

B.Sc. Semester - 1 (CBCS) Examination
Oct/Nov-2025 (New Course)
BIO-TECHNOLOGY(CORE)

Time: 2:30 Hours**Marks:70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que.1(A) Answer the following. (Any one Out of Two) (07)
1. Discuss the impact and techniques of recombinant DNA technology on modern biotechnology.
 2. Analyse the ethical and social implications of biotechnology.
- Que.1(B) Attempt any one. (Out of Two) (04)
1. Briefly describe the current status of biotechnology in the developing world.
 2. Explain one application of biotechnology in medicine.
- Que.1(C) Attempt any three. (Out of Five) (03)
1. Who is considered the father of biotechnology?
 2. What is recombinant DNA technology?
 3. Name one application of biotechnology in agriculture.
 4. Define biotechnology in a single sentence.
 5. What is an ethical concern related to biotechnology?
- Que.2(A) Answer the following. (Any one Out of two) (07)
1. Discuss the diversity in cell size and shape, providing examples of how these variations relate to the function of the cells.
 2. Describe the ultrastructure and function of a prokaryotic cell.
- Que.2(B) Attempt any one. (Out of two) (04)
1. Briefly explain the concept of the origin of life and the evolution of cells.
 2. Compare the chemical composition of a typical plant cell with that of a prokaryotic cell.
- Que.2(C) Attempt any three. (Out of Five) (03)
1. Define: Cell.
 2. What is the cell theory?
 3. Name one major difference between plant and animal cells.
 4. What is the primary function of ribosomes in prokaryotic cells?
 5. Which microscopic technique is commonly used to study the ultrastructure of cells?
- Que.3(A) Answer the following. (Any one Out of two) (07)
1. Discuss the structure and function of the plasma membrane.
 2. Explain the functions of lysosomes, glyoxisomes, and peroxisomes.
- Que.3(B) Attempt any one. (Out of two) (04)
1. Give structure and functions of mitochondria.
 2. Briefly describe the role of the Golgi bodies in protein processing and sorting.
- Que.3(C) Attempt any three. (Out of Five) (03)
1. What is the main function of the cell wall in plant cells?
 2. Name the organelle responsible for cellular respiration.
 3. What is the primary role of the endoplasmic reticulum?
 4. Which organelle is involved in photosynthesis?
 5. Define the function of ribosomes in a cell.

- Que.4(A) Answer the following. (Any one Out of two) (07)
1. Explain the regulation of the cell cycle, including the role of checkpoints and cyclins.
 2. Describe the phases of the cell cycle and their significance in cell division.
- Que.4(B) Attempt any one. (Out of two) (04)
1. Briefly describe the structural components of a typical chromosome.
 2. Write the differences between mitosis and meiosis.
- Que.4(C) Attempt any three. (Out of Five) (03)
1. What is the primary function of the nucleus in a cell?
 2. Name the stage of the cell cycle where DNA replication occurs.
 3. What is a chromosome?
 4. Define mitosis in one sentence.
 5. What is the significance of meiosis in sexual reproduction?
- Que.5(A) Answer the following. (Any one Out of two) (07)
1. Discuss the functions and components of the cytoskeleton.
 2. Provide an overview of stem cells.
- Que.5(B) Attempt any one. (Out of two) (04)
1. Describe the difference between flagella and cilia in terms of structure and function.
 2. Explain the importance of cell-cell interactions in tissue formation.
- Que.5(C) Attempt any three. (Out of Five) (03)
1. What are the main components of the cytoskeleton?
 2. Name one type of cell locomotion.
 3. What is the role of cilia in cell movement?
 4. Define stem cells in one sentence.
 5. What is a common characteristic of cancer cells?
