

## Laboratory Report

### Part A. Chemical Tests for Enzyme Activity

Test Tube	Contents	Observations
1	Protein and biuret test solution	
2	Protein, pepsin and biuret	
3	Litmus–milk solution	
4	Litmus–milk and lipase	
5	Starch and iodine	
6	Starch, amylase and iodine	
7	Starch, amylase and Benedict's solution	
8	Glucose and Benedict's solution	

### Questions (Part A)

1. Compare and contrast the biuret test results in test tubes 1 and 2. Describe the evidence, if any, for the digestion of albumin using pepsin.
2. What evidence was obtained for the breakdown of fat in the litmus–milk solution due to the action of lipase?
3. Compare and contrast the iodine test results in test tubes 5 and 6. Describe the evidence for the digestion of starch using amylase.
4. Explain the Benedict's test result observed for the products of the starch–amylase reaction in test tube 7.

## Part B. Effect of pH on Enzyme Activity

Circle the Enzyme Being Studied: Amylase or Pepsin

Test Tube	Contents	Observations
1	Substrate and pH 2 buffer	
2	Substrate and pH 7 buffer	
3	Substrate and pH 9 buffer	
4	Substrate and pH 11 buffer	
5	Substrate plus enzyme, pH 2	
6	Substrate plus enzyme, pH 7	
7	Substrate plus enzyme, pH 9	
8	Substrate plus enzyme, pH 11	

### Questions (Part B)

1. Compare the optimum pH results obtained for amylase and pepsin with those predicted in the *Pre-Laboratory Assignment*. Discuss any possible discrepancies between the predicted and experimental results.
2. What was the purpose of including control samples containing only substrate and buffer (test tubes 1–4 for each enzyme) in this study? Did any of these mixtures show any reaction?
3. Protein digestion involves the hydrolysis of peptide linkages and is thus the reverse of protein synthesis, in which amino acids combine. Define the term **hydrolysis** and complete the following equation for the hydrolysis of a dipeptide.

