

Roll No. : .....

Total No. of Questions : 11 ]

[ Total No. of Printed Pages : 3

# **BPF-2198**

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

## **CHEMISTRY**

Paper - VI (CH-502)

**(Modern Techniques and Scope of Chemical Biology)**

*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. Attempt all questions. Answers should not exceed **50** words in each question.

- (i) What is relationship between haemoglobin and myoglobin ?
- (ii) Write the essential and trace metals for biological systems.

**BR-207**

( 1 )

**BPF-2198** P.T.O.

- (iii) Differentiate reversible and irreversible inhibition.
- (iv) What do you mean by acid-base catalysis ?
- (v) Write any *two* uses of biomimetic chemistry.
- (vi) Discuss synthetic enzymes with suitable examples.
- (vii) Explain hydrolysis of ATP.
- (viii) How do calculation of average dimensions for various chain structure ?
- (ix) What is photocorrelation spectroscopy ?
- (x) How electrophoresis technique helps in evaluating molecular weight of biopolymers ?

### **Section-B**

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

2. Describe the cleavage of water through photosystem I and photosystem II.

*Or*

Explain DNA polymerisation.

3. Write short notes on the following :

- (a) Iron-sulphur proteins
- (b) Koshland's induced fit hypothesis

*Or*

Explain enzyme mechanism for carboxypeptidase A and ribonuclease.

4. Write short notes on the following :

- (a) Crown ethers
- (b) Cyclodextrin based enzyme models

*Or*

Discuss the uses of enzymes in drug and food industries.

5. Explain various types of binding process in biological systems.

*Or*

Discuss the various functions of proteins in biological cell.

6. Write notes on the following :
- (a) Ion transport through cell membrane
  - (b) Energy generation in mechanochemical system

*Or*

Explain the treatment of membrane transport and nerve conduction.

### **Section–C**

**Note** :- Answer any *three* questions out of five. Answer should not exceed **500** words in each question.

- 7. Explain transport and storage of dioxygen through heme proteins in biological cell system.
- 8. Explain electron transport process in detail.
- 9. Explain co-enzyme chemistry in detail.
- 10. Discuss standard free energy change in biochemical reactions exergonic and endergonic.
- 11. Discuss various experimental techniques for evaluation of size, molecular weight and extent of hydration of biopolymers.