

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF APPLIED SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE EXAMINATIONS

DEPARTMENT OF APPLIED BIOLOGY AND BIOCHEMISTRY

THEORY: METABOLIC PROCESSES ILSBB2212

May 2006

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.(a) Describe the steps in the synthesis of cholesterol from acetyl CoA. (20 marks)
(b) Show how and where, in this pathway, various drugs can be used for the treatment of Hypercholesterolaemia. (5 marks)
2. Give an overview of the various inborn errors of amino acid metabolism. Your answer should provide details of the exact reaction that is limiting and the nature of the 'error'.
3. Describe, giving examples the inborn errors in the metabolism of nucleotide metabolism indicating the exact cause of the metabolic disorder.
- 4.(a) Give an overview of DNA synthesis in the cell. (20 marks)
(b) Show how and where, any five compounds, can inhibit DNA synthesis. (5 marks)
5. Show why acetyl CoA is central to several metabolic pathways in both the normal 'well fed' state as well as in starvation/diabetic states.
6. Write an essay on the various lipoproteins found in human serum, explaining the significance of each.

END OF EXAMINATION

