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UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
AGRICULTURAL EDUCATION**

AGEN 353: IRRIGATION AND DRAINAGE

STREAMS:

TIME: 2 HOURS

DAY/DATE: THURSDAY 13/04/2023

2.30 P.M. – 4. 30 P.M.

INSTRUCTIONS

- Answer all questions in section one and any other two questions in section II

SECTION I

- 1) Define the term irrigation (2 marks)
- 2) Describe Four factors that influence the choice of an irrigation method (12 marks)
- 3) Calculate the moisture content of a soil sample collected from a vegetable garden whose.
Wet Soil and sampling tube weighed 265.9gm, when put in a oven at a temperature of 105°C
for 24 hours the dry soil and sampling tube weighed 246.6gm. weight of empty tube 95gm. (4 marks)
- 4) Describe land drainage (2 marks)
- 5) Discuss briefly the history of irrigation in Kenya (4 marks)
- 6) List six causes of salt accumulation in irrigation water (6 marks)

SECTION II

- 7) a) Explain the following irrigation method
i. Boarder Irrigation (4 marks)
ii. Sprinkler/Trickle (4 marks)
b) List three factors that influence irrigation methods (4 marks)
c) Explain three factors that affects the consumption use of crops (4 marks)

- d) Describe one method used in determining consumptive use of beans (4 marks)
8. a) By use of a diagram explain how infiltration rate can be carried out in a Rice field by use of Cylinder infiltrometers (8 marks)
- b) Explain the following
- i. Basic infiltration rate (2 marks)
 - ii. Explain four disadvantages of drip irrigation (3 marks)
- c) Define field capacity, and briefly explain how it is obtained in the field. (4 marks)
- d) Briefly outline three factors that affect Water Requirements of crops. (3 marks)
9. a) List six steps followed in the design of land drainage system (6 marks)
- b) Outline two benefits of irrigations (2 marks)
- c) By use of a diagram, discuss sprinkler irrigation, giving its advantages over the other methods. (6 marks)
- d) Discuss three contributions of irrigation to Kenyan National economy (6 marks)
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