

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

**[B.PHARM 0323]**

**MARCH 2023  
(SEPTEMBER 2022 EXAM SESSION)**

**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 principle, instrumentation and applications of Nuclear Magnetic Resonance spectroscopy.
2. Explain in detail about the working and the types of inter phases used in working of GC-MS.
3. Write the principle, methods and applications of radio immune assay.

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

**(7 x 5 = 35)**

1. Write the principle involved in mass spectroscopy.
2. Write the steps involved in Solid phase extractions.
3. What are the factors to be considered for selection of solvent in liquid-liquid extraction?
4. Explain the principles and applications involved in Differential Scanning Calorimetry.
5. Describe with neat diagram the working of X-ray tube.
6. Define validation and write the need for validation of a method.
7. Write short notes on thermo-gravimetric analysis.
8. Explain in detail about MALDI.
9. Explain the calibration parameters of an IR spectrophotometer.

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

**(10 x 2 = 20)**

1. Define Accuracy.
2. Define Precision.
3. Define  $M^+$  Peak.
4. Write any two applications of liquid – liquid extraction.
5. Write any two applications of X-ray diffraction.
6. Define Partition coefficient.
7. Write any two applications of LC-MS.
8. Define chemical shift.
9. Write the Bragg's Equation.
10. Define Concurrent validation.

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