UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: BS.c. ANIMAL SCIENCE YEAR 2

TITLE OF PAPER: RANGE MANAGEMENT

COURSE CODE: APH 207

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION ONE (1) AND ANY OTHER THREE (3)
QUESTIONS

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CHIEF INVIGILATOR

QUESTION 1

(a) What are the four grazing surveys that range managers conduct to determine optimum stocking rate? (5 marks)

(b) Outline the four principles of grazing management; mention which is the most important of these principles. (10 marks)

(c) Suppose you have a ranch measuring 500 ha in the Lowveld of Swaziland. You take 20 grass samples on this ranch using a 100 cm by 50 cm metal frame and it gives you an average grass yield of 75 g DM.

(i) Calculate production in kg DM per ha of this ranch. (2 marks)

(ii) Calculate how many 350 kg cows you can graze in this ranch year round. (8 marks)

QUESTION 2

The integrity of a range ecosystem depends on the flow of energy and nutrient cycling. Cleary discuss the practical implications of nutrient cycling in a range ecosystem. Among other things, mention plant growth and cover, rate of nutrient loss, nutrient inflow and outflow, management objectives. (25 marks)

QUESTION 3

(a) (i) Assessment of rangeland condition is one of the important management activities undertaken by a range manager. Briefly describe the line intercept method for determination of canopy cover of shrub/tree species. (7 marks)

(ii) What is the significance of canopy cover of shrub/tree species? (3 marks)

(iii) Suppose you go out to assess rangeland condition by species cover; you collect the following data:

Actual cover (%)

Thatch grass (Increaser I) -16; Guinea grass (Decreaser) -12;

Eragrostis plana (Increaser I) - 5; *Eragrostis curvula* (Decreaser) - 15;

Ratstail dropseed (Increaser I) - 10 and Bitter apple (Invader II) - 2.

Calculate rangeland condition based on cover of these species. (15 marks)

Use the given format below. You have been provided with information in the second column and you have to work out the third and forth columns to come up with rangeland condition for this camp.

Species	Percent allowed in climax	Relative percent cover on site	Usable percent
Thatch grass	15		
Guinea grass	100		
Eragrostis plana	5		
Eragrostis curvula	100		
Ratstail dropseed	10		
Bitter apple	0		
Total			

Or

(b) (i) Most people believe that rangelands are only used for grazing purposes; this is a limited view of this resource. Discuss any five ecosystem services that can be provided by properly managed rangelands. (15 marks)

(ii) Outline five uses of fencing in range management. (10 marks)

QUESTION 4

(i) Name three methods we used this semester to determine ground and basal cover. (3 marks)

(ii) The Lowveld of Swaziland is well suited to ranching; fully describe this range type (leave out discussion on physical characteristics and other activities). (17 marks)

(ii) Highlight five daily routine duties of farm managers. (5 marks)

QUESTION 5

(a) Discuss range reseeding as one of the technologies you could adopt to restore degraded rangelands. (25 marks)