BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE
AGA240

Department of Animal Science
BSc Agricultural Science Part II Examination
Animal Nutrition

JUN 2024

3 HOURS (100 Marks)
INSTRUCTION: Answer any **FOUR** questions. Each question carries **25 marks**

1. Discuss, with the aid of a schematic illustration, starch metabolism in ruminants. **[25 marks]**
2. Feed labels express nutrient composition on a dry matter basis rather than on `as is` basis;
   a. Explain the benefits of displaying feed nutrient composition on a DM basis. **[5 marks]**
   b. A sample of hay was reported to have the following composition; 14.4% moisture and 17.6% CP on as is basis. Express its CP content on a dry matter basis. **[2 marks]**
   c. Discuss water nutrition under the following headings;
      i. Metabolic functions of water. **[6 marks]**
      ii. The various sources of water for metabolic functions. **[8 marks]**
      iii. Consequences of too much and too little water in feeds. **[4 marks]**
3.
   a. Discuss the benefits and constraints of routine nutrient analysis of feed ingredients, visa vee use of tabular values, during feed formulations. **[8 marks]**
   b. Describe the use of Near Infrared Reflectancy Spectroscopy as a method for feed analysis. **[8 marks]**
   c. Explain the following terms;
      i. TDN. **[3 marks]**
      ii. Acid Detergent Fibre. **[3 marks]**
      iii. Rumen Bypass Protein. **[3 marks]**
4. Discuss the various factors that can possibly affect feed digestibility in ruminant nutrition. **[25 marks]**
5.
   a. Discuss the common goals of feed processing. **[15 marks]**
   b. Briefly describe the specific effects of five (5) named dry methods of grain processing. **[10 marks]**
6. Discuss the various theories on the physical and metabolic regulation of voluntary feed intake. **[25 marks]**

END OF EXAMINATION PAPER