**M. Pharm 1st Semester Examination**

**Subject- Phytochemistry (MPGI03T)**

**Full Marks- 75 Time – 3 hours**

**Answer any five questions:**

**1. Enumerate the source and biosynthesis of Ephedrine and**

**Sennosides. (15)**

**2. Describe the isolation, purification, characterization and industrial utilization of Berberine and Hecogenin. (15)**

**3. Briefly discuss the drug discovery process from natural source. Explain the optimization of lead compounds during drug discovery by citing the example of Artemesin. (15)**

**4. Discuss the recent advances in extraction methods and the selection of solvent for extraction of phytoconstituents. Write a note on microwave assisted extraction. (15)**

**5. Enumerate the structure elucidation of Citral and Caffeine by spectroscopic techniques. (15)**

**6. Answer all. (7.5x2=15)**

**(a) Discuss the methods followed for detection and estimation of the radioactively -labelled compounds during biogenetic studies.**

**(b) Explain the characterization of herbal extracts by HPTLC finger printing technique with suitable example.**

**7. Write short- note on Followings. (5x3=15)**

**(a) Clinical trials**

**(b) Flash Column Chromatography**

**(c) GCMS**