

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS
ODEL**

**EXAMINATION FOR THE AWARD OF CERTIFICATE IN ANIMAL HEALTH AND
PRODUCTION**

BIOC 00113: INTRODUCTION TO GENERAL BIOCHEMISTRY

STREAM:

TIME: 2 HOURS

DAY/DATE: FRIDAY 10/08/2018

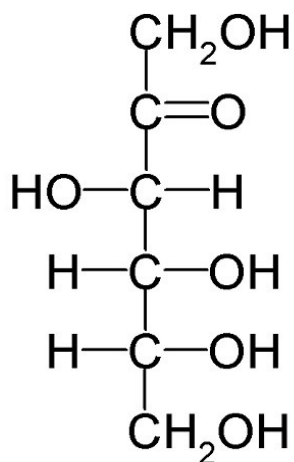
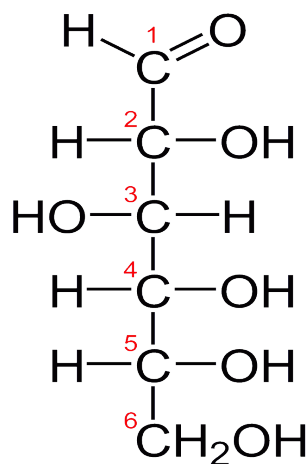
8.30 A.M – 10.30 A.M

INSTRUCTION:

Answer question one and any other two questions

QUESTION ONE (30 MARKS)

- (a) Give the functions of the following cell organelles (3 marks)
- i. Chloroplast
 - ii. Smooth endoplasmic reticulum
 - iii. Mitochondria
- (b) Differentiate between prokaryotic cell and eukaryotic cell (2 marks)
- (c) Illustrate the Haworth structure of following monosaccharaides (4 marks)
- i. D-Glucose
 - ii. D-Fructose



- (d) Give 3 biological roles of lipids (3 marks)
- (e) Illustrate the general structure of amino acids (2 marks)
- (f) Giving appropriate structures, differentiate between an aldose and ketose (4 marks)
- (g) Differentiate between competitive and non-competitive enzyme inhibition (4 marks)
- (h) An individual has protein intake of 95g and 24hr UUN is 15g N. Determine the nitrogen balance (3 marks)
- (i) Differentiate between homoglycans and heteroglycans. (2 marks)
- (j) Classify the following as monosaccharide, disaccharide or polysaccharide (3 marks)
 - i. Maltose
 - ii. Glucose
 - iii. Starch

QUESTION TWO (20 MARKS)

- a) State and explain the biological functions of protein (8 marks)
- b) Briefly describe the levels of structural organization of proteins (8 marks)
- c) Define the term ketosis giving its causes (4 marks)

QUESTION THREE (20 MARKS)

- a) Explain three factors that affect enzyme activity (10 marks)
- a) Discuss the biological functions of carbohydrates (10 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss the factors that cause denaturation of proteins (6 marks)
 - b) Discuss three broad classifications of carbohydrates (6 marks)
 - c) Define the term dysphagia giving its causes (4 marks)
 - d) The nitrogen content of a feed is 2% and the animal eats 400g. The amount of nitrogen in feaces was 3% and the animal excreted 50g of feaces. If 1% (in the 50g feaces) was of endogenous origin, calculate the true nitrogen digestibility. (4 marks)
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