

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

THEORY: ENZYME BIOTECHNOLOGY SBB 4202

MAY 2003

3 HOURS (100 marks)

INSTRUCTIONS

Answer Four (4) Questions. Each question carries 25 marks. Where a question contains subdivisions, the mark value for each subdivision is given in brackets. Illustrate your answer where appropriate with large, clearly labelled diagrams.

1. Outline the use of genetically modified organisms to enhance the use of proteases in cheese manufacturing processes.

OR

Write an essay on amylases in the food and beverage industry.

2. a) Give an outline of the main points of concern in the down-stream processing of biological materials. (10 marks)
b) Explain briefly how dye-affinity methods have proved useful for the purification of some groups of enzymes. (15 marks)
3. Describe briefly the methods employed to immobilize enzymes and the relative merits of these methods.
4. Discuss the design and use of different reactors in applying enzymes and cells to achieve biotransformations.
5. Discuss the use of non-polar organic solvents in enzyme technology.
6. Describe the concept of a "biosensor" in relation to chemical sensors and give examples.
7. Discuss the use of enzymes for medical diagnostic tests.

END OF EXAMINATION

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