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PPD-1653 Seat No._____

B. Sc. (Sem. II) Examination

April / May - 2016

Biotechnology : Paper - CBT - I - II

(Core Compulsory Course - I - II)

(Molecules of Life)

Time : **3** Hours] [Total Marks : **70**

1 Answer all questions. Each question carries 1 mark : **15×1=15**

(1) What does a buffer do ?

(A) Keeps the pH of a solution constant.

(B) Keeps the salt concentration of a solution constant

(C) Keeps the cation concentration constant

(D) Keeps the anion concentration constant

(2) What substances are present in a buffer ?

(A) A weak base or acid and its salt

(B) A hydrolyzing salt only

(C) A weak base or acid only

(D) A salt only

(3) The Henderson-Hasselbalch equation is _____.

(4) What is the purpose of a titration ?

(A) To determine the colour of the indicator

(B) To determine the concentration of acid or base

(C) To determine the cocentration of acid only

(D) To determine the volume of base

(5) The aldose sugar is

(A) Glycerose (B) Ribulose

(C) Erythrulose (D) Dihydoxyacetone

(6) A triose sugar is

(A) Glycerose (B) Ribose

(C) Erythrose (D) Fructose

(7) A pentose sugar is

(A) Dihydroxyacetone

(B) Ribulose

(C) Erythrose

(D) Glucose

(8) The sugar found in DNA is

(A) Xylose (B) Ribose

(C) Deoxyribose (D) Ribulose

(9) Invert sugar is

(A) Lactose

(B) Sucrose

(C) Hydrolytic products of sucrose

(D) Fructose

(10) Osazones are not formed with the

(A) Glucose (B) Fructose

(C) Sucrose (D) Lactose

(11) Non essential amino acids

(A) Are not components of tissue proteins

(B) May be synthesized in the body from essential amino acids

(C) Have no role in the metabolism

(D) May be synthesized in the body in diseased states.

(12) What is the pKa ?
(13) How many are forms of DNA Helix ? Give their names.
(14) What is the shape of tRNA ?
(15) How many bonds are present in G and C ? Give name of that bond.

2 Answer any five of the following. Each question carries 3 marks : **5×3=15**

(1) Explain the pH Scale.
(2) Explain the structure of Water.
(3) Write a note on Disaccharide
(4) Write a note on Nucleotide
(5) Explain the titration curve
(6) Write a note on importance of Lipid
(7) Write a note on Starch.

3 Answer any two of the following. Each question carries 5 marks : **5×2=10**

(1) Explain the buffer system and its importance in biological system.
(2) Write the classification of Monosaccharides with its significance.
(3) Explain Henderson-Hasselbatch equation.

4 Answer any three questions. Each question carries 10 marks : **10×3=30**

(1) Explain the forms of DNA with drawing.
(2) Explain the structure and properties of DNA
(3) Justify "Water is a universal solvent".
(4) Write a note on Protein structure.
