



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF AGRICULTURAL AND FOOD SCIENCES**

**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF SCIENCE  
ANIMAL SCIENCE**

**THIRD YEAR SEMESTER TWO 2018 ACADEMIC YEAR**

**REGULAR**

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**COURSE CODE: AAS 3322**

**COURSE TITLE: GENERAL RANGE MANAGEMENT**

**EXAM VENUE:**

**STREAM: BSC Animal Science**

**DATE:**

**EXAM SESSION:**

**TIME: 2 HOURS**

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**Instructions**

- 1. Answer ALL questions in Section A (compulsory) and ANY TWO questions in Section B**
  - 2. Candidates are advised not to write on the question paper**
  - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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**SECTION A (30 marks. Answer all questions)**

1. Define the following terms (1 mark each)
  - a) Range lands
  - b) Synecology
  - c) Livestock unit
  - d) Succession
  - e) Carrying capacity
2. Fences are very important farm structures for range management. Outline five reasons for having good fences on the range. (5 Marks)
3. Describe the characteristics of a pioneer community in ecological succession (5 marks)
4. Briefly outline bush control methods that can be applied to increase rangeland production (4 marks)
5. Briefly explain the three aspects of forage defoliation showing how they affect plant physiology (3 marks)
6. Elaborate on the factors that determine forage palatability (4 marks)
7. Using a diagram illustrate and briefly explain the four main classes that describe rangeland condition (4 marks)

**SECTION B (40 Marks). Answer any two questions**

8.
  - a). Outline the ecological functions of wetlands on rangelands. (4 Marks)
  - b). List the four basic principles of range management. (4 Marks)
  - c). Outline potential land uses of agro ecological zone IV. (4 Marks)
  - d). Highlight some of the actions taken to help in conflict management in the rangelands. (4 Marks)
  - e). Briefly, explain the four ecological principles on which Range Management is founded (4 Marks)
9.
  - a) Proper use of a range area can be placed into three categories. Discuss Range Utilization categories. (10 Marks)
  - b) Using clear examples, distinguish between primary and secondary succession (10 marks)
- 10.a) Define the term proper use factor (PUF) and highlight in detail the factors that affect PUF in rangeland utilisation (10 marks)
- b) Assume a livestock operation that has 100 acres of Bermuda grass and long-term production records indicate the pasture is capable of producing 5,000 lbs. of forage DM per acre over the growing season of 120 days. The producer wishes to know how many head of 500 lb. stocker calves they may expect to stock in the pasture
  - i. Using the principal of take half leave half, calculate the available forage for grazing (2 mks)
  - ii. Assuming that a 500lbs type of cattle has an animal unit equivalent (AUE) of 0.6 and its forage dry matter demand per day is 15lbs, calculate the stocking rate (# head) based on available forage (3 marks)

Calculate the stocking rates using the AUEs

(5 marks)



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**COURSE TITLE: General Range Management**

**EXAM VENUE:**

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**DATE:**

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**Instructions**

- 4. Answer ALL questions in Section A (compulsory) and ANY TWO questions in Section B**
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**SECTION A (30 marks. Answer all questions)**

10. Define the following terms (1 mark each)
- f) Range lands
  - g) Synecology
  - h) Livestock unit
  - i) Succession
  - j) Carrying capacity
11. Fences are very important farm structures for range management. Outline five reasons for having good fences on the range. (5 Marks)
12. Describe the characteristics of a pioneer community in ecological succession (5 marks)
13. Briefly outline bush control methods that can be applied to increase rangeland production (4 marks)
14. Briefly explain the three aspects of forage defoliation showing how they affect plant physiology (3 marks)
15. Elaborate on the factors that determine forage palatability (4 marks)
16. Using a diagram illustrate and briefly explain the four main classes that describe rangeland condition (4 marks)

**SECTION B (40 Marks). Answer any two questions**

17. a). Outline the ecological functions of wetlands on rangelands. (4 Marks)
- b). List the four basic principles of range management. (4 Marks)
- c). Outline potential land uses of agro ecological zone IV. (4 Marks)
- d). Highlight some of the actions taken to help in conflict management in the rangelands. (4 Marks)
- e). Briefly, explain the four ecological principles on which Range Management is founded (4 Marks)
18. a) Proper use of a range area can be placed into three categories. Discuss Range Utilization categories. (10 Marks)
- c) Using clear examples, distinguish between primary and secondary succession (10 marks)
- 10.a) Define the term proper use factor (PUF) and highlight in detail the factors that affect PUF in rangeland utilisation (10 marks)
- b) Assume a livestock operation that has 100 acres of Bermuda grass and long-term production records indicate the pasture is capable of producing 5,000 lbs. of forage DM per acre over the growing season of 120 days. The producer wishes to know how many head of 500 lb. stocker calves they may expect to stock in the pasture
- iii. Using the principal of take half leave half, calculate the available forage for grazing (2 mks)
- iv. Assuming that a 500lbs type of cattle has an animal unit equivalent (AUE) of 0.6 and its forage dry matter demand per day is 15lbs, calculate the stocking rate (# head) based on available forage (3 marks)
- v. Calculate the stocking rates using the AUEs (5 marks)

