



NATIONAL OPEN UNIVERSITY OF NIGERIA

Faculty of Agricultural Sciences

Department of Animal Science and Fisheries

POP Examination 2021_2

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