

**THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY**

**[B.PHARM 0524]**

**MAY 2024**

**Sub. Code: 2087**

**B.PHARMACY DEGREE COURSE (SEMESTER EXAMINATIONS)  
PCI Regulation 2017 - SEMESTER VIII  
PAPER VII - ADVANCED INSTRUMENTATION TECHNIQUES**

*Q.P. Code: 562087*

**Time: Three hours**

**Maximum: 75 Marks**

**I. Elaborate on: Answer any TWO questions.**

**(2 x 10 = 20)**

1. Explain the working principle and construction involved in Interfaces in LC-MS/MS.
2. Discuss the Different ionization methods in mass spectroscopy
3. Write the principle and instrumentation of NMR with a neat diagram.

**II. Write notes on: Answer any SEVEN questions.**

**(7 x 5 = 35)**

1. Explain the pumps used in HPLC.
2. Give short notes on Columns used in GC.
3. Explain the instrumentation of HPTLC.
4. Explain the working principle and construction involved in Interfaces in GC-MS/MS.
5. Write short notes on Applications in LLE.
6. Discuss the principle in SPE.
7. Discuss the Different methods of Radio immuno assay.
8. Write the Calibration procedure of Gas chromatography.
9. Discuss the Calibration procedure of UV spectroscopy.

**III. Short answers on: Answer ALL questions.**

**(10 x 2 = 20)**

1. Chemical shift.
2. Nitrogen rule.
3. Coupling constant.
4. Metastable ions.
5. Types of Thermogravimetry.
6. Define Heat Capacity.
7. Derive Bragg's law.
8. Freeze Thaw stability.
9. Give any two applications of powder crystal method.
10. Why is TMS used as internal standard in NMR?

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