

Roll No. : .....

Total No. of Questions : 11 ]

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# **BFMS-422**

**M.Sc. (Final) Examination, 2023**

**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. (i) Discuss functions of Myoglobin.
- (ii) What is meant by Photophosphorylation ?
- (iii) Mention the functions of Cytochrome.

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- (iv) Discuss the role of Carboxypeptidase-A in biological system.
- (v) What are the Ionophores ? Mention their applications.
- (vi) Give the examples of enzyme catalyses addition and elimination reactions.
- (vii) What is meant by chain configuration of Macro-molecules ?
- (viii) Specify the protein folding problems.
- (ix) Explain the term Nerve conduction.
- (x) What is Electrophoresis ?

**Section-B**

2. Discuss the structure and functions of Haemoglobin.

*Or*

What do you mean by Essential and Trace Element ? Discuss their role in biological system.

3. Discuss about the Michaelis–Menten and Lineweaver–Burk plots.

*Or*

Write short note on Transition State Theory.

4. Write short notes on the following :

- (i) Vitamin–B12
- (ii) Enzyme Therapy

*Or*

Discuss in detail the enzyme catalysed carboxylation and decarboxylation reactions.

5. Discuss the features of various forms (type) of DNA.

*Or*

Explain the process of ATP synthesis and hydrolysis.

6. Discuss the principle and applications of Photoelectron Spectroscopy.

*Or*

What is meant by ORD ? Discuss principle and applications of ORD.

### Section-C

7. Write short notes on the following :
  - (a)  $\text{Na}^+/\text{K}^+$  pump
  - (b) Hemocyanin and Hemerythrin
8.
  - (i) Discuss structures and functions of various types of Iron-Sulphur proteins.
  - (ii) Discuss the enzyme Mechanisms for Chymotrypsin and Lysozyme.
9. Write short notes on the following :
  - (a) Recombinant DNA technology
  - (b) Molecular and Chiral recognition
10. Write an essay on Biopolymer Interactions.
11. Discuss structure and function of cell membrane and ion transport through cell membrane.