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TECHNICAL UNIVERSITY OF MOMBASA

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School of Applied and Health Sciences  
DEPARTMENT OF PURE AND APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:  
BACHELOR OF SCIENCE IN BIOCHEMISTRY

ABC 4206: NUTRITIONAL BIOCHEMISTRY

END OF SEMESTER EXAMINATION

SERIES: December 2024 SERIES

TIME: 2 HOURS

DATE: DECEMBER 2024

**Instructions to Candidates**

You should have the following for this examination

*Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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**Question ONE**

- a) Explain the advantages of high fructose corn syrup HFCS  
(6 marks)
- b) Outline some of the important roles played by proteins in biological systems  
(6 marks)
- c) Outline physiological functions and deficiency disorder associated with fatty soluble vitamins  
(6 marks)
- d) Give reason(s) why, lactase cannot cleave  $\beta$  (1-4) linkage for cellobiose  
(6 marks)
- e) Outline the following in the nutritional requirements of copper;
  - i) Selected physiological role (2 marks)
  - ii) Enzyme cofactor's role (2 marks)
  - iii) Deficiency symptoms (2 marks)

**Question TWO**

- a) Discuss the enzymes responsible for the digestion of protein, highlighting; producing zymogen, activator, site of activity and substrate (10 marks)
- b) Discuss the sources, absorption and transport of vitamin C (10 marks)

### **Question THREE**

Discuss mechanisms of action suggested for fiber's preventive role against colon cancer (20 marks)

### **Question FOUR**

- a) Describe anti-thiamin factors, their sources and inactivation process (10 marks)
- b) Explain three different types of beriberi (10 marks)

### **Question FIVE**

Discuss the digestion triacylglycerol (20 marks)