

# UNIVERSITY OF FORT HARE

**AGP 223**

## Degree Examinations

**November 2018**

**Time : 3 Hours**

**Subject: Pasture Anatomy and Physiology**

**Marks : 100**

This paper consists of 2 printed pages including the cover page

Internal Examiner  
Prof. S.T. Beyene

Moderator  
Dr. K. Mopipi

### Instructions

ANSWER ALL QUESTIONS

**QUESTION 1 [20 MARKS]**

- a. Define the following terms
  - i. Phenology [2 Marks]
  - ii. Leaf Area Index [2 Marks]
  - iii. Tiller [2 Marks]
  - iv. Photoperiod [2 Marks]
  - v. Meristem [2 Marks]
- b. State the function of the following organelles
  - i. Mitochondria [5 Marks]
  - ii. Golgi bodies [5 Marks]

**QUESTION 2 [20 MARKS]**

- a. Outline the stages in plant growth. [6 Marks]
- b. With the aid of diagrams, describe the two main root systems. [8 Marks]
- c. What is the role and functions of the stem? [6 Marks]

**QUESTION 3 [20 MARKS]**

- a. Explain how the following factors affect plant growth and development
  - i. Soil depth [4 Marks]
  - ii. Leaf removal [2 Marks]
- b. How can a rangeland manager utilise defoliation management by livestock to successfully sustain a healthy rangeland ecosystem? [7 Marks]
- c. Explain the influence of grazing on tillering. [7 Marks]

**QUESTION 4 [20 MARKS]**

- a. Outline the factors that affect the rate of photosynthesis. [5 Marks]
- b. What are the major differences and similarities between C3, C4 and CAM pathways? [15 Marks]

**QUESTION 5 [20 MARKS]**

- a. Explain the factors that affect the rate of transpiration. [10 Marks]
- b. Write short notes on respiration and photorespiration. [10 Marks]