

M.Sc. (Part-I) Semester-II (CBCS Scheme) Examination

ZOOLOGY

(Molecular Cell Biology)

Paper-V

Time : Three Hours]

[Maximum Marks : 80

- Note :—** (1) All questions are compulsory.
(2) All questions carry equal marks.
(3) Illustrate your answers with suitable diagrams wherever necessary.

1. Give an account of the following :

- (a) Membrane potential.
- (b) Basement membrane.
- (c) Active transport.
- (d) Cell-matrix adhesion.

OR

- (e) Transport across epithelia.
- (f) Gap junctions and connexins.
- (g) Facilitated diffusion.
- (h) Collagens of extracellular matrix.

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2. Give an account of the following :

- (i) Paracrine and endocrine modes of cell signaling.
- (j) Receptor protein-serine/threonine kinases.
- (k) Properties of cell surface receptors.
- (l) Receptor protein - tyrosine kinases.

OR

- (m) G-protein-coupled receptors that regulate ion channels.
- (n) Receptor protein-guanylyl cyclases.
- (o) Cytokine receptors.
- (p) Autocrine and juxtacrine modes of cell signaling.

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3. Describe Wnt and Hedgehog pathways of signal transduction.

OR

Describe signal transduction in vision and gustation.

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4. Give an account of the following :

- (q) Role of microtubules in mitosis.
- (r) Cyclins and Cyclin Dependent Kinases (CDKs).
- (s) Dynamics of microfilaments.
- (t) Significance of apoptosis.

OR

- (u) DNA replication block and its removal.
- (v) Intermediate filaments and their functions.
- (w) Intrinsic mechanism of apoptosis.
- (x) Dynamics of microtubules.

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5. Describe co- and post-translational modifications of proteins in ER.

OR

Describe the transport of proteins across nuclear membrane.

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