Total No. of Questions : 9]

SEAT No. :

P1425

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M.Sc.
BIOCHEMISTRY
BCH - 171: Enzymology & Physiological Biochemistry
BCH - 171: Enzymology & Biophysical Techniques
(2010 Pattern and 2008 Pattern) (Semester - I)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answer to both the sections should be written on separate answer sheets.***
3) ***Figures to the right indicate full marks.***

SECTION - I

(Enzymology)

Q1) Answer any three of the following: **[15]**

a) Discuss in detail the effect of substrate concentration on enzyme catalyzed reaction.

b) What is substrate cycle? Explain with suitable example.

c) Describe the various method used for determination of active site.

d) Write a note on Stopped flow techniques.

Q2) Attempt any three of the following. **[15]**

a) Describe the classification of enzymes with example.

b) What are zymogens? Describe its role.

c) Define the terms: Km and Kcat. What is their significance?

d) Write a note on mechanism of enzyme degradation.

Q3) Answer any two of the following: **[10]**

a) Explain the mechanism of action of chymotrypsin.

b) Describe allosteric behavior of phosphofructokinase.

c) Explain acid-base and covalent catalysis.

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SECTION - II

(Physiological Biochemistry)

(2008 Pattern)

Q4) Answer any three of the following: **[15]**

a) Describe the function of Kidney as an endocrine gland.

b) What is alkalosis? What are the compensatory mechanisms during alkalosis?

c) Explain the salient features of the carbonic acid-bicarbonate buffer system.

d) Write a note on plasma proteins and their diseases.

Q5) Attempt any three of the following: **[15]**

a) Describe the role of the antidiuretic hormone in kidney function.

b) Write a note on buffer systems in the intracellular and extracellular fluids.

c) Describe the formation of bile pigments. What is the clinical significance of their elevated levels in serum?

d) What is blood counting? Explain its significance.

Q6) Answer any two of the following. **[10]**

a) Write a note on detoxification of foreign substances by liver.

b) Explain the effect of 2,3 bisphosphoglycerate and pH on binding of oxygen by hemoglobin?

c) What is the composition of bile juice? How are gall stones formed.

SECTION - II

(Biophysical Techniques)

(2010 Pattern)

Q7) Answer any three of the following: **[15]**

a) Describe any one application of UV-VIS spectrometer with example.

b) What is covalent chromatography? Give its application.

c) Why it is necessary to purify enzyme? How enzymes are separated on the basis of their solubility?

d) How electrophoresis can be combined with chromatography? Explain with suitable example.

Q8) Attempt any three of the following: **[15]**

a) Write a note on reverse dialysis.

b) Describe the any one application of gel electrophoresis.

c) What is restriction mapping? Give its principle.

d) Explain the methods of paper chromatography.

Q9) Answer any two of the following: **[10]**

a) Write a note on affinity chromatography.

b) Describe the principle of gas chromatography.

c) Explain the components of HPLC.