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: 2005**

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. Cellura phones are not allowed in the examination room.
5. Write your Examination Number on every page of your answer booklet(s).

SECTION A

AGRICULTURAL ENGINEERING AND LAND PLANNING

1. (a) Compare the advantages of using solar energy versus wind energy on a farm.

   (b) (i) Describe the components of a solar power system.

   (ii) State the function of an inverter.

2. (a) A rectangular grain store has a length of 10 metres and a width of 4 metres. If the grain is piled to a height of 2 metres, calculate the volume of the grain.

   (b) If 1 cubic metre holds 750 kg of grain, calculate the total mass of the grain in tonnes.

3. (a) Explain the purpose of soldering in a farm workshop.

   (b) (i) Name the tools used in soldering.

   (ii) State the precautions to be taken when handling a hot soldering iron.

4. (a) Define a theodolite.

   (b) (i) Explain the use of a theodolite in land planning.

   (ii) Describe how to level a theodolite.

5. (a) Describe the construction requirements for a modern poultry house.

   (b) Discuss how temperature is controlled in a brooder house.

SECTION B

SOIL SCIENCE

6. (a) Outline the nitrogen cycle in the soil.

   (b) (i) Define nitrification.

   (ii) Define denitrification.

7. (a) Explain how the presence of organic matter affects soil temperature.

   (b) (i) Name three sources of soil organic matter.

   (ii) Describe the process of decomposition.

8. (a) Explain the importance of phosphorus to plant growth.

   (b) (i) State the deficiency symptoms of phosphorus in crops.

   (ii) Explain why phosphorus is often fixed in acidic soils.

SECTION C

RURAL ECONOMY

9. (a) Define price elasticity of demand.

   (b) (i) Distinguish between elastic demand and inelastic demand.

   (ii) State two factors that determine the elasticity of demand for agricultural products.

   (c) The price of beans increases from Tshs 2,000 per kg to Tshs 2,400 per kg while the quantity demanded falls from 1,000 kg to 700 kg. Calculate the price elasticity of

demand.

(d) Explain why the demand for staple foods is usually inelastic.

10. (a) Define a perfectly competitive market.

(b) (i) State the characteristics of perfect competition.

(ii) Explain how price is determined in a perfectly competitive market.

(c) Describe the role of middlemen in the agricultural supply chain.

(d) Discuss how market information systems help farmers obtain better prices.