



W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
University Examinations 2017/2018**

**YEAR III EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN
LAND RESOURCES PLANNING AND MANAGEMENT**

ALP 2313: SOIL SURVEY

DATE: JULY/AUGUST 2018

TIME: 2 HOURS

INSTRUCTIONS:

Answer question one and any other two. Illustrate your answers as necessary.

Question 1.

- a. Outline the aims, importance and role of soil surveys in land evaluation (3 marks)
- b. Outline the essential contents of a soil survey report (3 marks)
- c. Mr Ole Sopatia owns a five hundred (500) hectare farm in the Athi-Kapiti Plains and intends to grow horticultural crops under irrigation. Using your knowledge about the soils and the climatic conditions in the area;
 - i. Name and describe the three major soil types in the area (9 marks)
 - ii. Describe the major soil limitations he will likely encounter in his farm (5marks)
- d. Outline the essential characteristics and major limitations to use of the soils in the following areas:
 - i. Mwea Irrigation Scheme
 - ii. Uasin Gishu
 - iii. Chalbi Desert
 - iv. Tsavo National Park(10 marks)

Question 2.

- a. Describe in detail the general procedure for conducting a Reconnaissance soil survey in Kenya (6 marks)
- b. i. Define soil Association and soil Complex (2 marks)
ii. Explain how and in what types of surveys soil association and complexes are used. (2 marks)
- c. Explain how remote sensed data are used in soil surveys in Kenya (10 marks)

Question 3

- a. What are the two most extensive soils in the ASALS of Kenya. For each outline the essential characteristics and discuss their limitations for irrigation (8 marks)
- b. Explain how soil is mapped and its Legend constructed (5 marks)
- c. Describe the major types of soils in the Rift Valley and explain the major factors which influence their distribution. (7 marks)

Question 4.

a. Describe five major soil types found in catenas around the volcanic mountains in Kenya. For each soil, name the essential diagnostic horizons. ^

(10 marks)

b. Name and outline the essential characteristics and major limitations to use of five major soils in the Kilimambogo-Naivasha transect.

(10 marks)