

CODE NO: 6102/PCI

**FACULTY OF PHARMACY**

**M. Pharmacy I – Semester (Main & Backlog) Examination, January 2020**  
**(Common Paper for all Except Pharmacy Practice)**

**Subject : Modern Pharmaceutical Analytical Techniques**

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

**Note:** Answer any Five Questions. All Questions Carry Equal Marks.

1. (a) State and explain Beer- Lambert's law. Add a note on the deviations from Beer's law. 8  
(b) Explain solvents and the selection criteria for UV/Visible spectroscopy. 4  
(c) What is solvent shift? 3
2. (a) Explain the principle and instrumentation of FTIR with a neat labelled diagram. 8  
(b) Explain abt the sampling techniques and applications of FR spectroscopy 7
3. (a) What is the principle of Fluorescence? Explain the radiative and non radiative pathways of relaxation. 7  
(b) Add a note on the factors affecting fluorescence and quenchers in fluorescence. 6  
(c) What are the criteria for a molecule to exhibit the phenomena of fluorescence 2
4. (a) Explain the principle of proton NMR spectroscopy. 5  
(b) What is the significance of chemical shift. What are the factors affecting chemical shift ? 6  
(c) Explain abt spin -spin crippling and it's importance in NMR 4
5. (a) Classify the ionization techniques in MS. Explain any three methods in detail. 12  
(b) Differentiate between Base peak and molecular ion peak. 3
6. (a) Explain HPLC instrumentation. 10  
(b) What are the applications of HPLC? 5
7. (a) Explain Braggs equation and derive the equation. 8  
(b) What is the principle involved in rotating crystal technique? 7
8. Explain the principle, working and applications of  
(a) Capillary electrophoresis 7<sup>1/2</sup>  
(b) Gel electrophoresis 7<sup>1/2</sup>

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