

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

Autonomous Institute Affiliated to VTU

## September / October 2023 Supplementary Examinations

**Programme: B.E.**

**Branch: CIVIL ENGINEERING**

**Course Code: 21CV7BSBFE**

**Course: Biology for Engineers**

**Semester: VII**

**Duration: 3 hrs.**

**Max Marks: 100**

**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) With a neat and labeled diagram explain the structure of an eukaryotic cell.	<b>05</b>
	b) Give the classification of carbohydrates with examples.	<b>05</b>
	c) Differentiate between primary, secondary and tertiary structure of proteins.	<b>06</b>
	d) List the fat soluble vitamins and give their significances.	<b>04</b>

### OR

2	a) Explain the structure of a gene.	<b>05</b>
	b) What are phospholipids? Mention their significance.	<b>05</b>
	c) List the importance of enzymes in biology.	<b>05</b>
	d) Differentiate between homopolysaccharide and heteropolysaccharide with examples.	<b>05</b>

### UNIT - II

3	a) Define active site of an enzyme. Explain the lock and key and induced fit hypothesis.	<b>10</b>
	b) Distinguish the different types of reversible inhibitors.	<b>10</b>

### UNIT - III

4	a) What is immunity? Explain innate and adaptive immunity.	<b>06</b>
	b) Write the structure of Ig A and Ig G and give their biological applications.	<b>10</b>
	c) Discuss about T Cells.	<b>04</b>

### UNIT - IV

5	a) What are the different types of nanomaterials? Explain in detail.	<b>10</b>
	b) List the applications and tools used in Bioinformatics.	<b>10</b>

**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.

## UNIT - V

6	a) What are the principles of Biomechanics?	06
	b) List the major applications of genetic engineering.	07
	c) What are stem cells? Mention their applications.	07

## OR

7	a) Elaborate on the components of a neural network system.	06
	b) Write a short note on GMO.	07
	c) Describe the molecular basis for inheritance.	07

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SUPPLEMENTARY EXAMS 2023