

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF MEDICINE

MEDICAL SCHOOL

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY DEGREE
PART I SUPPLEMENTARY EXAMINATIONS

(MCM 1101) : BIOMOLECULES & CELL BIOLOGY

DATE : JANUARY 2006

TIME : 3 HOURS

Instructions to Candidates

Answer **all** questions

SECTION A

1. Give a detailed account of the classification of proteins in relation to their different functions, composition, shapes and solubilities. (20)
 2. Write an essay on the membrane transport processes. (20)
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SECTION B

1. Explain the following:
 - a) hydrogen bonding (2)
 - b) Van der Waals bonding (2)
 - c) apolar bonding (2)
2. With the aid of diagrams, give two examples of aliphatic amino acids. (2)
3. Diagrammatically, explain and illustrate V_{max} and K_m . (5)
4. Describe the structural differences between sucrose, lactose and maltose. (6)
5. Draw two structures of derived lipids. (2)

6. Explain repetitive, palindromic and inverted sequences in DNA. (6)
7. What is an apoenzyme? Comment on its enzymic activity. (2)
8. Define nucleic acid hybridization. (2)
10. Explain the following terms:
 - a) translation (3)
 - b) transcription (3)
 - c) Okazaki fragments (3)
11. Compare and contrast chromosomal structures in prokaryotes and in eukaryotes (6)
12. Explain the relevance of thermodynamics to the study of metabolism. (5)
13. Explain the following terms which are relevant to metabolic regulation:
 - a) negative feed- back (4)
 - b) positive feed-forward. (4)

END OF EXAMINATION