FD-609

M.Sc. 3rd Semester
Examination, Dec.-Jan., 2021-22

CHEMISTRY

Paper - II

Chemistry of Biomolecules

Time : Three Hours] [*Maximum Marks* : 80
[*Minimum Pass Marks* : 16

Note : Answer **all** questions. The figures in the right-hand margin indicate marks.

Unit-I

1. (*a*) Discuss the role of ATP in biological system. 10

(*b*) Explain the statement that copper containing proteins are capable of catalyzing the disproportionation of superoxide ion. 10

OR

(*a*) Explain the standard free energy change in any one biochemical reaction. 8

(*b*) Write short notes on the following : 6×2

(*i*) Relation between Heme protein and oxygen intake

(*ii*) Synthetic model of cobalt complex

Unit-II

2. (*a*) Write the structure and importance of cytochrome P450. 8

(*b*) What is the difference between chiral recognition and molecular recognition ? Give suitable example. 8

(*c*) How the enzyme having Zn^{2+} lower the energy of transition state ? 4

OR

Write notes on any **two** of the following : 10×2

(*a*) Host-guest chemistry of enzyme

(*b*) Superoxide dismutase copper enzyme

(*c*) Biomimetic chemistry

Unit-III

3. (*a*) Give the classification of enzyme in detail. 10

(*b*) Give mechanism of reaction catalyzed by NAD+ and pyridoxal phosphate. 10

OR

Write notes on any **two** of the following : 10×2

(*a*) Structure and biological function of coenzyme A

(*b*) Effect of immobilization of enzyme activity

(*c*) Enzyme and recombinant DNA technology

Unit-IV

4. (*a*) What is muscular contraction ? Discuss its molecular mechanism, energy sources and molecular compound. 10

(*b*) Explain the structure and function of cell membrane. 10

OR

Write notes on any **two** of the following : 10×2

(*a*) Hydrogen ion titration curve

(*b*) Thermodynamics of membrane equilibrium

(*c*) Ion transport through cell membrane

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