



NATIONAL OPEN UNIVERSITY OF NIGERIA

Faculty of Agricultural Sciences

Department of Animal Science and Fisheries

Second Semester Examination, October/November, 2019

Course: ANP502: Ruminant Nutrition

Credit Unit: 2

Time Allowed: 2 hours.

INSTRUCTIONS: Answer question one (Compulsory: 25 Marks) and any other THREE (15 marks each)

QUESTION ONE^[11]_[SEP]

- i. What is Metabolism? 2marks
- ii. Illustrate the metabolic processes of Carbohydrate with the aid of a well-labeled diagram 18marks
- iii. Highlight the three fates of dietary protein consumed by the ruminants. 3marks
- iv. State the two major steps are involved in protein degradation in the rumen 2marks

QUESTION TWO

With the aid of a diagram illustrate Energy partitioning 15 marks

QUESTION THREE

Write short note on Metabolisable Energy and Heat Energy. 10marks

What are the factors that determines the level of heat energy produced in an Animal 5marks

QUESTION FOUR

- i. Highlight 5 precautionary measures that a farmer must take when feeding his or animal with Non-Protein Nitrogen (NPN) 3marks
- ii. Exemplify in a tabular form 5 non-protein nitrogen sources for ruminants, stating their formula, nitrogen content and protein equivalent 12marks

QUESTION FIVE

- i. Define the concept of digestibility of the feedstuff? 2marks
- ii. Express by the aid of equation the digestibility coefficient of feedstuff? 3marks
- iii. State the two limitations of Digestibility Coefficients 2marks
- iv. Write short note on the proximate principles of water content. 4marks
- v. Highlight Kjeldahl procedure used in the laboratory proximate analysis of protein 4marks

QUESTION SIX

- i. Itemize five basic requirements that Animal Scientist must concern them self with in the formulation of all types of diets. 5marks
- ii. List the function of water in the ruminant digestive system 7marks
- iii. Highlight two sources for meeting water requirements of dairy cattle 3marks