

[Time: 3 Hours]

[Max. Marks: 75]

Cellular and Molecular Pharmacology**Q.P. CODE: 5136**

Your answers should be specific to the questions asked.

Draw neat, labeled diagrams wherever necessary.

LONG ESSAY (Answer any Three)**3 X 10 = 30 Marks**

1. Explain the general requirements of establishment of animal cell cultures laboratory and add a note on passaging and preservation of eukaryotic cell cultures.
2. Explain the various pathways to apoptosis. Write the differences between apoptosis and necrosis.
3. Discuss the principles involved in recombinant DNA technology. Mention the applications of rDNA technology.
4. What is gene sequencing and genomic mapping? Mention various gene sequencing methods. Explain the Maxam and Gilbert method of gene sequencing in detail.

SHORT ESSAY (Answer any Nine)**9 X 5 = 45 Marks**

5. Define and classify receptors? Describe the signalling via ligand gated ion channels.
6. Explain the principles and applications of flow cytometry.
7. Explain the role of calcium ion as tertiary messenger.
8. Describe the basic concepts and principles of gene therapy.
9. Discuss the basic principle and applications of RT-PCR.
10. Describe the role of immunotherapeutics in clinical pharmacology.
11. Discuss the principle and applications of ELISA.
12. How do biosimilars differ from biological?
13. Write the application and limitations of genomics and proteomics.
14. What are primary and secondary messengers? Give examples. Describe the role of cAMP as secondary messenger.

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