Reg. No.														

B.Tech. DEGREE EXAMINATION, JUNE 2023
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 & Part - C** should be answered in answer booklet.

Time: 3 hours Max. Marks: 100

	Marks	BL	CO	PO

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

1. Carbohydrate chains in the membrane are present in — 1 2 1 1
   (A) Glycerol chain of fatty acid (B) Lipid bi layer
   (C) Trans membrane protein (D) Cytosolic protein

2. Negative charge of DNA is due to — 1 2 1 1
   (A) Bases attached to 1st carbon of ribose sugar (B) Ribose sugar
   (C) Phosphate group in the 5th carbon of ribose (D) Hydroxyl group in 3rd carbon of ribose

3. Which of the following amino acids you should include in diet? — 1 2 1 1
   (A) Leucine and lysine (B) Leucine and glycine
   (C) Cysine and alanine (D) Leucine and serine

4. Sugar in RNA is — 1 2 1 1
   (A) Ribose (B) Ribulose
   (C) Hexose (D) Triose

5. Antigen-antibody association is by — 1 2 2 1
   (A) Non covalent interaction (B) Covalent interaction
   (C) Orientation (D) Proximation

6. Hydrophilic nature of phospholipid is because of — 1 2 2 1
   (A) Phosphate containing polar head (B) Phosphate containing polar tail
   (C) Fatty acid in polar head (D) Fatty acid in polar tail

7. Different type of amino acids vary in _____ — 1 2 2 1
   (A) Carboxyl group (B) Length of amino group
   (C) Type of amino group (D) Type of side group

8. Which of the following amino acids has single codon? — 1 2 2 1
   (A) Leucine (B) Cysteine
   (C) Serine (D) Methionine

9.	28S rRNA is present in (A) 60S subunit of eukaryotic ribosome (B) 40S subunit of eukaryotic ribosome (C) 30S subunit of prokaryotic ribosome (D) 50S subunit of prokaryotic ribosome	1	2	4	1
10.	Blood stem cells present in bone marrow are (A) Totipotent stem cell (B) Multipotent stem cell (C) Pluripotent stem cell (D) Mature cell	1	2	4	1
11.	Thrombin has _____ in active site. (A) Serine (B) Cysteine (C) Histidine (D) Alanine	1	2	4	1
12.	Non competitive inhibitors of enzyme bind to _____ (A) Active site only (B) Active site or allosteric site (C) Only in allosteric site (D) Does not bind to enzyme	1	2	4	1
13.	The diameter of flagellar motor is _____ (A) 50 µm (B) 50 cm (C) 30 nm (D) 500 nm	1	2	5	1
14.	The flow of _____ ions in alkalophic species create electrochemical gradient in membrane (A) H^+ ions (B) Na^+ ions (C) Mg^{2+} ions (D) Ca^{2+} ions	1	2	5	1
15.	Addition of indigenous microorganism or exogenous microorganism in bioremediation is (A) Bioventing (B) Bioaugmentation (C) Biostimulation (D) *In situ* biodegradation	1	2	5	1
16.	Recycling of neurotransmitters are done by (A) Schwann cells (B) Ependymal cells (C) Microglial cells (D) Astrocytes	1	2	5	1
17.	Peyer's patches are present in (A) Spleen (B) Intestine (C) Lymph nodes (D) Bone marrow	1	2	6	1
18.	Signal transducer which detect change in mass is (A) Calorimetric device (B) Amperometric device (C) Electrode (D) Piezoelectric device	1	2	6	1
19.	The distinctive markers on antigen that trigger an immune response is (A) Epitope (B) Paratope (C) Idiotope (D) Isotope	1	2	6	1
20.	Lymphokines are released by (A) T helper cells (B) B cells (C) Cytotoxic t cells (D) Antigen presenting cells	1	2	6	1

PART – B (5 × 4 = 20 Marks)

Answer **ANY FIVE** Questions

		Marks	BL	CO	PO
21.	Differentiate smooth and rough endoplasmic reticulum.	4	3	1	1
22.	List out the components of nucleic acid with its property.	4	2	2	1
23.	Differentiate non covalent bonds with covalent bond that is present in protein.	4	3	2	1
24.	Analyze how specificity of enzyme is determined.	4	3	4	2
25.	Comment on myosin linear motor.	4	3	5	3
26.	How immune cell differentiate self and non self-cells?	4	3	5	3
27.	Write down the process involved in inflammation.	4	3	6	3

PART – C (5 × 12 = 60 Marks)

Answer **ALL** Questions

		Marks	BL	CO	PO
28. a.	Write in detail about role of nervous system in maintaining homeostasis in human body.	12	2	1	3
	(OR)				
b.	Explain the process of somatic cell division with suitable examples.	12	3	1	3
29. a.	How stem cells are isolated and cultured for use in regenerative medicine.	12	3	2	3
	(OR)				
b.	How are proteins synthesized from amino acids? Explain the process with suitable diagrams.	12	3	2	3
30. a.	Explain the process of photosynthesis with suitable diagrams.	12	3	3	2
	(OR)				
b.	Outline the concept of genetic code.	12	4	4	2
31. a.	Draw the structure of ATP synthase and explain how ATPs are synthesized.	12	3	5	3
	(OR)				
b.	Write down the steps followed in *in situ* bioremediation. Add notes on different types of bioremediation.	12	3	5	2
32. a.	Explain the process of cell mediated immunity with examples.	12	4	6	3
	(OR)				
b.	What are primary and secondary lymphoid organ? Explain their role in eliciting immune response.	12	4	6	3

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