



**QUESTION 1**

- (a) State the four natural laws of rangeland ecology. (8 Marks)
- (b) Assume you are a range manager in one of the private ranches in the Lowveld of Swaziland; the ranch measures 21 500 ha. You are asked to calculate the carrying capacity of this ranch. You go out and take 250 samples using a 100 cm by 50 cm metal frame; you get an average of 284 g DM.
- (i) Calculate production in kg DM per ha of this ranch. (4 Marks)
- (ii) Calculate how many 400 kg beef cattle can be grazed year-long in this ranch. (7 Marks)
- (iii) If the animals would have to travel a distance of 2.24 km to get water, what would be the carrying capacity of the above ranch? (3 Marks)
- (iv) In addition to the travelling distance in (iii) above, if the percent slope of the ranch is 5 percent, what would be the carrying capacity of this ranch? (3 Marks)

**QUESTION 2**

- (a) What is the significance of determining range condition and trend? (3 Marks)
- (b) Define the three categories used to describe the health status of the range. (6 Marks)
- (c) Briefly discuss the **FIVE** criteria which are used in assessment of rangeland condition when using the simple score method. (16 Marks)

**QUESTION 3**

The invasion of *Chromolaena odorata* (Siam weed/ *Sandanezwe*) is a serious threat to our rangelands. Discuss clearly how this plant can be controlled using the following methods:

- (a) Manual (13 Marks)
- (b) Chemical (herbicides) (12 Marks)

**QUESTION 4**

“The first consideration of pasture production must be to preserve and if possible increase the growth of primary producers”. Discuss this statement and outline some of its practical implications. (25 Marks)

**QUESTION 5**

- (a) Highlight the detrimental effects of overstocking on (i) grazing resources,  
(ii) the grazing animal and (iii) man. (15 Marks)
- (b) Outline **FIVE** drought management strategies which a range manager can adopt to  
mitigate against drought effects. (10 Marks)