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

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

Programme: B.E. **Semester: VII**
Branch: Chemical Engineering **Duration: 3 hrs.**
Course Code: 19CH7BSBFE **Max Marks: 100**
Course: Biology For Engineers

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1. a) What is chromosome? Explain the types of chromosome with examples. **06**

   b) Classify lipids and describe the functions of lipids. **06**

   c) Draw and mark different components of prokaryotic cell with a neat diagram. **08**

OR

2. a) Explain the functions of protein molecules. **05**

   b) Explain the structure of the eukaryotic cells with a neat diagram. **10**

   c) Classify carbohydrates with an example. **05**

UNIT - II

3. a) Enzymatic reaction is carried out as the reaction schemes shown below. **06**

   $E + S \rightleftharpoons ES$; and $ES \rightleftharpoons E + P$

   Develop a rate expression for product formation by applying M.M. kinetics approach.

   b) Differentiate between competitive and non-competitive enzyme inhibition with the help of reaction mechanisms. **08**

   c) List and illustrate the features of enzyme as catalyst. **06**

UNIT - III

4. a) Explain the structure of the antibody with a neat diagram. **08**

   b) Illustrate the properties and function of the Immunoglobin M (IgM) antibody. **06**

	c)	Define innate immunity. Explain the mechanism of anatomical and phagocytosis barriers in detail.	**06**

UNIT - IV

5.	a)	With a neat diagram explain the working of biosensors.	**06**
	b)	What is DNA microarray tool? Explain	**04**
	c)	Explain the different phases involved in packing of DNA molecule into mammalian chromosomes with a neat diagram.	**10**

OR

6.	a)	Explain the working of the glucose meter with the help of glucose meter block diagram.	**08**
	b)	Elucidate on the applications of bioinformatics tool with a suitable example.	**06**
	c)	What are liposomes? Explain their function as nanomaterial/nanoparticle	**06**

UNIT - V

7.	a)	What is genetic engineering? Explain its applications.	**08**
	b)	Elucidate on the different components and working of biological neural networks.	**06**
	c)	What are stem cells? Explain the importance of Pluripotent and adult stem cells.	**06**

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