

**M PHARM**  
**(SEM-I) THEORY EXAMINATION 2018-19**  
**CELLULAR AND MOLECULAR PHARMACOLOGY**

**Time: 3 Hours**

**Total Marks: 75**

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

- 1. Attempt all questions in brief. 10 x 2 = 20**
- a. Give the importance of siRNA and micro RNA.
  - b. Define NO and IP<sub>3</sub>.
  - c. Give JAK / STAT signaling pathway.
  - d. Define DNA electrophoresis.
  - e. Write a note on micro array technique.
  - f. Define biosimilars.
  - g. Give a note on gene mutation.
  - h. Define immunotherapeutics.
  - i. Differentiate apoptosis and necrosis.
  - j. Write about gene sequencing.

**SECTION B**

- 2. Attempt any two parts of the following: 2 x 10 = 20**
- a. Give in detail about recombinant DNA technology and gene therapy with applications.
  - b. Define cell culture, types and general procedure for cell culture.
  - c. Classify receptor family and their molecular structure.

**SECTION C**

- 3. Attempt any five parts of the following: 7 x 5 = 35**
- a. Give detail about cell cycle and its regulation.
  - b. Explain cellular death, regulation and its pathways.
  - c. Give genetic variation in drug transporters.
  - d. Give a note on ELISA and western blotting.
  - e. Give the principles and applications of cell viability assays.
  - f. Explain gene mapping and cloning of disease gene.
  - g. Explain pharmacogenomics with its applications.