

FACULTY OF PHARMACY**M. Pharmacy (Pharm. Analysis) II-Semester (PCI) (Main) Examination,****August 2018****Subject: Advance Instrumental Analysis****Time: 3 Hrs****Max. Marks: 75****Note: Answer any five questions. All questions carry equal marks.**

- 1 a. Explain about various types of columns and column problems in HPLC. (9)
b. Write the principle and advantages of Ultra and Nano liquid chromatography? (6)
- 2 a. Discuss about ion exchange chromatography and write in detail about its applications? (7)
b. Explain the various components of HPTLC and write its advantages over column chromatography? (8)
- 3 a. Write about various detectors used in GLC? (10)
b. Explain the principle and basic configuration of capillary electrophoresis? (5)
- 4 Elaborate with neat sketch, the instrumentation of mass spectrometry? (15)
- 5 a. What do you mean by chemical shift? Explain the various factors influencing it? (10)
b. Explain about nuclear double resonance and its applications? (5)
- 6 a. Mention various tandem MS/MS systems and explain any one briefly with neat sketch? (9)
b. Discuss the principle and applications of size exclusion chromatography? (6)
- 7 a. Explain about preparative HPLC? (7)
b. Discuss about FT NMR with reference to C^{13} NMR (8)
- 8 a. Explain about LC-NMR hyphenation. (9)
b. Write about fragmentation rules in MS? (6)
