

(6 pages)

Reg. No. :

Code No. : 5902

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M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2020.

First Semester

Zoology – Core

CELL AND MOLECULAR BIOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The outer most boundary of a cell is called
 - (a) Cytoplasm
 - (b) Plasma membrane
 - (c) Nuclear membrane
 - (d) None of the above

2. Ingestion of material by the cell through plasma membrane is called
 - (a) Egestion
 - (b) Diffusion
 - (c) Osmosis
 - (d) Endocytosis
3. Unicellular organism is
 - (a) Bacteria
 - (b) DNA
 - (c) Plants
 - (d) Nucleic acids
4. The spherical structured organelle contains the genetic material is
 - (a) Cell walls
 - (b) Ribosomes
 - (c) Nucleus
 - (d) Mitochondria
5. Smallest cellular organelle of cell is
 - (a) Golgi complex
 - (b) Ribosomes
 - (c) Nucleus
 - (d) Mitochondria

6. Cell sap is a
- (a) Living content of the cell
 - (b) Non-living content of the vacuole
 - (c) Non-living content of the protoplasm
 - (d) Living content of the cytoplasm
7. Protoplasm found inside the nucleus is known as
- (a) Amyloplast
 - (b) Nueleoplasm
 - (c) Cytoplasm
 - (d) Elaioplast
8. Nucleus of egg cell is called
- (a) Genophore
 - (b) Amphinucleus
 - (c) Pronucleus
 - (d) None of the above
9. Lampbrush chromosomes are seen in
- (a) Prophase
 - (b) Mitotic metaphase
 - (c) Mitosis
 - (d) Meiotic prophase

10. What is the origin of a cancerous cell
- (a) Monoclonal
 - (b) Polyclonal
 - (c) Stem cells
 - (d) Mesodermal cells

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Differentiate prokaryotes and eukaryotes with suitable sketches.

Or

- (b) Write an account on endocytosis and exocytosis with suitable illustrations.

12. (a) Explain the relationship between ER and golgi apparatus in protein sorting.

Or

- (b) Give an account on enzyme kinetics.

13. (a) Explain the significance of different signalling molecules and their receptors.

Or

- (b) Explain the roles of junctional complex in animal tissues.

14. (a) Describe the structure and functions of nuclear pore.

Or

- (b) Give an account on the process of cell fusion.

15. (a) Describe the causative agents of cancer.

Or

- (b) Discuss the extrinsic and intrinsic pathways of apoptosis.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Elaborate on the structural and functional significance of extracellular matrix with suitable illustrations.

Or

- (b) Write an essay on various types of intercellular junctions with suitable illustrations.

17. (a) Describe the events that occur in glycosylation of proteins.

Or

- (b) Explain in detail about the major morphological and functional differences RER and SER.

18. (a) Write an essay on collagen and non-collagen components of the extra cellular matrix.

Or

- (b) Elaborate on the structure, activation and interaction of integrins.

19. (a) Explain in detail about structure and major components of cytoplasm.

Or

- (b) Write an essay on the biological implications and genetic basis of cell fusion.

20. (a) Give an elaborate account on the molecular mechanisms underlying mitosis.

Or

- (b) Describe the process of human lung cancer.
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