

**SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH**

**(A DEEMED TO BE UNIVERSITY)**

**Time : 3 Hrs.**

**Ph.D Examination June-2012**

**Max. Marks : 100]**

**Biochemistry**

**Paper – I**

**QP Code: PHD 1301**

*Your answers should be specific to the questions asked.  
Draw neat labelled diagrams wherever necessary.*

**10 X 10 = 100 Marks**

1. Explain the general principles and applications of electrophoresis. Discuss in detail isoelectric focusing with special reference to protein characterization.
2. Explain the principles of spectroscopic techniques and the spectroscopic techniques used for studying macro molecular confirmation in solution.
3. Describe the methods employed in the determination of molecular weight and number of subunits in a protein.
4. Explain the methods involved in the assay of enzymes.
5. Explain the significance of bacterial motility and the proteins assisting the motility.
6. Briefly explain the designing and methodology for a research problem and if an ethical issue is involved, how you define the same.
7. Give a detailed account on the various media used to culture bacteria.
8. Discuss the method of cell fractionation and how to assess the purity of the subcellular fractions
9. Explain the application of Tandem mass spectrometry in research on proteins
10. Explain the various biochemical tests to identify bacteria

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**Biochemistry**

**Paper – II**

**QP Code: PHD 1302**

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*Draw neat labelled diagrams wherever necessary.*

**10 X 10 = 100 Marks**

1. Describe the ways to isolate and characterize proteins and enzymes from biological systems.
2. Briefly describe the amino acid analysis of proteins and structure prediction of proteins and levels organization of protein structure.
3. Classify proteolytic enzymes based on their catalytic site and explain the general mechanics of hydrolysis of peptide bonds brought about by these enzymes.
4. How enzymes act as catalyst? Explain the mechanism of enzymes action.
5. Briefly explain the kinetics of enzymatic reactions and significance of kinetic studies in enzyme purification and characterization.
6. Briefly explain the principles and methods involved in detection and analysis of protein-protein interactions.
7. Briefly explain the ways to map complex macro molecular structures.
8. Define enzyme inhibition and mention the different types of enzyme inhibition.  
How do you design an experiment to study enzyme inhibition.
9. Give a brief account on bacterial pathogenicity.
10. Mention the guidelines for disinfection and sterilization in healthcare facilities.