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 40<sup>th</sup> minute.
- (ii) Part B and Part C should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 75

Marks BL CO Po

$PART - A (20 \times 1 = 20Marks)$						CO	PO
	Answer <b>ALL</b> Qu	iestio	ns				
1.	Which one is involved in photosynthes	sis?		1	1	1	4
	(A) Chloroplasts	(B)	Endoplasmic reticulum				
	(C) Cell wall	(D)	Ribosomes				
2.	Name the process where paternal exchanged	and	maternal genetic material is	1	1	1	4
	(A) Bivalency	(B)	Crossing over				
	(C) Synapsis	\ /	Dyad formation				
2				1	1	1	1
3.	An example of single celled eukaryotic			1	I	1	4
	(A) Yeart		Ferns				
	(C) Bacteria	(D)	Protozoa				
4.	The organelle that has fluid filled sacs	for s	torage	1	1	1	4
	(A) ER		Golgi				
	(C) Vacuole	` /	Centriole				
<b>-</b>	W/I 4: 41 1: 1 1 4 1 1: 0			1	1	2	1
Э.	What is the lipid related disease?	(D)	Dialrata	1	1	2	1
	(A) Scurvy	\ /	Rickets				
	(C) Sickle cell anemia	(D)	Atherosclerosis				
6.	Carbohydrates are poly hydroxyl comp	olex o	of	1	1	2	1
	(A) Glycosidic bonds	L	Glucose and glucose				
	(C) Glucose and alcohol	` /	Aldehydes and ketones				
			•				
7.	DNA contains			1	1	2	1
	(A) Glycosydic bond	(B)	Phosphodiester bond				
	(C) Iconic bond	(D)	Peptide bond				
8	Where is lipopolysaccharide present?			1	1	2	1
0.	(A) Cell cytoplasm	(B)	Cell membrane				
	(C) Cell junction	(D)	Cell				
		$(\mathbf{\nu})$	CV11				

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9.	Whi	ch is not a stop codon?			1	1	3	2
	(A)	UAA	(B)	UAG				
	(C)	UGA	(D)	CGA				
							_	
10.	Fibr	ous proteins have			1	1	3	2
	(A)	Structural functions	(B)	Metabolic functions				
	(C)	Transport functions	(D)	Enzymatic functions				
1 1	<b>A</b>	1.11			1	1	3	2
11.	•	yloidosis is caused by	(D)	Changes in tentions atmosphere	1	1	5	_
	`~.`	Changes in secondary structure	` /	2				
	(C)	Changes in quaternary structure	(D)	Changes in primary structure				
12	PDF	B database is a			1	1	3	2
1	(A)		(B)	Secondary database				
	(C)	Tertiary database	(D)	Composite database				
	(C)	Terriary 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				
				1 1 2	1	1	4	2
14.		ch of the following cells in the bra		· ·	1	1	4	3
	(A)	Microglia		Astrocytes				
	(C)	Schwann	(D)	Oligodendrocytes				
15	Mul	tiple sclerosis is a disease caused	hv		1	1	4	1
10.	(A)		(B)	Astrocytes				
	(C)	Skin cells	(D)	Neuronal cell body				
	( )			j				
16.	Type	e of machine learning are			1	1	4	1
	(A)	Deep learning	(B)	Supervised				
	(C)	Unsupervised	(D)	Dynamic				
17	Imm	nuna calle that allowe for cubeacue	ant ra	cognition of antigen	1	1	5	1
1/.		nune cells that allows for subseque		Plasma cell				
	\ <b>~</b> \	Memory cell	\ /					
	(C)	Basophil	(D)	APC				
18.	Nan	ne the process a cell such as a n	eutro	phil or a macrophage use to eat	1	1	5	1
	prey	•		r				
	(A)	Chemotoxis	(B)	Phagocytosis				
	(C)	Endocytosis	(D)	Exocytosis				
4.5	****		0		1	1	F	1
19.		ch is not an auto immune diseases		D1 (11 (11))	1	1	5	1
	\ /	Influenza	· · ·	Rheumatoid arthritis				
	(C)	Multiple sclerosis	(D)	Lupers				
20.		secrete histamines to attract or	ther i	mmune cells	1	1	5	1
<b>_</b> 0.	(A)	Macrophages	(B)	Mast cells				
	(C)	Platelets	(D)	Neutrophils				
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	$PART - B (4 \times 10 = 40 Marks)$ Answer ANY FOUR Questions	Marks	BL	CO	PO		
21.	21. State the properties and applications of stem cells.						
22.	22. Write a note on BLAST and its uses.						
23.	23. Describe transcription and the processing of its end product.						
24.	24. Write the basis of artificial neural network – also describe the parts of neural network.						
25.	10	2	5	1			
26.	10	2	2	1			
	$PART - C (1 \times 15 = 15 Marks)$ Answer <b>ANY ONE</b> Questions	Marks	BL	СО	PO		
27.	How a skin cell is different from a nerve cells?	15	4	1	4		
28.	<ul> <li>If two protein sequences are similar - Explain (Justify)</li> <li>(i) How their function will be similar?</li> <li>(ii) The organisms that contain these proteins are evolutionarily related</li> </ul>	15	4	2	1		

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