

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
SCIENCE IN ANIMAL HEALTH SCIENCE

ANSC 334: BIOTECHNOLOGY IN ANIMAL NUTRITION

STREAMS: BS.c (ANIMAL SCIENCE)

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 5/12/2018

2.30 P.M - 4.30 P.M.

INSTRUCTIONS:

- Answer ALL Questions in Section A and any TWO Questions in Section B

SECTION A

1. Define the following terms [10 Marks]
 - (a) Cloning
 - (b) Genetic engineering
 - (c) Probiotics
 - (d) Plasmid
 - (e) DNA
 - (f) Amylolytic bacteria in the rumen
 - (g) Bovine somatotropin (BST)
 - (h) Biotechnology
 - (i) Prebiotics
 - (j) Cellulose
2. Brewing is one form of biotechnology. [30 Marks]
 - (a) Explain the above statement [4 Marks]
 - (b) Describe 4 contributions of biotechnology in improving agricultural production. [4 Marks]
 - (c) List two ethical issues of cloning. [4 Marks]
 - (d) List 4 main steps in the process of genetic engineering. [4 Marks]
 - (e) Describe two sources of absorbed amino acids in the ruminant animals. [4 Marks]
 - (f) List four other industrial applications of biotechnology. [4 Marks]
 - (g) What is parthenogenesis? [2 Marks]
 - (h) Outline the role played by incorporating enzymes in animal rations. [4 Marks]

SECTION B

3. Rumen microorganisms exist in a symbiotic relationship with the host animal.
- (a) Explain this statement. [3 Marks]
 - (b) Describe two ways of manipulating the number or composition of rumen microorganisms to enhance the utilization of nutrients. [8 Marks]
 - (c) Outline any two limitations of applying genetic engineering technology in the rumen to improve feed utilization. [4 Marks]
4. Briefly discuss:
- (a) The use of probiotics in poultry rations. [5 Marks]
 - (b) The manipulation of partitioning of nutrients in the body. [5 Marks]
 - (c) The use of antibiotics in poultry feeding. [5 Marks]
5. Describe the following:
- (a) Digestion of lipids in the rumen [5 Marks]
 - (b) Inhibition of methane formation in the rumen. [5 Marks]
 - (c) Antinutritive factors. [5 Marks]
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