Avinashlingam Institute for Home Science and Higher education for Women

(Deemed to be University), Coimbatore-641043

Bachelor's Degree examination-November 2018

I Semester

Class: I UG **Time: 3 Hours**

Major: Biochemistry and Biotechnology **Maximum Marks: 100**

18BBTC01 – Introduction to Biotechnology and Cell Biology

Part A **10 x 1 = 10**

Choose the correct answer

1. Food and nutritional biotechnology is denoted by
   a. Blue b. Red
   c. Yellow d. White
2. Cell theory was proposed by
   a. Rudolf Virckow b. Schleiden and Schwan
   c. Robert Hook d. Carl Zeiss
3. The function of the cell membrane is
   a. To channel the entry of molecules b. To provide structure and shape
   c. To maintain the homeostasis d. All of the above.
4. Which of the cell organelle is responsible for electron transport chain?
   a. Mitochondria b. Golgi complex
   c. Endoplasmic reticulum d. Nucleus
5. Which phase of the cell cycle last for longer time?
   a. G1 b. S
   c. G2 d. M
6. *Pyrolobus fumarii* can survive in
   a. Hot springs b. High altitude
   c. Brackish d. Acidic
7. Sarcomere is the basic unit of
   a. CNS b. Peripheral nervous system
   c. Striated muscle tissue d. Smooth muscle tissue
8. The functions of dendrites and axonal terminals are _____ and _____ respectively.
   a. To transfer and receive the signals b. To receive and metabolize the signals
   c. To absorb and align the signals d. To receive and conduct the signals
9. Abscisic acid _____the germination.
   a. Induce b. Inhibit
   c. Enhance d. Favour
10. The pre-implantation stage embryo is called as
   a. Zygote b. 4 cell stage embryo
   c. Morula d. Blastocyst

Part B

Answer the following **5 x 6 = 30**

Answer should not exceed 400 words or two pages

11. a. Draw an outline on development of biotechnology.

or

11. b. Express your view on pre-cellular evolution.

12. a. Discuss the functions of golgi complex with schematic representation.

or

12. b. Differentiate the structure and functional importance of mitochondria and chloroplasts.

13. a. What is cell synchrony? Mention its applications.

or

13. b. Express your view on ecological amplitude of cells in diverse environment.

14. a. Discuss the general structure of smooth and skeletal muscle in detail.

or

14. b. Describe the sliding filament mechanism of muscle contraction.

15. a. Explain the mechanisms of cell death with examples.

or

15.b. Elaborate the biochemical changes during the cell senescence.

Part C **5 x 12=60**

Answer the following

Answer should not exceed 800 words or four pages

16. a. How will you classify the various cell types? Explain with examples.

or

16.b. Discuss in detail about the cell and tissue architecture leading to multicellular organisms.

17. a. Sketch the ultra structure of cell membrane model and elaborate various functions.

or

17.b. Describe the importance of nucleus, nucleoplasm, nucleolus and chromatins with diagrammatic representation.

18. a. Compare and Contrast mitosis and meiosis cell division mechanisms.

or

18. b. Elaborate various mechanisms involved in cell-cell interactions.

19. a. Microtubules, microfilaments and intermediary filaments are the components of cell locomotion – Justify.

or

19. b. Sketch the structure and explain various types of neurons and synaptic signals.

20. a. Give a detailed account on different stages of cell differentiation in plants.

or

20. b. Discuss the events of fertilization in animals and explain the stages of cell differentiation.

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