

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

**[MPHARM 0921]**

**SEPTEMBER 2021  
(OCTOBER 2020 EXAM SESSION)**

**Sub. Code: 2951**

**M.PHARMACY DEGREE EXAMINATION  
SEMESTER-I (PCI New regulations 2016)  
PHARMACEUTICAL ANALYSIS - MPA  
PAPER I – MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES  
*Q.P. Code : 262951***

**Time : Three hours**

**Answer ALL Questions**

**Maximum : 75 Marks**

**I. Elaborate on:**

**(2 x 20 = 40)**

1. a) Write the instrumentation and solvent requirement in NMR spectroscopy.  
b) Write a detailed note on  $^{13}\text{C}$  NMR.  
c) Predict the number of peaks with relative intensity in the spectra of Toluene.
2. a) Write the principle and instrumentation involved in HPLC.  
b) Discuss in detail about the developmental techniques and detection techniques in TLC.

**II. Write notes on:**

**(7 x 5 = 35)**

1. Explain the thermal transitions in DTA curve.
2. Write about the electronic transitions in UV spectroscopy.
3. Explain the sampling techniques in IR Spectroscopy.
4. Explain the theory of fluorescence with Jablonsky diagram.
5. Write a note on types of ion exchangers and the mechanism involved in ion exchange chromatography.
6. Write notes on any two mass analyzers.
7. Explain capillary electrophoresis.

\*\*\*\*\*