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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Biotechnology **Duration: 90 mins**
Course Code: 19BT7BSBIE **Max Marks: 50**
Course: Biology for Engineers **Date: 04.03.2023**

Instructions: 1. Part A is compulsory and carries one marks each.
2. Answer any three questions from Part B.

PART-A

1 1 **Which of the following cells is involved in cell-mediated immunity?** **20**
a. Leukaemia
b. T cells
c. Mast cells
d. Thrombocytes

2 **B-cells and T-cells are two types of cells involved in**
a. Innate Immunity
b. Active immunity
c. Passive immunity
d. Acquired immunity

3 **Which of the following statements is true about Passive Immunity?**
a. This immunity causes reactions
b. This immunity develops immediately
c. This immunity lasts only for a few weeks or months
d. All of the above.

4 **Cells Involved in Innate Immunity are_____.**
a. Phagocytes
b. Macrophages
c. Natural Killer Cells
d. All of the above

5 **Mode of DNA replication is**
a. Conservative and bidirectional
b. Semiconservative and unidirectional
c. Conservative and unidirectional
d. Semiconservative and bidirectional

6 **cDNA is synthesised from RNA by the enzyme**
a. DNA polymerase
b. DNA synthetase
c. DNA convertase
d. Reverse transcriptase

7 T**he first transgenic plant to be produced is**
a. Brinjal
b. Tobacco
c. Rice
d. Cotton

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

8 **Excision and insertion of a gene is called**
   a. Biotechnology
   b. Genetic engineering
   c. Cytogenetics
   d. Gene therapy

9 **Covishield is a**
   a. subunit vaccine
   b. Whole vaccine
   c. Killed vaccine
   d. Attenuated vaccine

10 **Most abundant RNA in the cell**
   a. rRNA
   b. mRNA
   c. tRNA
   d. tRNA threonine

11 **Haemoglobin has**
   a. Primary structure
   b. Secondary structure
   c. Tertiary structure
   d. Quaternary structure

12 **This biomolecule has a phosphodiester bond**
   a. Fatty acids in a diglyceride
   b. Amino acids in a polypeptide
   c. Monosaccharides in a polysaccharide
   d. Nucleic acids in a nucleotide

13 **Macromolecule chitin is**
   a. A simple polysaccharide
   b. Sulphur containing polysaccharide
   c. Phosphorous containing polysaccharide
   d. Nitrogen containing polysaccharide

14 **This statement about enzymes is true**
   a. Enzymes accelerate reactions by lowering the activation energy
   b. Enzymes are proteins whose three-dimensional form is key to their function
   c. Enzymes do not alter the overall change in free energy for a reaction
   d. All of these

15 **What are the non-substrate molecules binding to the allosteric sites called?**
   a. Allosteric substrate
   b. Reactants
   c. Allosteric modulators
   d. Inhibitors

16 **Allosteric enzymes possess**
   a. Three types of allosteric sites
   b. Active site and three types of allosteric sites
   c. Active site and two types of allosteric sites
   d. Active site and an allosteric site

17 **The process of finding the relative location of genes on a chromosome is called _____.**
   a. Gene tracking
   b. Genome walking
   c. Genome mapping
   d. Chromosome walking

18 **The computational methodology that tries to find the best matching between two molecules, a receptor and ligand are called _____.**

a. Molecular fitting
b. Molecular matching
c. Molecular docking
d. Molecule affinity checking

19 **Which of the following monosaccharides is the majority found in the human body?**

a. D-type
b. L-type
c. LD-types
d. None of the above

20 **Which of the following are the major functions of Carbohydrates?**

a. Storage
b. Structural framework
c. Transport materials
d. Both Storage and structural framework

PART-B

1	Classify various types of enzymes with examples. Write on any two types briefly.	**10**
2	Identify any two modern tools of genetic engineering and write their mechanism and applications.	**10**
3	Classify various types of stem cells and write briefly about each of them. Write any four applications of stem cells.	**10**
4	Bioinformatics approach is most sought for analysing big data in life sciences. Justify this statement by giving examples of various bioinformatic tools. write any five applications of bioinformatics.	**10**
5	Categorise various types of immune systems. Explain each briefly with examples of components involved.	**10**

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