

F.Y. BSc
SEM - I
14/10/15

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 four)

(8M)

1. Explain structure of water.
2. What is pH? Give its formula.
3. Explain hydrophilic interaction.
4. Explain pOH and its relation to pH.
5. What is normality?
6. What is the charge present on water molecule? Why is water an electric Dipole?
7. Define Entropy. How is it affected on addition of a nonpolar compound?
8. What is Dissociation constant? Derive it for CH_3COOH .

(B) Explain the following (any two)

(6M)

1. Buffers with examples
2. Mole and Molarity.
3. Calculate weight of HCl in 3 molar solution. [Mol. Wt of HCl - 36.46 gm]
4. Diagrammatically explain the Structure of water.

(C) Answer in brief (any one)

(6M)

1. Define strong and weak acids. What is K_{eq} . Draw an acid- base titration curve of any 3 acids.
2. Define Buffers. Give its types with examples? Derive pK_a for a weak acid.

Q II A) Answer the following (any four)

(8M)

1. What is polar amino acid, give e.g?
2. What is zwitter ion?
3. Draw the structure of dansyl chloride.
4. What do you mean by pI.
5. Tertiary structure..
6. What is tripeptide?
7. Proline cannot form alpha helix -why?
8. Draw the structure of histidine, arginine .

(B) Explain the following (any two)

(6M)

1. Write a short note on D-form and L- form of amino acid.
2. Write down the reaction of amino acid with ninhydrin?
3. Draw a peptide bond involving two amino acids and state why peptide bond can't rotate.
4. Draw the structure of an amino acid with -ve charge, +ve charge and neutral charge.