Reg. No.													

B.Tech. DEGREE EXAMINATION, JULY 2023
First / Second Semester

21BTB102T – INTRODUCTION TO COMPUTATIONAL BIOLOGY
(For the candidates admitted from the academic year 2022-2023)

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** and **Part – C** should be answered in answer booklet.

Time: 3 Hours   Max. Marks: 75

PART – A (20 × 1 = 20Marks)
Answer ALL Questions

	Marks	BL	CO	PO
1. Which one is involved in photosynthesis? (A) Chloroplasts (B) Endoplasmic reticulum (C) Cell wall (D) Ribosomes	1	1	1	4
2. Name the process where paternal and maternal genetic material is exchanged (A) Bivalency (B) Crossing over (C) Synapsis (D) Dyad formation	1	1	1	4
3. An example of single celled eukaryotic organism. (A) Yeart (B) Ferns (C) Bacteria (D) Protozoa	1	1	1	4
4. The organelle that has fluid filled sacs for storage (A) ER (B) Golgi (C) Vacuole (D) Centriole	1	1	1	4
5. What is the lipid related disease? (A) Scurvy (B) Rickets (C) Sickle cell anemia (D) Atherosclerosis	1	1	2	1
6. Carbohydrates are poly hydroxyl complex of (A) Glycosidic bonds (B) Glucose and glucose (C) Glucose and alcohol (D) Aldehydes and ketones	1	1	2	1
7. DNA contains (A) Glycosydic bond (B) Phosphodiester bond (C) Iconic bond (D) Peptide bond	1	1	2	1
8. Where is lipopolysaccharide present? (A) Cell cytoplasm (B) Cell membrane (C) Cell junction (D) Cell	1	1	2	1

9. Which is not a stop codon?   1   1   3   2
   (A) UAA
   (B) UAG
   (C) UGA
   (D) CGA

10. Fibrous proteins have   1   1   3   2
    (A) Structural functions
    (B) Metabolic functions
    (C) Transport functions
    (D) Enzymatic functions

11. Amyloidosis is caused by   1   1   3   2
    (A) Changes in secondary structure
    (B) Changes in tertiary structure
    (C) Changes in quaternary structure
    (D) Changes in primary structure

12. PDB database is a   1   1   3   2
    (A) Primary database
    (B) Secondary database
    (C) Tertiary database
    (D) Composite database

13. The multiple projections from the cell body of neurons are   1   1   4   1
    (A) Axons
    (B) Dendrites
    (C) Spindle fiber
    (D) Flagella

14. Which of the following cells in the brain produced from monocytes?   1   1   4   3
    (A) Microglia
    (B) Astrocytes
    (C) Schwann
    (D) Oligodendrocytes

15. Multiple sclerosis is a disease caused by   1   1   4   1
    (A) Schwann cells
    (B) Astrocytes
    (C) Skin cells
    (D) Neuronal cell body

16. Type of machine learning are   1   1   4   1
    (A) Deep learning
    (B) Supervised
    (C) Unsupervised
    (D) Dynamic

17. Immune cells that allows for subsequent recognition of antigen   1   1   5   1
    (A) Memory cell
    (B) Plasma cell
    (C) Basophil
    (D) APC

18. Name the process a cell such as a neutrophil or a macrophage use to eat prey   1   1   5   1
    (A) Chemotoxis
    (B) Phagocytosis
    (C) Endocytosis
    (D) Exocytosis

19. Which is not an auto immune diseases?   1   1   5   1
    (A) Influenza
    (B) Rheumatoid arthritis
    (C) Multiple sclerosis
    (D) Lupers

20. _____ secrete histamines to attract other immune cells.   1   1   5   1
    (A) Macrophages
    (B) Mast cells
    (C) Platelets
    (D) Neutrophils

PART – B (4 × 10 = 40 Marks)
Answer **ANY FOUR** Questions

21. State the properties and applications of stem cells.

10	2	1	4

22. Write a note on BLAST and its uses.

10	2	2	1

23. Describe transcription and the processing of its end product.

10	2	3	2

24. Write the basis of artificial neural network – also describe the parts of neural network.

10	2	4	1

25. Illustrate with neat diagrams of humoral immunity.

10	2	5	1

26. Explain the types and uses of sequence databases.

10	2	2	1

PART – C (1 × 15 = 15 Marks)
Answer **ANY ONE** Questions

27. How a skin cell is different from a nerve cells?

15	4	1	4

28. If two protein sequences are similar - Explain (Justify)
    (i)   How their function will be similar?
    (ii)   The organisms that contain these proteins are evolutionarily related

15	4	2	1

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