

BIOC 00113

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF CERTIFICATE IN BIOCHEMISTRY

BIOC 00113: INTRODUCTION TO GENERAL BIOCHEMISTRY

STREAMS: BIOC

TIME: 2 HOURS

DAY/DATE: THURSDAY 11/4/2024

2.30 P.M. –4.30 P.M.

INSTRUCTIONS: Answer question one and any other two questions

SECTION A: ANSWER ALL THE QUESTIONS (30 MARKS)

QUESTION 1

- (a) Highlight four unique features of living organisms. (4 marks)
- (b) Differentiate between Eukaryotic and Prokaryotic cells. (4 marks)
- (c) State two major factors that determine the effectiveness of buffer solution. (2 marks)
- (d) State four important physiological buffers. (4 marks)
- (e) Using examples, differentiate amino acids based on the reaction in solutions (6 marks)
- (f) Highlight two agents that cause a protein to lose its specific three-dimensional conformation. (2 marks)
- (g) The table below contains the list of biologically important polysaccharides. Complete the table by stating their composition and function. (8 marks)

Name	Composition	Functions
Starch		
Cellulose		
Heparin		
Chitin		

SECTION B: (40 MARKS) ANSWER ANY TWO QUESTIONS

QUESTION 2 (20 MARKS)

- (a) Outline two causes of Grass Tetany Nutritional disorders in animals. (2 marks)
- (b) Discuss Urinary calculi, bloating and Acidosis Nutritional Ruminant Disorders in Animals under the following subheadings. (18 marks)
 - (i). Causes and symptoms
 - (ii). Treatment and prevention

QUESTION 3 (20 MARKS)

Explain the steps in glycolysis indicating the enzyme(s) involved at each step. (20 marks)

QUESTION 4(20 MARKS)

- (a) Explain the three major classifications of proteins. (6 marks)
 - (b) State four functions of proteins (4 marks)
 - (c) Explain the four structural levels of proteins (8 marks)
 - (d) State two major agents that cause protein denaturation. (2 marks)
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