

ED-609

M.Sc. 3rd Semester Examination, March-April 2021

CHEMISTRY

Paper - II

Chemistry of Biomolecules

Time : Three Hours]

[Maximum Marks : 80 [Minimum Pass Marks : 16

Note : Answer all questions. All questions carry equal marks.

Unit-I

- 1. (a) Define Free energy. What are exergonic and endergonic reactions? Explain with suitable example.
 - (b) Explain the biological function of haeme in haemoglobin and myoglobin.

OR

(*a*) Describe the detailed structure and functions of cytochrome and iron-sulphur proteins.

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(Turn Over)

(2)

- (b) Write short notes on the following:
 - (i) Rubredoxin (Rd) (1 Fe 0S) protein
 - (i) Ferredoxin (FD) (2 Fe 2S) protein

Unit-II

- **2.** (*a*) How cytochrome 450 converts a hydrocarbon into an alcohol?
 - (b) Write notes on the structural behaviour and enzymatic activity of :
 - (i) Xanthine oxidase
 - (ii) Carboxy peptidase

OR

- (a) Describe the crown ethers and cytodextrin based enzyme model.
- (b) Discuss the structural behaviour and enzymatic activity of:
 - (*i*) Superoxide dismutase
 - (ii) Catalase

Unit-III

- **3.** (*a*) Discuss the structure and biological functions of FMN and FAD.
 - (b) Explain the following :
 - (*i*) Effect of immobilisation of enzymes
 - *(ii)* Application of immobilisation of enzymes in medicinal and industrial chemistry

OR

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(Continued)

(3)

- (*a*) Discuss the structure and biological functions of co-enzyme-A and NADP⁺.
- (b) Explain the following :
 - (*i*) Classification of enzymes by IUB report
 - (*ii*) Concept and identification of active sites by the use of inhibitors

Unit-IV

- 4. (a) What is biopolymer interaction? Describe various types of binding process in biological cell.
 - (b) Explain the following:
 - (i) Functions of nerve conduction
 - (ii) Hydrogen ion titration curve

OR

(a) Write notes on irreversible thermodynamic treatment of membrane transport

(b) Describe the following terms :

- (*i*) Osmotic pressure in membrane equilibrium
- (ii) Donnan membrane equilibrium

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