Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
End Semester Examination: Jan.2022
Faculty: Science and Technology

Program: B.Sc. Biotech 04 **Semester: I** **SET: B**
Program (Specific): Biotechnology **Course Type: Core**
Class: F.Y. B.Sc. **Max. Marks: 35**
Name of the Course: Biophysics
Course Code: 22BBT-104 **Time: 2Hr**
Paper: -

Instructions to the candidate:

1) ***There are 4 sections in the question paper. Write each section on separate page.***
2) ***All Sections are compulsory.***
3) ***Figures to the right indicate full marks.***
4) ***Draw a well labelled diagram wherever necessary.***

SECTION: A

Q1) Answer the following (Attempt any 5/6) **5**

1. Define selection rule.
2. What is membrane potential?
3. Name any two experimental methods for studying dialysis.
4. Give the two passive electrical properties of cell.
5. Define surface tension.
6. Diagrammatically represent vector atom model.

SECTION: B

Q2) Answer the following (Attempt any 5/6) **10**

1. Define Pauli's exclusion principle using example.
2. What are nuclear forces? Name any two nuclear models.
3. Give any four therapeutic uses of radioisotopes.
4. Enlist any four examples of osmosis.
5. Draw a neat labelled diagram of the osmometer.
6. Explain biopotentials.

SECTION: C

Q3) Answer the following (Attempt any 2/4) 8

1. Describe the potential of biophysics for the analysis at macroscopic and microscopic level.
2. Compare and contrast Vector atom model and Bohr's model.
3. Explain principle of GM counter using diagram.
4. Give a brief account on colloids.

SECTION: D

Q4) Answer the following (Attempt any 2/4) 12

1. Derive an expression for the energy value of the Bohr's orbit using postulates of Bohr model.
2. Explain the following (a) alpha decay, (b) beta decay and (c) gamma radiations.
3. Describe the organization of plasma membrane using a suitable diagram. Enlist any four functions of plasma membrane.
4. Comment on the electrical models of cell membrane.