

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF
BACHELOR OF SCIENCE IN AGRICULTURE EDUCATION AND BACHELOR OF
SCIENCE IN HORTICULTURE**

AGEN 352: SOIL AND WATER MANAGEMENT

STREAMS: BSC (AGED/HORT)

TIME: 2 HOURS

DAY/DATE: TUESDAY 10/12/2019

2.30 PM – 4.30 PM

INSTRUCTIONS:

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

SECTION 1 (30 MARKS): ANSWER ALL QUESTIONS

1. Draw a dumpy level and explain how it is used in surveying. [4 marks]
 2. Using diagrams, describe any three equipment's used in linear surveying. [6 marks]
 3. Explain the tasks carried out by the following survey assistants.
 - (a) The leader [3 marks]
 - (b) The follower [3 marks]
 4.
 - (a) Describe soil erosion [2 marks]
 - (b) List any four causes of soil erosion. [4 marks]
 - (c) Define Agricultural Water Management. [4 marks]
 - (d) Explain the farm conservation tillage. [2 marks]
 - (e) Explain the procedure used to obtain a right angle by use of 12m long tape. [2 marks]
- marks]

SECTION 2 (40 MARKS): ANSWER TWO QUESTIONS

5. (a) Explain the following water management measures:

- (i) Rock water harvesting [4 marks]
- (ii) Bench terracing [3 marks]
- (iii) Sand Dam [3 marks]

(b) Explain the following four factors in the given soil loss equation. $A=R \times K \times L \times C$ [10 marks]

6. (a) Giving preventive measures, discuss the following types of soil erosion:

- (i) Gully erosion [5 marks]
- (ii) Wind erosion [5 marks]

(b) Linear survey was carried out across River Tana. Describe one of the procedures that may have been used. [5 marks]

(c) Describe a cutoff drain and explain its importance. [5 marks]

7. (a) Discuss constant errors found in linear measurement of surveying. [5 marks]

(b) Explain four properties for soil that reduce soil erosion [4 marks]

(c) Complete the bookings below and carry out the checking test. [6 marks]

B.S	I.S	F.S	RISE	FALL	R. L	DISTANCE		REMARKS
2.348								
1.891		0.876						
2.517		1.030						
1.932		2.140						
2.653		1.338						
		1.296						

Take reduced level to be 170.170m

(d) Discuss underground tank method of water management. [5 marks]

