THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

ADVANCED CRTIFICATE OF SECONDARY EDUCATION EXAMINATION

134/3 **AGRICULTURE 3**

(For Both School and Private Candidates)

Time: 3 Hours. **ANSWER** **Year: 2019**

Instructions

1. This paper consists of **three (3)** questions.
2. Answer **two (2)** questions.
3. Cellular phones and unauthorized materials are **not allowed** in the examination room.
4. Write your **Examination Number** on every page of your answer booklet(s).

1. You are provided with specimens: E1, E2, E3, F1, F2, F3, F4, F5, G1, G2, G3, G4, and G5.
   (a) (i) Identify each of the specimen E1, E2, and E3
   E1 – Clutch plate
   E2 – Pressure plate
   E3 – Gear

   (ii) Suggest the two types of specimen E1 and their functions.
   Single plate clutch – transmits power from the engine to the gearbox in light vehicles.
   Multi-plate clutch – transmits higher torque in heavy vehicles and tractors.

   (iii) Outline three indicators that would alert the tractor operator that specimen E1 is worn out.
   Difficulty in engaging gears due to slipping clutch.
   Unusual noise when engaging or disengaging the clutch.
   Loss of power transmission with reduced pulling ability.

   (iv) Give the name of the unit in transmission system in which specimen E3 belong and describe its operating principle.
   It belongs to the gearbox. The operating principle is based on meshing gears of different sizes to vary torque and speed transmitted from the engine to the wheels.

   (b) (i) Identify each of the specimen F3, F4 and F5
   F3 – Spanner
   F4 – Pliers
   F5 – Screwdriver

   (ii) Describe the use of specimen F1, F2 and F5
   F1 (Hammer) is used for driving nails, fitting parts, and breaking objects.
   F2 (Chisel) is used for cutting or shaping metal and wood.
   F5 (Screwdriver) is used for tightening and loosening screws.

   (iii) Differentiate the use of specimen F3 and F4
   F3 (Spanner) is used for gripping and turning nuts and bolts.
   F4 (Pliers) are used for gripping, bending wires, and cutting small pieces of metal.

   (c) (i) Identify specimen G1, G2, G3 and G4
   G1 – Elbow joint
   G2 – Socket
   G3 – Tee joint
   G4 – Nipple

   (ii) Indicate the arrangement of specimens and name the fitting they are going to use when they want to join specimen G5.
   G1, G2, G3, and G4 can be arranged in sequence to allow change of direction, branching, and joining of pipes. To join specimen G5 (pipe), they will use a union joint or coupling.

2. You are provided with specimens H1, H2, I1, I2 and I3.
   (a) (i) Identify specimen H1 and H2
   H1 – Inorganic fertilizer granules
   H2 – Farmyard manure

   (ii) Outline four characteristics of specimen H2
   It is bulky in nature and not concentrated.
   It releases nutrients slowly.
   It improves soil structure and water retention.
   It contains both macro and micro nutrients.

   (iii) Give the use of specimens H1 and H2
   H1 provides quick release of specific nutrients to crops.
   H2 improves soil fertility and structure.

   (iv) State the stage of crop development in which specimen H2 is recommended for application.
   Before planting or at land preparation stage.

   (b) (i) Identify specimen I1 by its botanical name
   Zea mays (maize).

   (ii) Mention the disease in specimen I1 and its causative agent
   Maize smut caused by fungus Ustilago maydis.

   (iii) Identify the disease in specimen I2
   Maize streak disease.

   (iv) List two methods in which the disease in specimen I2 is transmitted
   By leafhoppers (Cicadulina spp).
   Through infected planting material.

   (v) Write scientific name of specimen I3
   Sitophilus zeamais.

   (vi) Mention three crops that are the main host of specimen I3
   Maize, wheat, and rice.

   (vii) Suggest whether I3 is a field or storage pest, and give two reasons for the answer provided.
   I3 is a storage pest. It infests stored grains and causes hollowing of kernels. It multiplies rapidly in storage conditions causing heavy post-harvest losses.

3. You are provided with specimens J1, J2, J3 and J4.
   (a) (i) Identify the specimens J1, J2, J3 and J4 by their scientific names
   J1 – Medicago sativa (Alfalfa)
   J2 – Pennisetum purpureum (Napier grass)

J3 – Rhipicephalus appendiculatus (Brown ear tick)
J4 – Taenia saginata (Beef tapeworm)

(ii) Explain briefly how best can specimen J1 and J2 be preserved
They can be preserved by making hay or silage to ensure feed availability during dry season.

(iii) Give three reasons why farmers conserve specimens J1 and J2
To ensure feed availability during scarcity.
To maintain quality feed rich in nutrients.
To reduce wastage of surplus fodder during rainy season.

(b) (i) Briefly describe how farm animals could be infested by specimen J4
Animals acquire infestation by consuming contaminated pasture or water containing eggs or larvae of the tapeworm.

(ii) Name two farm animals which are common host of specimen J4
Cattle and goats.

(iii) Briefly explain the relationship between J3 and J4
J3 (Brown ear tick) is an ectoparasite that weakens animals, making them more vulnerable to internal parasites like J4 (tapeworm). Both reduce animal productivity.

(iv) Outline three ways by which specimen J4 may be controlled from infesting farm animals
Proper disposal of animal waste to break the parasite's life cycle.
Regular deworming of animals with recommended anthelmintics.
Avoid grazing animals on contaminated pastures.