

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023

Second Semester

Zoology – Core

CELL AND MOLECULAR BIOLOGY

(For those who joined in July 2021 – 2022 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Animal cells are interconnected by
(a) desmosomes (b) cell wall
(c) plasmodesmata (d) plasma membrane
2. Ribosomes are sites for
(a) protein synthesis (b) fat synthesis
(c) photosynthesis (d) respiration
7. DNA has genetic properties was revealed for the first time by
(a) Griffith (b) Chargaff
(c) Avery (d) Wilkins
8. _____ plasmid is responsible for drug resistance.
(a) Rplasmid (b) Col factor
(c) F-factor (d) Sex factor
9. The process involves transferring naked DNA fragments between bacteria is
(a) vectoring (b) transformation
(c) transduction (d) conjugation
10. Translation is the
(a) synthesis of DNA from a mRNA template
(b) synthesis of protein from a mRNA template
(c) synthesis of RNA from a mRNA template
(d) synthesis of RNA from a DNA template

3. _____ act as barriers to the diffusion of macromolecules.
(a) Gap junctions
(b) Tight junctions
(c) Junction complex
(d) Intercellular space
4. Movement of molecules from a region of greater to lower concentration is
(a) osmosis
(b) diffusion
(c) active transport
(d) passive transport
5. _____ cells secrete local chemical mediators which are taken up rapidly by neighboring cells immobilized.
(a) Paracrine signaling
(b) Synaptic signaling
(c) Active transport
(d) Autocrine signaling
6. The longest stage in the cell cycle is
(a) anaphase (b) interphase
(c) metaphase (d) telophase

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short note on structure of Golgi complex.

Or

(b) Differentiate between endothelial and epithelial cells.
12. (a) Describe about Fluid mosaic model of plasma membrane.

Or

(b) Differentiate between active and passive transport.
13. (a) Write a short notes on oncogenesis.

Or

(b) Comment on interphase with suitable illustrations.
14. (a) List out the characteristic of genetic code.

Or

(b) Comment on types and function of plasmid.

15. (a) Explain the mechanism involved in the positive control system for the regulation of gene activity in Trp-operon.

Or

- (b) Give an account on transduction with suitable illustrations.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Comment on structure and function of lysosomes.

Or

- (b) List out the functions of ribosome.

17. (a) Write an essay on Cell junction.

Or

- (b) Explain the transport of large molecule across cell membrane.

18. (a) Mention the cellular changes that occur during ageing.

Or

- (b) Summarize the pathways of intracellular signaling.

19. (a) Discuss experimental evidences for DNA as a genetic material.

Or

- (b) Comment on DNA replication.

20. (a) Differentiate between Transcription of mRNA in prokaryotes and eukaryotes.

Or

- (b) Comment on regulation of gene expression in prokaryotes.
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