

**THE UNITED REPUBLIC OF TANZANIA**  
**NATIONAL EXAMINATIONS COUNCIL**  
**ADVANCED CERTIFICATE OF SECONDARY EDUCATION**  
**EXAMINATION**

**134/1      SCIENCE AND PRACTICE OF AGRICULTURE 1**

(For Both School and Private Candidates)

**Time: 2:30 Hours**

**Year: 2003**

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**Instructions**

1. This paper consists of ten (10) questions in sections A, B and C.
2. Answer five (5) questions choosing at least one (1) question from each section.
3. Each question carries twenty (20) marks.
4. Cellula phones are not allowed in the examination room.
5. Write your Examination Number on every page of your answer booklet(s).



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## SECTION A

### AGRICULTURAL ENGINEERING AND LAND PLANNING

1. (a) Distinguish between primary tillage and secondary tillage.  
(b) (i) Describe the main parts of a mouldboard plough.  
(ii) State the functions of the coulter and the landside.
2. (a) A water pump delivers 300 litres of water per minute. Calculate the total volume of water pumped in cubic metres in 5 hours.  
(b) State two factors that affect the efficiency of a water pump.
3. (a) Classify metals into ferrous and non-ferrous metals.  
(b) (i) Give two examples of ferrous metals.  
(ii) State the properties of aluminium.
4. (a) Define a level line in surveying.  
(b) Describe the procedure used to set out a simple terrace using a line level.
5. (a) Name four types of farm fences.  
(b) (i) Explain the use of a strainer post.  
(ii) Describe the process of treating wooden posts against termite attack.

## SECTION B

### SOIL SCIENCE

6. (a) Explain the difference between hygroscopic water and capillary water.  
(b) (i) Define field capacity.  
(ii) Define permanent wilting point.

7. (a) Explain the meaning of Cation Exchange Capacity (CEC).  
(b) (i) Explain why clay soils have high CEC.  
(ii) Explain how CEC influences fertilizer application.
8. (a) Describe the three stages of water erosion.  
(b) Discuss the use of cover crops in controlling soil erosion on sloping land.

## **SECTION C RURAL ECONOMY**

9. (a) Define agricultural credit.  
(b) (i) Distinguish between short-term credit and long-term credit.  
(ii) State two sources of formal agricultural credit.  
(c) Explain the four Cs of credit: Character, Capacity, Capital, and Conditions.  
(d) Discuss the risks associated with borrowing money for farm investments.
10. (a) Define a farm balance sheet.  
(b) (i) Distinguish between current assets and fixed assets.  
(ii) Give three examples of farm liabilities.  
(c) A farmer owns cash worth Tshs 1,000,000, livestock worth Tshs 5,000,000, and machinery worth Tshs 8,000,000. The farmer owes the bank Tshs 3,000,000 and has unpaid bills of Tshs 500,000. Prepare a balance sheet and calculate net worth.  
(d) Discuss the importance of a balance sheet in assessing farm solvency.