

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF DOCTOR OF PHILOSOPHY IN
ANIMAL NUTRITION**

ANSC 933: ADVANCED ENERGY METABOLISM

STREAMS: PHD

TIME: 3 HOURS

DAY/DATE: FRIDAY 01/09/2023

8.30 A.M. – 11.30 A.M

QUESTION ONE

- **Answer all question in Section A and Any two in B**

SECTION A: ANSWER ALL QUESTIONS (30 MARKS)

1. What would be the reaction of sucrose with alpha glucosidase? (4 marks)
2. Compare catabolism of unsaturated with saturated fatty acids. (4 marks)
3. A farmer has two energy feeds (wheat bran and maize) and wants to formulate layer's diet, please advise him. (4 marks)
4. Explain the metabolic pathway in a situation of excess glucose. (4 marks)
5. Show the importance of phosphorus in glycolysis. (4 marks)
6. What disorder could arise after feeding livestock a diet with more than 10% fat? (4 marks)
7. Show the advantage of propionate over acetate in provision of energy to ruminants. (4 marks)
8. What factors affect metabolic energy content in a feed? (2 marks)

SECTION B: ANSWER ALL QUESTIONS (30 MARKS)

9. Explain fatty acid synthesis in the mammal's body in case of high glucagon or high insulin levels. (15 marks)
10. An experiment is done to determine energy expenditure of ruminants during ill health, justify the techniques used to get your results. (15 marks)
11. Describe the variations in energy expenditure as affected by the animal's size. (15 marks)