



2ND SEM. 2004/2005

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UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION

**PROGRAMME: Diploma in Agriculture and Diploma in
Agriculture Education Year III**

COURSE CODE: APH 301

TITLE OF PAPER: NUTRITION, FEEDS AND FEEDING

TIME ALLOWED: TWO (2) HOURS

**INSTRUCTIONS: ANSWER 4 QUESTIONS. CHOOSE
AT LEAST ONE QUESTION FROM
EACH SECTION.**

**DO NOT BE OPENED UNTIL PERMSSION HAS BEEN GRANTED BY THE
CHIEF INVIGILATOR.**

SECTION A

QUESTION 1

Discuss rumen microorganisms in the digestion and absorption of proteins and carbohydrates in ruminants. (25 Marks)

QUESTION 2

a). Explain what you understand by maintenance, milk production, gestation and reproduction requirements in the NRC feeding standards. (15 Marks)

b). Discuss non-leguminous pastures. (10 Marks)

SECTION B

QUESTION 3

Describe and illustrate the partition of crude protein in a ruminant animal. (25 Marks)

QUESTION 4

a). How do you calculate the total digestible nutrients (TDN) of a livestock feed? (5 Marks)

b). The table below shows the composition and digestibility of nutrients in rye-grass hay.

Nutrient	Nutrient content (kg/100 kg)	Digestibility (g/kg)
Crude Protein	6.4	1.92
Crude Fibre	42.8	30.82
Nitrogen Free Extracts	49.6	28.92
Ether Extracts	1.0	0.67

i. What is the TDN per 100 kg rye-grass hay? Show all calculations. (6 Marks)

ii. What are the limitations of the TDN system of feed evaluation? (4 Marks)

c. Write short notes on the following:

- i. Digestible crude protein
- ii. Metabolizable energy
- iii. Rumen degradable protein
- iv. Apparent digestibility
- v. Digestibility coefficient

(10 Marks)

SECTION C

QUESTION 5

a). Ruminants differ from non-ruminants in that they are able to synthesize some nutrients. List and briefly discuss these nutrients. (18 marks)

b). Farm animals cannot survive if they lacked one nutrient. Identify and briefly describe this nutrient, giving its sources and functions. (7 marks)

QUESTION 6

Balance a diet for a pig weighing 50 kg. The nutrient requirements are as follows: CP = 14 %, Ca = 0.55 % and P = 0.45%.

The feed requirements available and their composition are as follows:

Feedstuff	%CP	%Ca	%P
Yellow maize	8.9	0.22	0.28
Soybean meal	46	0.29	0.65
Dicalcium phosphate	-	24	18
Limestone	-	34	-

(25 marks)