**M. Pharm 1st Semester Examination**

**Subject- Pharmaceutics (MPHI0IT)**

 **Full Marks- 75 Time – 3 hours**

 **Answer any five questions:**

**1. Explain the Principles involved in FT – NMR Spectroscopy. What are different mechanisms for spin – Lattice relaxation of excited**

**nuclei. (15)**

**2. What are different regions of ƖR – radiation? Discuss various types of stretching and bending vibrations with examples. (15)**

**3. Briefly describe the basic principles of mass spectrometry. Principles of mass spectrometry. Discuss single -focusing and double-focusing spectrometers. (15)**

**4. Explain the principles of Gas chromatography. Briefly discuss the factors affecting GC. Mention various applications of GC. (15)**

**5. State and explain Brag’s Law. Mention various applications of x-ray diffraction. (15)**

**6. Write short notes on (15)**

 **(a) RIA**

 **(b) ELISA**

 **(c) Bioluminescence assays.**

**7. Explain the principle, instrumentation and application of (15)**

 **(a) Gel electrophoresis**

 **(b) Moving boundary electrophoresis.**