

PC – 373 CV-19
(533) M.Sc. Chemistry (Third Semester)
Examination Dec-2020
Compulsory/Optional
Chemistry of Bio-Inorganic & Bio-Organic
Group -
Paper - II

Time Three Hours]

[Maximum Marks : 80

[Minimum Pass Marks :

नोट : दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note : Answer from both the Section as directed. The figures in the right-hand margin indicate marks.

Section-A

1. Answer the following questions: 1 X 10
- (a) What are essential elements? Write the name of four essential elements.
- (b) What does DNA polymerization require?
- (c) Write the name of three dioxygen carriers.
- (d) Why is ferredoxin important?
- (e) Which is better induced fit or lock and key model.
- (f) Define the following terms : (i) Co-factors (ii) Apo-enzymes
- (g) Draw the structure of coenzyme A.
- (h) What is Michaelis constant?
- (i) Why are immobilized enzymes more stable?
- (j) What is Hostguest chemistry?
2. Answer the following questions: 2 X 5
- (a) Explain glucose storage.
- (b) What is the function of cytochrom p-450.
- (c) Explain proximity effects in enzyme catalysis.
- (d) Mention the coenzyme activity of pyridoxal phosphate.
- (e) Explain chiral recognition and catalysis.

Section-B

Answer the following questions:

12 X 5

Unit-I

3. (a) What is Na^+ / K^+ pump? What is its role in the biological system?
(b) Explain Bioenergetic and ATP cycle.

Or

Describe the photosystem – I and photosystem – II and how they play the role in the cleavage of water.

Unit-II

4. What are the structural and functional difference between hemoglobin and myoglobin?

Or

Write an essay on biological nitrogen fixation and the role of nitrogenase complex.

Unit-III

5. (a) Discuss the effect of pH and temperature on enzyme action.
(b) Discuss the construction of Lineweaver Burk plot and its significance.

Or

Discuss reversible and irreversible inhibition and its role in biological system.

Unit-IV

6. (a) Explain the following reaction catalysed by enzyme.
(i) Carboxylation (ii) Decarboxylation
(b) Illustrate the structure and biological function of Thiamine Pyrophosphate.

Or

Write short notes on the following :

- (a) Addition and Elimination reaction catalysed by enzymes.
(b) Coenzyme activity of Lipoic acid.

Unit-V

7. (a) What are the various applications of immobilised enzymes.
(b) Explain how enzymes as targets for drug design.

Or

Explain the following :

- (i) Cyclodextrin enzyme models
(ii) Crown ethers, cryptates.