

(6 Pages)

Reg. No. :

Code No. : 5709

Sub. Code : ZZOM 21

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022

Second Semester

Zoology — Core

CELL AND MOLECULAR BIOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following cell organelles is called a suicidal bag?
- (a) Lysosomes (b) Golgi bodies
(c) Cell membrane (d) Mitochondria

2. _____ is involved in the synthesis of phospholipids.
- (a) Mitochondria
(b) Cytoplasm
(c) Endoplasmic reticulum
(d) Smooth endoplasmic reticulum
3. In the plasma membrane, lipid molecules are arranged in
- (a) head parallel (b) alternate
(c) scattered (d) series
4. Ion carriers are located in
- (a) plasma membranes
(b) cell wall
(c) nucleus
(d) cellular space
5. The condensation of chromosomes is observed in _____
- (a) Prophase 1 (b) Anaphase 1
(c) Metaphase 1 (d) None of the above
6. Nuclear DNA replicates in the _____ phase.
- (a) G₂ phase (b) M phase
(c) S phase (d) None of the above



7. Which of the following is not a feature of the genetic code?

- (a) Triplet (b) Degenerate
(c) Non-overlapping (d) Ambiguous

8. The codon is a _____

- (a) Singlet (b) Duplet
(c) Triplet (d) Quadruplet

9. Lac operon is an example of

- (a) only positive regulation
(b) only negative regulation
(c) both positive and negative regulation
(d) sometimes positive sometimes negative

10. The sequence of the structural genes in the lac operon is

- (a) lacA-lacZ-lacY (b) lacZ-lacY-lacA
(c) lacZ-lacA-lacY (d) lacA-lacY-lacZ

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PART B --- (5 × 5 = 25 marks)

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

11. (a) Explain the structure of mitochondria.

Or

(b) Write about the structure of golgi complex.

12. (a) Briefly discuss about tight junction.

Or

(b) Write short notes on integral and peripheral proteins.

13. (a) Explain about intracellular signaling molecules.

Or

(b) Discuss about the free radical theory of aging.

14. (a) Elaborate various forms of DNA.

Or

(b) Explain the models of DNA replication.

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[P.T.O.]



15. (a) Give a brief account of trp operon concept.

Or

- (b) Discuss in detail about conjugation with suitable diagram.

PART C — ($5 \times 8 = 40$ marks)

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

16. (a) Describe the structure of nucleus.

Or

- (b) Write the functions of Golgi complex.

17. (a) Discuss in detail about polytene chromosome.

Or

- (b) Give a brief account of cell junctions.

18. (a) Elucidate the cell cycle check points.

Or

- (b) Write a detailed account of cell signaling.

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19. (a) Discuss about the structure and functions of tRNA.

Or

- (b) Elucidate the structure of DNA.

20. (a) Give a detailed account of post translational modifications.

Or

- (b) Describe the mechanism of lac operon concept.

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