M 176/015

Enrolment Number										

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Monsoon, 2023

M. Pharm (Pharmacology) Semester Examinations

CELLULAR & MOLECULAR PHARMACOLOGY

Course Code: MPL104T

Full Marks – 75 **Time –3 hours**

The figure in the margin indicates full marks for the questions.

1. Explain the following terms:*(word limit: 100 words)* (6X2 = 12)
   a. Apoptosis
   b. SDS page
   c. siRNA and microRNA
   d. Genomics
   e. Biosimilars
   f. Gene mapping
2. Answer the following questions:*(word limit: 100 words)* (4X2 = 8)
   a. What do you mean by gene therapy?
   b. Define the subculture of cells.
   c. Write the importance of recombinant DNA technology.
   d. G-protein coupled receptor.
3. Short answers (Answer any seven) *(word limit: 500 words)* (7 X 5 = 35)
   a. Explain the principle and applications of MTT assay.
   b. Write a note on the DNA gel electrophoresis. Mention the various applications.
   c. Discuss the role of metabolomics and proteomics in research.
   d. Define gene therapy.Write a note on various types of gene transfer techniques.
   e. Explain the role of immunotherapeutics in clinical pharmacology.
   f. Explain the cell signalling mediated through the AMPK and JAK/STAT pathways.
   g. Write a note on cell cycles and their regulation.
   h. Describe in detail the procedure and purpose of cryopreservation of cells.

i. Write a note on genetic variation in G protein-coupled receptors.

4. Long answers (Answer any two)*(word limit: 1000 words)* (2 X 10 = 20)

a.Define the term cell cultures. Classify with examples. Discuss in detail the basic types of equipment used in the cell culture lab. (1+2+7)

b. Explain the principle and significance of ELISA and western blotting technique. (5+5)

c.Describe the structure and functions of the cell and its organelles with a neat labelled diagram. (10)