

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

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 :

- All the following are components of compound microscope except
(a) Stage clips
(b) Fine adjustment
(c) Election gun
(d) Binocular eye piece

- Nucleus has _____
(a) DNA only
(b) DNA and protein only
(c) DNA, RNA and proteins
(d) None of these
- The sugar in DNA is _____
(a) Deoxyribose (b) Ribose
(c) Uracil (d) Both (a) and (b)
- Which of the following is not a component of RNA?
(a) Thymine (b) Adenine
(c) Guanine (d) Cytosine
- Chromosomes are separated during?
(a) Prophase (b) Anaphase
(c) Metaphase (d) Telophase
- RNA contains _____ sugar.
(a) Ribose (b) Maltose
(c) Deoxybose (d) Deoxyhexose

- In phase contrast microscopy, the rate at which light enters through objects is _____
(a) Constant
(b) Inversely proportional to their refractive indices
(c) Directly proportional to their refractive indices
(d) Exponentially related to their refractive indices
- Which of the following cell organelles is called the power house of the cells?
(a) Nucleus (b) Lysosomes
(c) Chloroplast (d) Mitochondria
- Which cell Organelle contains RNA?
(a) Plastids (b) Mitochondria
(c) Lysosomes (d) Ribosomes
- The light stained and diffused region of chromatin is known as
(a) Heterochromatin (b) Euchromatin
(c) Chromatin (d) None of these

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

- (a) Write notes on fixatives.
Or
(b) Summarize the properties of eukaryotic cell.
- (a) Comment on Centrioles.
Or
(b) Describe the functions of lysosomes.
- (a) Explain briefly about cell signaling.
Or
(b) Give a short note on Oncogenesis.
- (a) Explain the components of DNA.
Or
(b) Write a note on DNA finger print.

15. (a) Comment on Synaptonemal complex.

Or

(b) Explain Lac Operon.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Describe the principle and applications of electron microscope.

Or

(b) Explain compound microscope.

17. (a) Describe the ultrastructure of Mitochondria with suitable diagram.

Or

(b) Explain the structure and functions of Golgi apparatus.

18. (a) Explain the structure and functions of nucleus.

Or

(b) Describe polytene chromosome.

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19. (a) Explain transcription.

Or

(b) Write an essay on DNA as genetic material with any two examples.

20. (a) Describe the stages of Mitosis.

Or

(b) Explain the different stages of Meiosis.

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