

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Fourth Semester

Zoology — Core

CELL AND MOLECULAR BIOLOGY

(For those who joined in July 2020 only)

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 does not contain a cell wall?
- (a) plant cell (b) bacteria
(c) fungi (d) animal cell

7. The process by which protein synthesized from genetic code is ———

(a) Transcription (b) Translation
(c) Replication (d) Reproduction

8. This is incorrect about the nature of genetic code, codons are ———

(a) universal (b) overlapping
(c) commaless (d) triplet

9. The condensation of chromosomes is observed in ———

(a) Prophase 1 (b) Anaphase 1
(c) Metaphase 1 (d) None of the above

10. The spindle fibres are formed during ——— phase of mitosis.

(a) telophase (b) metaphase
(c) prophase (d) anaphase

2. In which of the following nucleus is not present?
- (a) Eukaryotic cell (b) Prokaryotic cell
(c) Both (a) and (b) (d) None of the above
3. A cell organelle that is present in animal cells but not in plant cell is?
- (a) cytoplasm (b) centrosome
(c) mitochondria (d) golgi complex
4. Which one is not a component of cell membranes?
- (a) phosphotriglycerides
(b) cholesterol
(c) sphingolipids
(d) phosphodiglycerides
5. Polythene chromosomes are found because of ———?
- (a) Endomixes (b) Mitosis
(c) Meiosis (d) Endomitosis
6. Centriole takes part in the formation of ———?
- (a) Nucleus (b) Spindle
(c) Cell plate (d) To start cell division

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PART B — (5 × 5 = 25 marks)

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

11. (a) Differentiate prokaryotic and eukaryotic cell.
Or
(b) Write notes on fixatives.
12. (a) Describe the structure of mitochondria.
Or
(b) Write the fluid mosaic model of plasma membrane.
13. (a) Give a note on lampbrush chromosome.
Or
(b) Comment on cell signaling.
14. (a) Write the components of DNA.
Or
(b) Describe the structure of mRNA.
15. (a) Explain synaptonemal complex.
Or
(b) List out the properties of genetic code.

PART C — (5 × 8 = 40 marks)

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

16. (a) Explain compound microscope in detail.

Or

- (b) Give an account on electron microscope.

17. (a) Explain the structure and functions of mitochondria.

Or

- (b) Explain the structure and functions of endoplasmic reticulum.

18. (a) Describe the structure of nucleus.

Or

- (b) Explain the causes and types of cancer.

19. (a) Write an essay on DNA replication.

Or

- (b) Explain DNA as genetic material with suitable example.

20. (a) Explain various stages of mitosis.

Or

- (b) Describe regulation of gene expression by lac operon.
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