Bachelor of Science (B.Sc.-I) (CBCS Pattern) First Semester

# BIO-01 - Biotechnology Paper-I (Cell & Cell Organelles)

P. Pages : 2 **GUG/W/18/11562**

Time : Three Hours * 3 6 3 7 * Max. Marks : 50

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Notes : 1. All questions are compulsory and carry equal marks.
2. Draw diagram wherever necessary.

**1.** Describe in detail the structure and function of nerve cell. **10**

**OR**

Write short notes on:

a) Contribution of Mathias Jakob Schlieden and Theodor Schwann. **2½**

b) Difference between plant and animal cell. **2½**

c) The cell theory. **2½**

d) Structure of muscle cell. **2½**

**2.** a) Discuss the structure of Gram negative bacterial cell wall. **5**

b) Discuss the structure of mitochondria and functions. **5**

**OR**

a) Add a note on functions of nucleus. **2½**

b) Draw the diagram of fluid mosaic model of plasma membrane. **2½**

c) Write about smooth endoplasmic reticulum. **2½**

d) Add a note on centrioles in animals **2½**

**3.** Describe in detail the structure and functions of Actin filaments. **10**

**OR**

a) Add a note on kinesins. **2½**

b) Explain dynamic instability. **2½**

c) Write about flagellar and citiar locomotion. **2½**

d) Write about neurofilaments. **2½**

**4.** Describe in detail the process of mitosis. **10**

**OR**

a) Explain cell senescence. **2½**

b) Add a note on applications of cell synchronization. **2½**

c) Write characteristics features of G2 phase. **2½**

d) Write about cytokinesis as a important stage of cell division. **2½**

**5.** Solve **any ten.**

a) Define cell? **1**

b) Write the contribution of Robert Hook. **1**

c) Write the types of shapes of bacteria. **1**

d) Write two functions of nucleolus. **1**

e) What are mesosomas? **1**

f) Define cytosol? **1**

g) What are dyneins? **1**

h) Which organism shows amoeboid locomotion. **1**

i) Define lamins. **1**

j) Define cell cycle. **1**

k) Write synthetic phase in cell division. **1**

l) Write the importance of cell division. **1**

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