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2023

M.Pharm. 1st Semester End-Term Examination

CELLULAR AND MOLECULAR PHARMACOLOGY

Full Marks - 75

Time - Three hours

The figures in the margin indicate full marks for the questions.

1. Define the following terms : (6 × 2 = 12)
 - (a) Biosimilars
 - (b) Cryopreservation
 - (c) Necrosis
 - (d) Autophagy
 - (e) Metabolomics
 - (f) Gene cloning.
2. Answer the following questions : (4 × 2 = 8)
 - (a) What do you mean by gene mapping?
 - (b) Write the importance of restriction enzymes.
 - (c) Secondary messengers.
 - (d) AMPK signaling pathway.
3. Short answers (Answer any seven) : (7 × 5 = 35)
 - (a) Explain the principles and applications of cell viability assay.
 - (b) Discuss the role of genomics and proteomics in research.
 - (c) Define gene therapy. Write a note on various types of gene transfer techniques.
 - (d) Explain the role of immunotherapeutics in clinical pharmacology.

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- (e) Explain the cell signalling through G-protein coupled receptor (GPCR).
- (f) Discuss the importance of siRNA and microRNA in gene regulation.
- (g) Write a note on the Polymerase chain reaction (PCR). Mention the various applications.
- (h) Describe the concepts of gene sequencing.
- (i) Discuss the role of the nuclear receptor in pharmacology.

4. Long answer (Answer any two) : (2 × 10 = 20)

- (a) (i) Define cell cultures. Classify with examples. Write a note on basic equipments used in the cell culture lab. (1+1+3)
- (ii) Discuss the principles and applications of recombinant DNA technology. (2.5+2.5)
- (b) Define the cell cycle with a neat labelled diagram. Discuss the various phases of the eukaryotic cell cycle and write a note on cell cycle inhibitors. (4+4+2)
- (c) Explain the principle and significance of ELISA and western blotting. (5+5)