

**December 2024**

**B. Tech. (Third Semester)**

**Biology (BSC-01)**

*Time : 3 Hours]*

*[Maximum Marks : 75*

**Note :** It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

**Part A**

1. (a) Describe Brownian movement process. **1.5**
- (b) What is major observation of the Robert Brown ? **1.5**
- (c) Give example of the Unicellular and Multicellular organisms. **1.5**
- (d) What are three major kingdoms of the life ? **1.5**
- (e) Why E. coli is considered as the model organism ? **1.5**

- (f) What is the concept of segregation in genetics ? 1.5
- (g) What is gene mapping ? 1.5
- (h) Write example of the nucleotide present in DNA. 1.5
- (i) Why DNA is called as blue print of the life ? 1.5
- (j) What are the mechanisms of enzyme reaction ? 1.5

### Part B

2. (a) Differentiate between the prokaryotic and eukaryotic cell. 10
- (b) What is the major molecule present in the DNA and RNA ? 5
3. (a) What is the importance of the microscope in biological experiments ? 5
- (b) Discuss the glycolysis cycle and its role in sugar metabolism. 10
4. Describe the major findings of the Mendel experiments in genetics. 15

5. (a) Why enzymes are important molecule in a cell cycle ? 5
- (b) Describe about the Krebs cycle along with its role in cell cycle. 10
6. (a) What do you understand about the concept of sterilisation ? Explain. 10
- (b) Why ATP is considered as energy currency of the cell ? 5
7. Why we engineers need to study the biotechnology ? Discuss how a cell behaves like a cell factory. 15