

Total No. of Questions : 8]

SEAT No. :

**P1438**

**[5124]-102**

[Total No. of Pages : 2

**M.Sc.**

**BIOCHEMISTRY**

**BCH - 171: Enzymology and Biophysical Techniques  
(2013 Pattern) (Credit System) (Semester - I)**

*Time : 3 Hours]*

*[Max. Marks : 50*

*Instructions to the candidates:*

- 1) Answer to both the sections should be written on separate sheets.*
- 2) Question no. 4 and 8 are compulsory.*
- 3) Attempt any two questions from Q. 1 to Q. 3 and any two from Q. 5 to Q. 7.*
- 4) Figures to the right indicate full marks.*

**SECTION - I**

(Enzymology)

**Q1)** Answer the following:

- a) Give Michaelis-Menten equation and define each term. [2]
- b) What is the effect of change in temperature on enzyme catalyzed reaction. [4]
- c) Give the therapeutic significance of enzyme inhibitors. [4]

**Q2)** Attempt the following:

- a) Explain why ser-195 of chymotrypsin is super reactive. [3]
- b) What is substrate cycle? Explain with suitable example. [3]
- c) How pre-steady kinetics is studied? Explain its significance. [4]

**Q3)** Answer the following:

- a) Explain how a biochemist might discover that a certain enzyme is allosterically regulated. [2]
- b) What is ubiquitination? Explain the reactions. [3]
- c) Describe the various methods used for determination of active site. [5]

**P.T.O.**

**Q4)** Attempt any one of the following:

- a) Discuss the acid-base catalysis. [5]
- b) While determination of rate of degradation of enzyme how reutilization of precursor amino-acid is prevented? [5]

## **SECTION - II**

(Biophysical Techniques)

**Q5)** Answer the following:

- a) What is a restriction map? [2]
- b) How are proteins eluted from affinity chromatography column? [4]
- c) What is hydroxyapatite chromatography? How it separate ss DNA from ds DNA? [4]

**Q6)** Attempt the following:

- a) Mention three unique advantages of size exclusion chromatography. [3]
- b) Explain any three factors which affect on absorption spectra of biomolecules. [3]
- c) Write a note on capillary electrophoresis. [4]

**Q7)** Answer the following:

- a) What is isocratic pump? Explain its use in chromatography. [2]
- b) Describe the applications of isoelectric focusing. [3]
- c) Write a note on DNA agarose gel electrophoresis. [5]

**Q8)** Answer any one of the following:

- a) Describe the principle and method of ion-exchange chromatography. [5]
- b) Describe the principle, method and significance of dialysis. [5]

