

B.Sc. (CBCS) (Sem.-I)
[Biochemistry Paper -101]
Chemical and Physical Aspect of Biochemistry
Faculty code-003
Subject code : 001114-N

[Time: 2:30 Hours]

[Total Marks: 70]

Section-1

Q:-1 Short Answer Question:

[20]

- 1) Define components of Atom
- 2) Which bond are Participated in Protein formation.
- 3) The pH values of distilled water, lemon juice, sodium bicarbonate were measured using pH paper. What is the correct decreasing order of pH values?
- 4) Isobars
- 5) What is Redox Reaction ?
- 6) Define Molar Solution.
- 7) Angle between O-H bonds is_____?
- 8) Define Nabal Gases.
- 9) Define Basic buffer
- 10) Define pOH
- 11) What is the pH of Blood Plasma _____and Saliva_____?
- 12) What is the pH of 0.0001 M NaOH Solution?
- 13) What is Acidic Buffer
- 14) The movement of molecules from an area of high concentration to an area of low concentration the process are known as_____?
- 15) 0.450 moles of NaCl are dissolved in 95.0 mL of water. Calculate the molarity of the NaCl.
- 16) 15 g of NaCl occupy a volume of 75 mL. What is the molarity of the solution?
- 17) Homogeneous mixture of two or more than two compounds is called_____?
- 18) 10ml of alcohol dissolve in 90ml of water unit of concentration used is_____?
- 19) Number of moles in 1 kg of solvent is called.....
- 20) How many ml of water are need to dilute 65ml 7M KCl to 2M?

Section-2

Q.1 (a): Short Questions: Write any three **[3x2=06]**

- 1) Define bond energy.
- 2) Give the Characteristic features of Ionic bond.
- 3) Define Bronsted base.
- 4) Define Mole and give the importance of Mole concept.
- 5) Define Osmosis.
- 6) What is the importance of buffer?

Q.1 (b) Short questions: Write any three **[3x3=09]**

- 1) Explain Lewis acid-base theory with any one example.
- 2) Discuss property of water.
- 3) Define pH with example.
- 4) Define Oxidation and Reduction with example.
- 5) What would happen to the RBCs when they are suspended in the hypotonic medium?
- 6) How many grams of NaOH is required to make 2.5 N Solution 50 mL.

Q.2 (c) Write Detail Note on [Any two] : **[5x2=10]**

- 1) Write a note on Characteristics of Covalent bond and Ionic bond.
- 2) Explain titration curve of Strong acid and Strong base.
- 3) Write a note Henderson Hesselbalch equation in detail.
- 4) Write a various application of osmosis.
- 5) What is the pH when 25.0 mL of 0.200 M of CH₃COOH has been titrated with 35.0 mL of 0.100 M NaOH?

Q.2 (a): Short Questions: Write any three **[3x2=06]**

- 1) What are inert elements?
- 2) What do you mean by unsaturated solution?
- 3) What is the effect of temperature on diffusion ?
- 4) Factor affecting adsorption process.
- 5) What do you mean by reducing agent?
- 6) Define acidosis and alkalosis.

Q.2 (b): Short questions: Write any three **[3x3=9]**

- 1) Explain Oxidation number with any two example.
- 2) Define Redox potential and its role in biological reaction.
- 3) Define buffer capacity and factor affecting on it.
- 4) How much NaOH required to prepare 2 M NaOH Solution for 250 ml volume.
(NaOH M.W. = 40 gm.)
- 5) Define adsorption and viscosity.
- 6) Write a note on pH meter with one electrode.

Q.2 (c) Write Detail Note on [Any two] : **[2x5=10]**

- 1) Why water is a universal solvent? Explain a Property of Water.
- 2) write a detail note on Physiological buffer.
- 3) Explain in detail Carbonic acid system of biological buffer.
- 4) Write a detail note on Viscosity and Adsorption.
- 5) Prepare 0.1 M acetate buffer of pH =5.5, pKa=4.6 M.W. of acetic acid =60.07, Sodium acetate = 136.08
