

**UNITECH**  
**DEPARTMENT OF AGRICULTURE**  
**FINAL EXAMINATION II SEM 2020**  
**AG 212. ANIMAL NUTRITION (INCLUDING PASTURE MAAGEMENT)**  
**3 HOURS. Marks ( Part A 60+Part B 40).**

**PART "A"**

**(ANSWER EACH PART in SEPARATE ANSWER BOOKS)**  
**NO ELECTRONIC ITEMS EXCEPT CALCULATORS ARE ALLOWED.**  
**ANSWER ALL THE QUESTIONS IN BOTH THE PARTS**

- I. Write two examples for the following: 8**
1. Antioxidants.
  2. VFA produced in rumen.
  3. Structural polysaccharides.
  4. Amylolytic enzymes.
  5. Markers that are used for digestibility estimation.
  6. Organic matter in feed.
  7. Macro minerals.
  8. Fat soluble vitamins.
- II. Prepare 100 kg of ration having 17% CP using the following ingredients 7**  
Maize 9% cp, Soya bean meal 35% cp, Barley 10% cp . Note: mineral and vitamin mixture is added to ration at 5% level.
- III. Define the following terms: 7**
1. Metabolizable energy.
  2. Pregnancy toxemia,
  3. Proteolysis
  4. Calorie
  5. Hyperkeratosis.
  6. Avitaminosis
  7. Meal
- IV. What are the factors to be considered while compounding a feed. Prepare 100 KGs of feed having 18% CP and 70 % TDN. The available feed ingredients are: 4+6**
- | Ingredients | CP % | TDN % |
|-------------|------|-------|
| Maize.      | 9.0  | 72.0  |
| SBM         | 35.0 | 70.0  |
| Hay.        | 6.0  | 60.0  |
- V. What are the main deficiency symptoms of the following: 10**
1. Iron
  2. Vitamin A
  3. Cobalt.
  4. Iodine.
  5. Phosphorous
  6. Vitamin E
  7. Magnesium
  8. Essential fatty acids..
  9. Sodium
  10. Vitamin D

- VI. Calculate the digestibility of DM,CP and EE. Given the following data. 8**  
 An animal requires 2.75% of its body weight as DM requirement. How many KGs of hay have to be fed to the animal if its body weight is 400Kgs?  
 Animal voids 10.kg of feces having 3 kg of water and 5% CP and 3% EE (On DM basis), while hay had 12% moisture, 9% CP and 4% EE,
- VII. What are feed additives and what are the advantages of them? 3+7**

### **PART B (Pasture Management )**

- VIII. The rainfall pattern in PNG ranges as follows: 2**

34% of the PNG has 2000-3000mm per year, 45% of PNG has 3000-5000mm rainfall per year, 7.3% of PNG has 5000mm rainfall per year and 12.3% of PNG has <2000mm of rainfall per year. It is found that most of the cattle project and most grazing areas are concentrated around the 2500 mm-3000mm of rainfall. It can be estimated that 34% and 45% of PNG which has rainfall between 2000mm-5000mm per year. It can therefore be comfortably stated that PNG is 79% (34%+45%) suitable for grazing animals. Circle the correct answer.

- a. False
- b. True
- c. Not sure

- IX. Question 18**

#### **Feeding value of pastures**

Feeding value-defined as the animal production response to the total herbage consumed which is a function of intake, digestibility, and efficiency of the use of absorbed nutrients

Digestibility-the proportion of food consumed which disappears in the digestive tract and as such defines quantitatively the nutrients availability per unit of feed intake. It is the major component of the nutritive value. Dry matter digestibility and organic matter digestibility are most often examined because they are easy to estimate and have a direct relationship to energy digestibility. You wanted to know the feeding value of a new pasture you have introduced into your farm so you conducted a digestibility trial. The following are the average results you obtained:

1. Total average feed intake = 20kg DM
2. Total Faecal out= 2kg DM

**Calculate and answer the following:**

**1. DM % digestibility**

**2. Is the Pasture good or poor and how do you know it is good or poor?**

**X. Calculate: using the following data.**

Feed demand calculation for feeding of 2000 lambs on 1000ha of pasture and available hay at 200kgDM per bale hay sold at the nearby farm. The estimated pasture in the 1000ha paddock is 400kgDM per ha and the lambs consume 2kgDM per day/lamb. The lambs will be sent to the market at 120days.

**Calculate:**

- a. How long it will take for the lambs to finish the pasture in the 1000ha paddock? 5
- b. Is there enough pasture on the field? 5.
- c. If not calculate how many bales of hay has to be purchased to feed the lambs before they are taken to the market at120days? 10