



## NATIONAL OPEN UNIVERSITY OF NIGERIA

### Faculty of Agricultural Sciences

### Department of Animal Science and Fisheries

### POP Examination 2020\_1

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

- i. Briefly describe the term feed additives
- ii. Explain basic characteristics of an ideal feed additive
- iii. List common feed additives and their mode of action

**25 marks**

#### QUESTION TWO

- i. What are the basic principles to be considered when formulating
- ii. What characteristics of the animal that determine the types of diets to be fed?

**15 marks**

#### QUESTION THREE

Write short note on Metabolisable energy and heat energy.

Highlight the factors that determines the level of heat energy produced in an animal

**15 marks**

#### QUESTION FOUR

- i. List the main substrates of digestion
- ii. Express in your own words the activities of the following key organisms bacteria involvement in the breakdown of protein in the rumen
  1. *Prevotella* bacteria species
- iii. Hyper Ammonia Producing (HAP) bacteria
- iv. Highlight the factors may affect the rate and extent of protein degradation.

**15 marks**

### QUESTION FIVE

Explain in your own word the following nutritional disorders

- i. Grass Tetany
- ii. Acute Pulmonary Emphysema

15 marks

### QUESTION SIX

Write short note on three (3) of the following.

- i. Nutrient Requirements of the Animal
- ii. Available Ingredient for Animal
- iii. Feedstuffs and Feedstuffs Analysis
- iv. Cost of the Ingredient

15 marks