[Time: 3 Hours] [Max. Marks: 100]

Molecular Biology (Revised Scheme 4)

Q.P. CODE: 9351

Your answers should be specific to the questions asked. Draw neat, labeled diagrams wherever necessary.

## LONG ESSAY (Answer any TWO)

2 X 20 = 40 Marks

- 1. Explain different phases of cell cycle. Write in detail the checkpoints and regulators of cell
- 2. Explain in detail the process of gene expression. Discuss the genetic elements that control gene expression.
- 3. Explain the structure and functions of plasma membrane and discuss various mechanisms of transport of small molecules and drugs across cell membrane.

## **SHORT ESSAY (Answer any FIVE)**

5 X 10 = 50 Marks

- 4. Explain properties and medical applications of induced pluripotent stem cells.
- 5. Explain the formation and applications of Restriction fragment length polymorphism.
- 6. Explain the principle and applications of Ligation Chain Reaction (LCR).
- 7. Explain principle, process and applications of antisense technology.
- 8. Write a note on biosensors.
- 9. Explain various isolation techniques for cloning vectors.

**SHORT NOTES** 2 X 5 = 10 Marks

10. Human genome project

Catalytic antibodies as tools in molecular pharmacology 11.

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