VCD-29/09/15 BIOCHEMISTRY-I S.Y.B.SC. SEM III EXAM MARKS75 2 1/2 HRS (25)

NOTE: 1. All questions are compulsory.

2. Figures to right indicate marks.

3. Draw labeled diagrams wherever necessary.

Q I) A. Answer the following :(any 4)   [8]
   1) What do you mean by prosthetic group.
   2) Define active site.
   3) What do you mean by holoenzyme?.
   4) How does substrate concentration affect enzyme reaction rate?
   5) Define Michaelis- Menten constant.
   6) What do you mean by prosthetic group?
   7) Give name and type of reaction catalysed by enzyme having 1st E.C no 2 and 5.
   8) Explain the term $K_{cat} = V_{max}/[E]_t$

B. Explain the following : (any 2)   [6]
   1) Give a note on double reciprocal plot.
   2) Write a note on specific activity of enzyme.
   3) Derive K_m from Michaelis-Menten equation.
   4) Explain irreversible inhibition, with example.

C. Answer in brief :(any 1)   [6]
   1) Derive the Michaelis–Menten equation.
   2) Explain enzyme specificity. Mention drawback of Michaelis-Menten equation.

Q II) A. Answer the following (any 4)   [8]
   1) What is exocrine gland; give e.g?
   2) Define peptide hormones, give e.g.
   3) State the location of hypothalamus gland?
   4) Write down the chemical structre of cytokinine.
   5) Write down the function of GnRH.
   6) What is parthenocarpy?
   7) Write down a brief note on fat soluble hormone receptor.
   8) Shortly describe about ACTH.

B. Explain the following (any 2)   [6]
   1) Explain upto cyclic AMP production in G protein coupled receptor.
   2) Write down the structure of vessopresin and state its function.
   3) Write down the structure of auxin and state its any three functions.
   4) State the incidence occurs during ovulatory phase of overian cycle.

C. Answer in brief (any 1)   [6]
   1) State briefly about production of thyroxine.
   2) How does gibberellins help in horticulture.

Q . III] A. Answer the following : (any four)   [8]
   1) What is Titration curve ?
   2) What is monoproticacid ?give one example.
   3) What is pH scale
   4) Define physiological buffer.
   5) Define Henderson Hasselbalch equation
   6) What is pKa
   7) Give pK values of lysine
   8) Define isoelectric pH.

B. Explain the following : (Any two)   [6]
   1) Explain the ionization of Valine
   2) Explain hemoglobin as a physiological buffer
   3) ' Water has neutral pH ' , justify the statement with suitable derivation

C. Answer in brief : (any one)   [6]
   1) Explain the titration of Aspartic acid with suitable graphical representation.
   2) Calculate the pH of a buffer composed of 0.1M acetic acid (CH_3COOH) and 0.6M
      acetate (CH_3COO^-) knowing that the acid dissociation constant Ka is 1.8×10^{-5}.

Q. IV] 1.(A) Answer the following (any one)   [2]
   1). Define katal   2). Define ribozyme

1. (B) Fill up the blanks: (any three)   [3]
   1) 1U= _____ nanokatal.(16.67/18.67/16.89)
   2) According to E.C number 2 denotes _____ group of
      enzyme.(Hydrolase/Transferase/Isomerase)
   3) Fe^{+2},Zn^{+2} are_____.(Ionic group/Prosthetic group/Cofactor)
   4) _____give the namevitalism(Edward Buchner/James Sumner/Louis Pastuer)
   5) _____ binds to enzyme at binding site.(Substrate/Inhibitor/cofactor)
   6) Oxydation reduction type of reaction catalysed by _____
      enzyme.(transferases/oxidoreductase/ ligase)

Q IV] 2.(A.) Answer in following .(any one)   [2]

1). State function of ethylene .   2). State function of progesteron

2.(B.) Fill up the blanks : (any three)   [3]

1) Other name of ADH is_____.(Anti diuretic hormone/anti diluting hormone/ A diuretic hormone)

2) Progesteron secrets from the _____ cells of overy.(graffian follicle/Corpus luteum/Corpus albicance)

3) Fruit produced by without fertilization is called _____.(Seedless fruit/parthenocarpic fruit/prototype fruit)

4) Hyperthyroidism cause_____.(Goiter/Myxidema/Thyroid).

5) Dopamine is derivative of _____(Thyroxine/Tryptophan/Tyrosine).

6) CyclicAMP is a _____ (second messenger/ first messenger/ tertiary messenger).

Q IV] 3.(A.) Answer the following : (any one)   [2]

1) Give one example of acidic amino acid with structure.

2) Give pI value of Glycine.

3.(B.) Fill up the blanks :(any three)   [3]

1) Miochondria Ammonium hydroxide – ammonium chloride is the example of _____ buffer. (Basic / Acidic / Neutral)

2) pK_R value of lysine is _____ (2.2 / 9.1 / 10.5)

3) _____ is the simplest amino acid (Proline / lysine / Glysine)

4) If the pH of Tris buffer is 12 then the H^+ ion concentration of buffer is a_____ (10^{-12} / 10^{-9} / 9)

5) The molecule A has neutral charge at pH 4, so its pK has to be _____ (8 / 10 / 4)

6) Conjugate base of CH_3COOH is _____ (NH_4Cl / NaOH / CH_3COONa).