
Sample Assignment: Unit 15 Applications of Biotechnology

ASSIGNMENT BRIEF

Unit Name:	Applications of Biotechnology	Unit Number:	15
Assignment Title:	Enzyme Technology	Assignment Number:	15.2
Date Set:		Due Date:	
Assessment Objective(s): AO3 a, b, c & d			
Brief: <p>Enzymes are increasingly being used commercially as industrial catalysts. Laboratory research into their effect is important to commercial manufacturers. Your task is to plan and carry out a practical investigation into enzyme technology involving the construction of a simple bioreactor and its use in assessing the effect of temperature on an enzyme-controlled process.</p>			
Assignment <p>You will produce a report on the practical investigation of the effect of temperature on a specified, immobilised enzyme, in a bioreactor of your own design and construction. Your report should include the outcomes of Tasks 1 – 4.</p> Task 1 AO3 a <p>This task involves the production of:</p> <ul style="list-style-type: none">• A plan for the investigation• A risk assessment• A design and the construction of a simple bioreactor• An immobilised enzyme for use in the bioreactor. Maximum Marks for Task 1: 5			

Task 2 AO3 b

In this task you are expected to generate data on the effect of temperature on the rate of reaction in the bioreactor and to do so:

- Carry out measurements
- Use a range of techniques and equipment
- Have repeated measurements
- Have worked with an appropriate degree of accuracy.

Maximum Marks for Task 2: 5

Task 3 AO3 c

In this task you will:

- Record relevant observations and precise measurements on the effect of temperature on the performance of the bioreactor;
- Display the data using tables and simple graphs;
- Include some simple calculations on rates of reaction;
- Use a variety of display methods;
- Select the display method(s) that best illustrates the trends in the data;
- Collect sufficient data to complete simple statistics on the results.

Maximum Marks for Task 3: 9

Task 4 AO3d

In this task you will:

- Interpret the results in terms of how enzymes work and the effect of immobilisation
- Consider the advantages of using bioreactors and immobilised enzymes
- Use secondary sources to support your findings
- Draw conclusions
- Specify named examples in either medicine or industry
- Discuss the advantage of enzyme technology to industry.

Maximum Marks for Task 4: 7

Max Marks Possible for this Assignment: 26

Resources:

Relevant paper and electronic based material.