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Total No. of Pages : 02

Total No. of Questions : 06

**M.Pharm(Pharmaceutical Chemistry) (2017 & Onwards) (Sem.-1)**
**MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES**
**Subject Code : MPC-101T**
**M.Code : 74663**

Time : 3 Hrs.

Max. Marks : 75

**INSTRUCTIONS TO CANDIDATES :**

1. Attempt any FIVE questions out of SIX questions.
2. Each question carries FIFTEEN marks.

- Q1. a. Describe the principle, instrumentations and applications of Atomic absorptions spectroscopy. (10)
- b. Describe various factors affecting fluorescence. (5)
- Q2. a. Describe the role of quantum numbers in NMR spectroscopy. (2)
- b. Which types of solvents are used in  $^1\text{H}$  NMR? (2)
- c. How many signals will you get in NMR of 1, 4-bis(bromomethyl)benzene? (2)
- d. Name the compound used to standardise NMR. (2)
- e. Write a note on  $^{13}\text{C}$  NMR spectroscopy. (7)
- Q3. a. What are metastable ions? How can these detected in Mass Spectrometry? (3)
- b. What is McLafferty rearrangement? (2)
- c. Describe FAB and MALDI in Mass Spectrometry. (5)
- d. Write a note on applications of Mass Spectrometry. (5)
- Q4. a. Name the types of columns used in gas chromatography. (2)
- b. Describe various detectors used in HPLC. (8)
- c. Write a note on ion exchange chromatography. (5)



- Q5. a. What is Bragg's Law? (4)
- b. Describe the principle, instrumentation and working of isoelectric focusing. (6)
- c. Describe the applications of X-ray diffraction. (5)
- Q6. a. Write a note on principle and working of ion selective electrode. (5)
- b. Write a note on DTA. (5)
- c. Write a note on applications of DSC. (5)

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**

