

Reg. No.

B.Tech. DEGREE EXAMINATION, DECEMBER 2022
Third and Fourth Semester

18BTB101T - BIOLOGY

(For the candidates admitted from the academic year 2018-2019 to 2021-2022)

Note:

- (i) Part - A should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- (ii) Part - B should be answered in answer booklet.

Time: 2½ Hours

Max. Marks: 75

PART - A (25 × 1 = 25 Marks)

Answer ALL Questions

Marks BL CO PO

1 1 1 1

1. Which organelle disappears when a cell divides?

(A) Ribosomes (B) Centrioles
(C) Nucleolus (D) Mitochondria

1 1 1 1

2. Microfilaments are thread like structures and made up of

(A) Chitin (B) Actin
(C) Pectin (D) Pepsin

1 1 1 1

3. In which phase of the division, the chromosomes line up at equator of cell?

(A) Prophase (B) Metaphase
(C) Telophase (D) Anaphase

1 2 1 1

4. Transfer of genetic material between prokaryotes by viruses is called

(A) Transformation (B) Conjugation
(C) Transduction (D) Conduction

1 2 1 1

5. The process of supplying ATP as energy source to synthesize macromolecules is a type of

(A) Physical work (B) Chemical work
(C) Mechanical work (D) Transport work

1 2 2 2

6. The deficiency of vitamin C causes

(A) Cholera (B) Typhoid
(C) Scurvy (D) Rickets

1 1 2 2

7. Backbone of fat molecule is

(A) Glycerol (B) Fructose
(C) Cholesterol (D) Estrogen

1 2 2 3

8. Which of the following is a start codon?

(A) UAA (B) UAG
(C) AUG (D) UGA

9. In which year, the isolation of stem cells from human embryos was done? 1 2 2 4
 (A) 1981 (B) 1978
 (C) 1999 (D) 1998
10. Who took X-ray diffraction photographs of DNA crystals? 1 1 2 1
 (A) Frederick Griffith (B) Rosalind Franklin
 (C) Watson (D) Chargaff
11. Which of the following is not a serine proteases? 1 2 3 4
 (A) Trypsin (B) Acrosin
 (C) Plasmin (D) Pepsin
12. The amino acid which is NOT involved in the active site of serine protease is 1 1 3 4
 (A) Histidine (B) Serine
 (C) Leucine (D) Aspartate
13. Identify the cysteine protease involved in the activation and implementation of apoptosis. 1 2 3 1
 (A) Calpains (B) Caspases
 (C) Papain (D) Cathepsins
14. Aspartate protease enzyme renin is present in 1 2 3 1
 (A) Kidney (B) Lung
 (C) Heart (D) Liver
15. How many number of human genome nucleotides have been sequenced in human genome project? 1 2 3 3
 (A) Three million (B) Three billion
 (C) Three trillion (D) Three thousand
16. The bunch of flagella present in one side of the bacteria is called 1 2 4 3
 (A) Peritrichous (B) Amphitrichous
 (C) Monotrichous (D) Lophotrichous
17. Which one of the structural elements of cytoskeleton is made up of actin? 1 1 4 3
 (A) Intermediate filaments (B) Microfilaments
 (C) Microtubules (D) Mitochondria
18. Addition of indigenous or exogenous microorganisms in the bioremediation process is called 1 2 4 3
 (A) Bioventing (B) Biosparging
 (C) Bioaugmentation (D) Biopiles
19. The technique of uptake of metals into plant roots is called 1 1 5 4
 (A) Rhizofiltration (B) Phytodegradation
 (C) Phytostabilization (D) Phytoextraction

20. The biosensor used to detect the changes in distribution of charge by using ion-selective electrodes? 1 2 5 3
 (A) Piezo-electric (B) Calorimetric
 (C) Potentiometric (D) Photometric
21. The smallest and the least abundant glial cell in the CNS is 1 1 5 4
 (A) Oligodendrocyte (B) Microglia
 (C) Astrocyte (D) Macroglia
22. White blood cells are involved in the process of 1 2 5 1
 (A) Carrying oxygen (B) Clotting the blood
 (C) Immune system (D) Carrying nutrients
23. During tissue repair mechanism, the mast cells are used to produce 1 2 6 4
 (A) Histamine (B) Arginine
 (C) Actin (D) Tubulin
24. Polymorphonuclear leukocyte is otherwise called 1 2 6 3
 (A) Monocyte (B) Neutrophil
 (C) Basophil (D) Eosinophil
25. The following are neurodegenerative diseases, EXCEPT 1 1 6 4
 (A) Canavan (B) Alper
 (C) Alzheimer's (D) Down syndrome

PART - B (5 × 10 = 50 Marks)

Answer ALL Questions

- | | Marks | BL | CO | PO |
|---|-------|----|----|----|
| 26. a. Explain any five cell organelles with neat and appropriate diagram. | 10 | 3 | 1 | 3 |
| (OR) | | | | |
| b. Write a discussion on the protein structure and its function. | 10 | 3 | 1 | 3 |
| 27. a. Write an essay on the different types of carbohydrates and lipids. | 10 | 3 | 2 | 1 |
| (OR) | | | | |
| b. Describe the sources, properties, types and applications of stem cell. | 10 | 3 | 2 | 1 |
| 28. a. Classify the different types of protease and explain their functions. | 10 | 4 | 3 | 4 |
| (OR) | | | | |
| b. Analyze the different types of energy reactions. | 10 | 4 | 3 | 4 |
| 29. a. Illustrate the structure and types of bacterial flagella motor. | 10 | 4 | 4 | 3 |
| (OR) | | | | |
| b. Categorize the different types of biosensor. | 10 | 4 | 5 | 1 |
| 30. a. Write a detailed essay on the cell mediated and humoral mediated immunities. | 10 | 4 | 6 | 3 |
| (OR) | | | | |
| b. Draw neat diagrams of different types of glial cells in CNS and explain. | 10 | 4 | 6 | 4 |