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Reg. No. :

Code No. : 9085

Sub. Code : PZOM 12

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2017.

First Semester

Zoology

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. F1 particles are found in the _____
membrane of mitochondrion.
- (a) Outer
 - (b) Inner
 - (c) Both (a) and (b)
 - (d) NOTA

2. Krebs cycle mainly takes place in the
- (a) ribosomes
 - (b) golgi complex
 - (c) mitochondria
 - (d) plasma membrane
3. A branched oligosaccharides is transferred to the polypeptide chain by
- (a) oligosaccharide-protein transferase
 - (b) methyl transferase
 - (c) acetyl choline
 - (d) protease
4. Proteolytic cleavage of glycoprotein occurs in the
- (a) RER
 - (b) Ribosomes
 - (c) Golgi complex
 - (d) Nucleus
5. Cadherins are Ca²⁺ dependent
- (a) CAMs
 - (b) ECM
 - (c) Amino acids
 - (d) Hormones
6. Collagen is the major insoluble fibrous protein found in the
- (a) ECM
 - (b) CAMs
 - (c) Both (a) and (b)
 - (d) NOTA

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7. _____ is resulted due to the fusion of nuclei of two different cells.

- (a) Synkaryon (b) Heterokaryon
(c) Homokaryon (d) Both (a) and (b)

8. Karyoplasts refer to

- (a) nuclear components
(b) organelles
(c) homokaryon
(d) both (a) and (b)

9. In vertebrates, caspase activation depends on _____ of tropic factor.

- (a) absence (b) presence
(c) both (a) and (b) (d) minerals

10. Uncontrolled cell division is noticed with

- (a) embryonic cells (b) normal cells
(c) cancer cells (d) bacteria

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Write notes on uniporter, symporter and antiporter.

Or

- (b) Compare and contrast the characteristics of prokaryotes with that of eukaryotes.

12. (a) Write a detailed account on the ultra structure of ribosomes.

Or

- (b) Explain the structural organization of lysosome.

13. (a) What is cell signaling? Explain any one signal transduction pathway in animal cells.

Or

- (b) Write notes on the molecular organization of integrins.

14. (a) Briefly explain the ultra structure of nucleus.

Or

- (b) What is cell fusion? Explain how is a heterokaryon produced.



15. (a) Briefly explain various phases of mitosis.

Or

- (b) Write an essay on the salient features of cancer cells.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) What is GLUT I? Explain its structure and kinetics for the transport of glucose across the plasma membrane.

Or

- (b) Write notes on :

- (i) Ultra structure of mitochondrion
- (ii) Krebs cycle.

17. (a) Briefly explain the biosynthesis of nascent polypeptide chain on an mRNA, ribosome and RER.

Or

- (b) Write notes on :

- (i) Glycosylation
- (ii) Formation of disulfide bonds in protein.

18. (a) Discuss in detail about the activation of transcription factors with response to an extracellular signal molecule.

Or

- (b) What is nucleocytoplasmic interaction? Explain it with experimental evidences.

19. (a) What is nuclear transplantation? Explain it with experimental evidences.

Or

- (b) What is synkaryon? Explain its importance in cytogenetics.

20. (a) Compare and contrast the salient features of benign and malignant tumour cells.

Or

- (b) What are cyclins and colks? Explain how does the cyclin-colks complex work out in the M phase of cell cycle.

