CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL EXAMINATION

EXAMINATION FOR THE AWARD OF CERTIFICATE IN ANIMAL HEALTH AND PRODUCTION

BIOC 00113: INTRODUCTION TO GENERAL BIOCHEMISTRY

STREAMS: **TIME: 2 HOURS**

DAY/DATE: THURSDAY 26/07/2018 **11.30 A.M. – 1.30 P.M.**

INSTRUCTIONS

Answer all questions

QUESTION ONE (30 MARKS)

a. Give the functions of the following cell organelles (4 marks)
   i. Mitochondria
   ii. Chloroplast
   iii. Cytoplasm
   iv. Ribosomes
b. Give appropriate structures to illustrate each of the following; (4 marks)
   i. A peptide bond
   ii. α-1,4-gycosidic bond in maltose
c. State 4 features of enzymes (4 marks)
d. Differentiate between competitive and non-competitive enzyme inhibitors (4 marks)
e. Differentiate between saturated and unsaturated fatty acids giving examples of each (4 marks)
f. Give 3 biological roles of lipids (6 marks)
g. Classify the following as monosaccharide, disaccharide or polysaccharide (4 marks)
   i. Ribose
   ii. Cellulose
   iii. Lactose
   iv. Starch

QUESTION TWO (20 MARKS)

a. Discuss 3 broad classifications of carbohydrates (6 marks)
b. Discuss factors that cause denaturation of proteins (8 marks)
c. Define milk fever giving its signs in cows (6 marks)

QUESTION THREE (20 MARKS)

a. Discuss the biological functions of carbohydrates (10 marks)
b. The nitrogen content of the feed is 2% and the animal eats 400g, the amount of nitrogen in feces was 3% and the animal excreted 50g feces. The amount of nitrogen in urine was 10% and the animal excreted 20g of urine. If the endogenous urinary is 0.4 and the metabolic fecal nitrogen is 0.5, calculate the biological value. (6 marks)
c. An individual has protein intake of 90g and 24hr UUN is 20g N. Determine the nitrogen balance. (4 marks)
