

# CBCS SCHEME

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18BT651

## Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Biology for Engineers

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Write in details on cell reproduction, with mitosis as an example type. (10 Marks)  
b. Describe on the structure of protein and importance of its functions. (10 Marks)

OR

- 2 a. Illustrate on the response of the cell to the external environment at which they are. (10 Marks)  
b. Differentiate on prokaryotic and eukaryotic cells. (10 Marks)

### Module-2

- 3 a. Highlight the different types of Biomolecular Bonds and explain on each. (10 Marks)  
b. Explain the process of transcription and translation in protein synthesis. (10 Marks)

OR

- 4 a. Discuss on the importance of restriction enzymes in the field of recombination technology. (10 Marks)  
b. Define the word photosynthesis. Discuss on the carbon cycle and its fixation in details. (10 Marks)

### Module-3

- 5 a. What are Enzymes? Discuss on the catalytic activity of any one example enzyme in a pathway. (10 Marks)  
b. Define on stem cells. Explain on their significance in medical field. (10 Marks)

OR

- 6 a. Explain how proteins acts as motors convert chemical energy into mechanical energy. (10 Marks)  
b. Explain with suitable diagram and function of ATPase. (10 Marks)

### Module-4

- 7 a. Define metabolism and explain on biological energy production in the form of ATP. (10 Marks)  
b. Justify the role of cytoskeletons in cell structure formation. (10 Marks)

OR

- 8 a. Define Biosensors. Discuss on the application of biosensors in bioremediation. (10 Marks)  
b. Explain on proteins as biological motors and discuss on flagella with Dynein and Myosin. (10 Marks)

### Module-5

- 9 a. What are Biomimetics? Explain the properties and function of Biomimetics. (10 Marks)  
b. Explain on the concept of Heart as pump and kidney as a filtering system. (10 Marks)

OR

- 10 a. Explain on Bioremediation and removal of heavy metals degradation. (10 Marks)  
b. Discuss on ECG and EEG in diagnosis and health monitoring system. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.