

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

**[M.PHARM 0524]**

**MAY 2024  
(APRIL 2024 EXAM SESSION)**

**Sub. Code: 2955**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER - II (PCI New Regulations 2016)  
PHARMACEUTICAL ANALYSIS - MPA  
PAPER I – ADVANCED INSTRUMENTAL ANALYSIS**

*Q.P. Code: 262955*

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. a) Describe the principle and instrumentation of mass spectroscopy.  
b) Summarize in detail the different mass spectrometry ionization methods.  
c) Write a note on Mass analysers.
  
2. a) Describe the principle and instrumentation HPLC.  
b) Briefly explain the principle and applications of super - critical fluid chromatography.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Describe the detectors that are utilized in gas chromatography.
2. Discuss in detail about FT-NMR technique.
3. Explain about the working and applications of HPTLC.
4. Describe the working and uses of nano-liquid chromatography.
5. Write a brief note on spin-spin coupling and spin-lattice relaxation processes.
6. Explain capillary electrophoresis.
7. Hyphenated techniques in Mass Spectroscopy.

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