

Roll No. : .....

Total No. of Questions : 11 ]

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# **BPP-1101**

**M.Sc. (Previous) Examination, 2022**

**BIOTECHNOLOGY**

Paper - II

**(Cell Biology and Biophysics)**

*Time : 3 Hours ]*

*[ Maximum Marks : 75*

**Section-A**

**(Marks : 2 × 10 = 20)**

*Note :-* Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

**Section-B**

**(Marks : 5 × 5 = 25)**

*Note :-* Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

**Section-C**

**(Marks : 10 × 3 = 30)**

*Note :-* Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

**Section-A**

1. (i) What are Peroxisomes ?
- (ii) What is  $G_1$  and  $G_2$  Phase ?
- (iii) What are Integrins ?

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- (iv) What are Cell Adhesion Molecules (CAMs) ?
- (v) What do you mean by Nerve Impulse ?
- (vi) What do you mean by Fractional Precipitation ?
- (vii) What is Ultrafiltration ?
- (viii) Write principle of Photometry.
- (ix) Write about ECG.
- (x) What is PET ?

### **Section–B**

2. Discuss the structure and function of Mitochondria.

*Or*

What is Gap Junctions ? Discuss its functions.

3. Discuss about the structure, types and functions of muscles.

*Or*

Discuss about principle, types and applications of gel filtration.

4. What is Density Gradient Centrifugation ? Discuss its principle, steps and uses.

*Or*

Write principle and applications of nephelometry.

5. Write short note on Mass Spectroscopy.

*Or*

Discuss about facilitated transport of materials across the plasma membrane.

6. Write short note on Brain Activity recording.

*Or*

Discuss about second messenger system in cell signaling.

### **Section–C**

7. Describe structure and function of Cytoskeleton and its role in cell mobility.

8. Write notes on the following :
  - (i) Attractive Forces in molecular interactions
  - (ii) Microcalorimetry
9. Describe principle, working and applications of HPLC.
10. Discuss about principles, working and applications of IR and NMR spectroscopy.
11. Write notes on the following :
  - (i) Biosensors
  - (ii) Biochips