

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
SCHOOL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY
DEPARTMENT OF ANIMAL SCIENCE AND TECHNOLOGY

2019/2020 HARMATTAN SEMESTER EXAMINATION

AST 403: ANIMAL FEEDS AND FEEDING

INSTRUCTION: Answer any four questions (at least one from each section).
TIME ALLOWED: 2 Hours

SECTION A

1. In a tabular form, discuss the following unconventional/alternative feedstuff highlighting their inherent antinutritional/limiting factors, processing methods and optimal inclusion levels after processing in poultry diets: (i) Cassava peel meal (ii) Velvet bean (*Mucuna pruriens*) (iii) Jackbean (*Cannavalia ensiformis*)
2. (a) State the crude protein and the Metabolisable energy requirements of the following classes of poultry: (i) Starter broilers (0 - 4weeks) (ii) Finisher broilers (5 - 8weeks) (iii) Pullets (0 - 8weeks) (iv) Layers (16 weeks and above).

(b) Define these terms used in animal nutrition (i) feed nutrients (ii) gross energy (iii) essential amino acid (iv) Metabolisable energy

SECTION B

3. (a) (i) What are the reasons for feed evaluation
(ii) Briefly outline the known standards for feed evaluation

(b) Discuss the three major feed evaluation/analytical methods highlighting their differences, similarities and procedures.
4. (a) (i) The result of a feeding trial indicated that a broiler gained 345.00g after consuming 950.00g of feedstuff containing 24.00% protein. Calculate the Protein Efficiency Ratio (PER).
(ii) List three heat labile and three heat stable antinutrients prevalent in livestock and poultry feedstuff.

(b) (i) What do you understand by the term, contaminant in livestock and poultry feed?
(ii) What are the possible causes of poor quality feeds and feedstuff?

SECTION C

5. Table 1 and Table 2 below contain the nutrient requirements of beef cattle in a Commercial farm and Nutrient composition of various feedstuffs, respectively. Using the information in the table and the Pearson Square method, calculate the proportion of Grass hay, Shelled maize and soya bean meal mixture required to achieve the desired requirements of 68% TDN, 12.9 % CP, Ca and P.

Table 1: Nutrient requirements for a 200-kg Steer that would weigh 500 kg at Finishing

Dry Matter	Protein		TDN		Ca		P	
12.6 (kg)	1.63kg	12.9%	8.6 kg	68%	0.067 kg	0.53%	0.033 kg	0.26%

Table 2: Nutrient composition of various feedstuffs

Feed	%DM	%TDN	%Protein	%Ca	%P
Grass hay	90	52	10	0.30	0.26
Shelled Maize	90	90	9.8	0.03	0.32
Soya bean meal	89	84	49.9	0.40	0.71

6. (a) What are the chemical methods of evaluating the nutritive value and quality of silage?
- (b) List 4 methods of evaluating the physical quality of silage.
- (c) List four feed stuff/ingredients that are susceptible to oxidative rancidity during storage
- (d) List 5 common methods of feed preservation and the feed type for each method.
- (e) Outline and describe 5 major deteriorative changes that can occur in feeds during storage.