



UNIVERSITY OF SWAZILAND

2nd SEM. 2016/2017

FINAL EXAMINATION PAPER

PROGRAMME: B.Sc. ANIMAL SCIENCE YEAR 3, B.Sc. ANIMAL SCIENCE (DAIRY) YEAR 3, AND B.Sc. AGRIC. EDUCATION YEAR 3

COURSE CODE: AS 304

TITLE OF PAPER: NUTRITION, FEEDS AND FEEDING

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

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QUESTION 1

(a) Define the following terms commonly used in animal nutrition:

- (i) Dry matter (2 Marks)
- (ii) Fibre (2 Marks)
- (iii) Polysaccharides (2 Marks)
- (iv) Oligosaccharides (2 Marks)
- (v) Hydrogenation (2 Marks)
- (vi) Essential amino acids (2 Marks)
- (vii) Trace minerals (2 Marks)
- (viii) Non-ruminant (2 Marks)
- (ix) Digestibility (2 Marks)
- (x) Gross energy (2 Marks)

(b) List any FIVE major classes of nutrients that are required by farm animals (5 Marks).
(25 Marks)

QUESTION 2

Discuss the proximate system of analysis of feedstuffs used in animal feeding, including its components, how each component is generally measured analytically, as well as its shortcomings.

(25 Marks)

QUESTION 3

(a) Using labelled illustrations, show TEN major anatomical differences between the digestive system of poultry and that of ruminants. (10 Marks)

(b) Discuss the nutritional significance of rumen degradable protein and un-degradable protein in ruminant nutrition. (10 Marks)

(c) State the reasons why vitamin B complex is generally considered non-essential in ruminant diets (5 Marks)

(25 Marks)

QUESTION 4

(a) List TEN essential and TEN non-essential amino acids. **(20 Marks)**

(b) Briefly discuss any THREE methods used to measure feed digestibility **(5 Marks)**

(25 Marks)

QUESTION 5

(a) Discuss how the theory of rumen defaunation can be used to influence the digestion and utilization of nutrients in ruminant animals **(10 Marks)**

(b) Discuss antibiotics and probiotics, including their modes of action, effects in animals, and at least TWO examples for each **(15 Marks)**

(25 Marks)