in Differential Thermal Analysis and Differential Scanning Calorimetry.
16. What is x-ray crystallography.
17. What is specificity in analytical method validation and how is it checked.
18. What is counter current extraction.
19. Limitation and applications of Radio immuno assay

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