

- 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)**

1. Super Saturated solution and Saturated solution
2. What is a micelle?
3. Name any two Basic buffers.
4. Define pH and pOH
5. Mention any two functions of water.
6. Why water is an electric Dipole?
7. Define Entropy.
8. What is Dissociation constant? Give example.

**I. (B) Explain the following (any two)**

1. Explain pH of water through its ionization.
2. Define molarity and Gram equivalent weight.
3. Mention the importance of pH in the human body.
4. Diagrammatically explain the Structure of water.

**I. (C) Answer in brief (any one)**

1. Draw an acid- base titration curve of any 2 acids
2. Define Buffers. Give its types with examples? Derive pKa for a weak acid.

**Q II A) Answer the following (any four)**

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

**II. (B) Explain the following (any two)**

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.

**II. (C) Answer in brief (any one)**

1. Write a short note on different interactions stabilize the tertiary structure of protein.
2. Write a note on alpha helix of protein.

**Q III A). Answer the following questions (any four)**

1. What is Starch?
2. What are chemical properties of monosaccharides?
3. What are glycoproteins?
4. Give the structure of Lactose.
5. Give the structure of Murein