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? (A) UAA (B) UAG (C) UGA (D) CGA	1	1	3	2
10.	Fibrous proteins have (A) Structural functions (B) Metabolic functions (C) Transport functions (D) Enzymatic functions	1	1	3	2
11.	Amyloidosis is caused by (A) Changes in secondary structure (B) Changes in tertiary structure (C) Changes in quaternary structure (D) Changes in primary structure	1	1	3	2
12.	PDB database is a (A) Primary database (B) Secondary database (C) Tertiary database (D) Composite database	1	1	3	2
13.	The multiple projections from the cell body of neurons are (A) Axons (B) Dendrites (C) Spindle fiber (D) Flagella	1	1	4	1
14.	Which of the following cells in the brain produced from monocytes? (A) Microglia (B) Astrocytes (C) Schwann (D) Oligodendrocytes	1	1	4	3
15.	Multiple sclerosis is a disease caused by (A) Schwann cells (B) Astrocytes (C) Skin cells (D) Neuronal cell body	1	1	4	1
16.	Type of machine learning are (A) Deep learning (B) Supervised (C) Unsupervised (D) Dynamic	1	1	4	1
17.	Immune cells that allows for subsequent recognition of antigen (A) Memory cell (B) Plasma cell (C) Basophil (D) APC	1	1	5	1
18.	Name the process a cell such as a neutrophil or a macrophage use to eat prey (A) Chemotoxis (B) Phagocytosis (C) Endocytosis (D) Exocytosis	1	1	5	1
19.	Which is not an auto immune diseases? (A) Influenza (B) Rheumatoid arthritis (C) Multiple sclerosis (D) Lupers	1	1	5	1
20.	_____ secrete histamines to attract other immune cells. (A) Macrophages (B) Mast cells (C) Platelets (D) Neutrophils	1	1	5	1

PART – B (4 × 10 = 40 Marks)

Answer **ANY FOUR** Questions

		Marks	BL	CO	PO
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

		Marks	BL	CO	PO
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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