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**Code No. : B04-202**

**Fourth Semester Online Examination, May-June, 2022**

**M. Sc. CHEMISTRY**

**Paper II**

**BIOPHYSICAL CHEMISTRY**

Time : Three Hours ] [ Maximum Marks : 80

**Note :** ● Part A and B of each question in each unit consist of very short answer type questions which are to be answered in one or two sentences.

- Part C (Short answer type) and D (Long answer type) of each question should be answered within the word limit 200-250 and 400-450.

**Unit-I**

- (A) Write the significance of essential metals in living organisms. 2
- (B) Draw the structure of any two heme proteins. 2
- (C) Explain significance of Sodium-Potassium pump in biological system. 4

**Or**

Write the difference between haemoglobin and hemerythrin.

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- (D) Explain oxygen transportation and Bohr effect of haemoglobin in detail. 12

**Or**

Explain nerve conduction and model synthetic complex of cobalt in detail.

**Unit-II**

- (A) Write the name of metal ions present in nitrogenase and cyto-chrome-C respectively. 2
- (B) Define non-symbiotic nitrogen fixation. 2
- (C) Describe the structure and electron transfer relation mechanisms of ruberodoxins. 4

**Or**

Write notes on spectroscopic evidences of nitrogen fixation.

- (D) What are the iron sulphur proteins ? Describe structure and function of [4Fe – 4S] ferredoxin in detail. 12

**Or**

What are the metallo proteins ? Describe the difference between cytochrome-C and

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cytochrome-p-450 in terms of their structure and function.

**Unit-III**

3. (A) Which metal ion is actively present in chlorophyll ? 2
- (B) Draw the molecular structure of AMP, ADP and ATP. 2
- (C) Describe hydrolysis of ATP. 4

**Or**

Describe DNA polymerization.

- (D) Describe the role of metal complexes in transmission of energy in biological system. 12

**Or**

Write notes on photosystem-I and II in detail.

**Unit-IV**

3. (A) What are bio-polymers ? Explain. 2
- (B) Write the name of any four natural biopolymers. 2

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- (C) How energy generation rate in mechano chemical system? Explain. 4

**Or**

Write notes on protein folding problems.

- (D) Write notes on hydrogen ion titration curve's and hydrophobic forces. 12

**Or**

What do you mean biological system ? Write notes on various types of binding system in biological system.

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