



SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN RANGE MANAGEMENT

ARM 305: METHODS OF RANGELAND ANALYSIS

DATE: 19TH APRIL, 2017

TIME: 10.30 -12.30 PM

INSTRUCTIONS TO CANDIDATES

- Answer **ALL** Questions in section **A** and any **two** in section **B**
- Use appropriate illustrations and diagrams where possible.

SECTION A (30 MARKS)

- Q1. a). Differentiate the following terms as used in range science
- i). Range site and Key areas (2 Marks)
 - ii). Range condition and Range trend (2 Marks)
- b). Enumerate the merits and demerits of carrying out ‘animal census’ exercise in Kenyan rangelands (6 Marks)
- Q2. Discuss the reasons why monitoring and evaluation in rangeland analysis is important for ecological conservation (8 Marks)
- Q3. Briefly describe any **three (3)** vegetation attributes that are useful in monitoring and evaluation of the rangelands. (6 Marks)
- Q4. Differentiate between the following
- i). Plot and plotless techniques (2 Marks)
 - ii). Basal cover and canopy cover (2 Marks)
- Q5. a). Briefly discuss the quadrant method of determining the biomass production in an open ecosystem (4 Marks)
- b). Enumerate the merits and demerits of the quadrant method in rangeland analysis (4 Marks)

SECTION B (40 MARKS)

- Q6 a) Briefly discuss to show the meaning and importance of ‘plant canopy architecture’ in rangeland analysis (6 Marks)
- b). Using the concept of compartmentization, discuss the usefulness of the three (3) main types of plant biomass (9 Marks)
- c). Decomposition is a necessary ‘evil’ in any ecosystem. Discuss. (5 Marks)
- Q7 a) Discuss the preparatory procedures prior to data collection in rangeland inventory and monitoring program (12 Marks)
- b). Briefly discuss the appropriateness of any **two (2)** techniques of determining forage utilization in the rangelands (6 Marks)
- c). Briefly describe to show the importance of breeding sites in the rangelands (2 Marks)
- Q8 a).Using an illustration, discuss the importance and influence of the following components in the rangelands
- i). Producers (3 Marks)
- ii). Consumers (3 Marks)
- iii). Decomposers and scavengers (3 Marks)
- b). Highlight the limitations of determining the vegetation cover (6 Marks)
- c). Discuss the vertical and horizontal method of vegetation projection in rangeland analysis (5 Marks)