

December 2024
B.Tech (CE) - 5th Sem
Biology (BSC-01)

Duration: 3 Hours

Max. Marks: 75

Instructions:

- 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 (1.5 marks each)

- Q1** (a) Define Allele. (1.5)
(b) What is the main difference between Cellulose and Sucrose? (1.5)
(c) What is a nucleosome? (1.5)
(d) What is meant by exergonic reaction? (1.5)
(e) Define Species. (1.5)
(f) Why is ATP known as the energy currency of the cell? (1.5)
(g) What is meant by single gene disorder in humans? (1.5)
(h) What is Brownian motion? (1.5)
(i) Name three sterilization techniques. (1.5)
(j) What are Heterotrophs? (1.5)

PART B

- Q2** (a) What are Enzymes? How does an enzyme catalyze reaction? Discuss the mechanism of action. (10)
(b) What is meant by model organisms? Enlist their key characteristics. (5)
- Q3** (a) What is the Krebs cycle? What are the steps involved in this process? (5)
(b) Differentiate between meiosis and mitosis with the help of diagrams. (10)
- Q4** What are Proteins? Enlist some roles played by these biomolecules. Discuss the hierarchical structure of the proteins. (15)

- Q5** (a) Differentiate between RNA and DNA. (5)
(b) Differentiate between prokaryotes and eukaryotes. (10)
- Q6** (a) What is a genetic code? Describe the characteristics of a genetic code. (10)
(b) Discuss different phases in growth kinetics of a bacteria with a graphical representation. (5)
- Q7** What are Mendelian laws of genetics? Discuss in detail all the three laws by giving suitable examples. (15)



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