

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF ANIMAL NUTRITION

ANSC 826: BIOTECHNOLOGY IN ANIMAL NUTRITION

STREAMS: MSc (ANIMAL NUTRITION)

TIME: 3 HOURS

DAY/DATE: THURSDAY 12/04/2018

2.30 P.M. – 5.30 P.M.

INSTRUCTIONS:

- **ANSWER FOUR QUESTIONS.**

1. Genetic engineering may not be the solution in terms of improving fibre digestion in the rumen:
 - (a) Discuss the above statement with reference to the limitations. (10 marks)
 - (b) Outline the methods used to transfer a construct into the recipient cell/tissues. (5 marks)
2. Biotechnology has been used to improve the efficiency of utilization of nutrients in animals.
 - (a) Discuss the above statement in relationship with the use of mannan oligosaccharides as a feed additive in mono-gastric animals. (6 marks)
 - (b) Using 2 examples show how the anti-nutritive factors in feeds can be overcome with biotechnology. (4 marks)
 - (c) Describe the mode of action of any probiotic used in poultry. (5 marks)
3. Animal nutrition accounts for over 60% of the total production cost in most species of animals.
 - (a) Discuss the major limitations in feed utilization (3 marks)

- (b) Discuss the fact that ruminants are the main producers of animal protein as compared to non-ruminants in developing countries. (6 marks)
 - (c) Describe 3 impacts of biotechnology on society. (6 marks)
4. Give short notes on:
- (a) Cloning in higher animals. (6 marks)
 - (b) Demerits of application of genetic engineering in animal production. (6 marks)
 - (c) The rumen 'maid' (3 marks)
5. Discuss the following:
- (a) The sources of amino acids in the ruminant animals. (6 marks)
 - (b) The biotechnological approach in improving protein nutrition in ruminants. (6 marks)
 - (c) Role of bovine somatotropin (BST) in animal production. (3 marks)
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