

JL – 40/14

Zoology

Paper – II

Time : 3 hours

Full Marks : 200

The figures in the right-hand margin indicate marks.

*Answer **five** questions selecting*

***one** question from each Unit.*

UNIT – I

1. What is Fluid mosaic membrane ? Explain, with illustration, various membrane models to understand how the present day accepted membrane model was built. Add a note on how molecules are transported across the membrane. 40

2. (a) What is Human Genome Project ? Explain, in detail, what are the strategies used for completion of this project. Enumerate the significance of this project on society. 20

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(Turn over)

- (b) What are the differences between necrosis and apoptosis ? Explain the molecular mechanisms involved in bringing out the apoptosis. 20

UNIT – II

3. Describe how ultra molecules are filtered in mammalian kidney with a neat diagram. What are the chemical compositions of urine ? Give an account of mechanism of urine formation. 40
4. What are Neurons ? How neurons transmit the message ? Explain the cellular organization of neurons and mechanisms of synaptic transmission. Add a note on neurosecretion. 40

UNIT – III

5. Explain how proteins are synthesized ? Give an outline of three dimensional structure of protein. Describe how protein folding makes an active protein. 40

6. Give a comparative account of different models of DNA. Explain the molecular anatomy of the organization of eukaryotic chromatin and chromosome. 40

UNIT – IV

7. Write notes on the following : 40
- (a) Interferons
 - (b) Autoimmunity
 - (c) Immunoglobulin
 - (d) Stem cells
8. "All genes are not expressed all the time. Genes are expressed differentially and hierarchically during development." Explain the statement taking any one of the animal model systems with suitable examples. 40

UNIT – V

9. (a) What is PCR ? Explain the mechanism of PCR technique. Describe the types of PCR and their utility in modern biology. 20

(b) What is chromatography ? Describe the principles of paper, gas and liquid chromatography. 20

10. (a) Describe the different methods of karyotyping and chromosomal analysis. 20

(b) Explain the histochemical methods for the localization of carbohydrate and lipid in a tissue. 20

