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

134/1   **AGRICULTURE 1**

(For Both School and Private Candidates)

Time: 3 Hours   **ANSWERS**   **Year: 2025**

Instructions

1. This paper consists of sections **ten (10)** questions

2. Answer **all** questions.

3. Each question carries **ten (10)** marks

4. Cellular phones are **not** allowed in the examination room.

5. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (60 Marks)

Answer all questions from this section. Each question carries ten (10) marks.

1. (a) Suggest five ways that should be used to maintain power workshop tools and guarantee their usefulness.

Regular cleaning of workshop tools is important because it removes dust, oil, and small metal particles that may cause rusting or wear. Clean tools operate smoothly, last longer, and remain safe for daily tasks.

Proper lubrication protects moving parts from friction and overheating. When gears, bearings, or joints are oiled regularly, they resist damage and maintain accurate performance during workshop activities.

Correct storage of tools prevents unnecessary exposure to moisture, dust, or accidental damage. When tools are stored in cabinets, racks, and dry places, they maintain their shape and remain ready for use without deterioration.

Routine inspection allows early detection of cracks, loose parts, worn-out cables, or electrical faults. Identifying defects early prevents accidents and reduces repair costs, ensuring safe and dependable operation.

Using tools according to manufacturer instructions prevents misuse that may reduce their lifespan. When operators follow proper procedures, tools perform efficiently and are less likely to break or malfunction.

(b) Briefly explain the functions of each of the following parts of a dip:

(i) Footbath

A footbath cleans and disinfects the hooves of animals before they enter the dip. This helps prevent the spread of hoof diseases and parasites into the dipping tank.

(ii) The jump

The jump forces animals to immerse their bodies fully in the dip. This ensures the dip chemical reaches all parts of the animal's skin to control ticks effectively.

(iii) Drainage race

The drainage race allows animals to drain excess dip solution after dipping. This conserves chemicals and prevents contamination of the environment.

(iv) Entrance race

The entrance race guides animals in an orderly line toward the dip. It prevents congestion and ensures smooth movement during dipping operations.

(v) Assembly yard

The assembly yard is used to gather animals before dipping. It organizes the herd and allows handlers to inspect and prepare animals for treatment.

2. (a) Briefly describe five components of a tractor fuel system.

The fuel tank stores diesel or petrol required to operate the tractor. It is built to prevent leakage and is positioned safely to ensure continuous supply.

The fuel pump transfers fuel from the tank to the engine under the necessary pressure. It ensures steady flow even when the tractor is working on uneven terrain.

The fuel filter removes dirt and impurities from the fuel. Clean fuel protects the engine from abrasion, clogging, and poor combustion.

The carburettor or injector system mixes fuel with air in the correct ratio. This ensures efficient combustion, proper power generation, and reduced emissions.

The fuel lines transport fuel throughout the system. They must remain clean and sealed to maintain pressure and prevent leaks that may cause fire hazards.

(b) Briefly explain how two different types of air cleaners work so as to ensure proper ignition.

Oil-bath air cleaners trap dust by passing air through an oil reservoir where particles stick. The cleaned air proceeds to the engine, improving combustion and protecting internal parts.

Dry air cleaners use replaceable paper or synthetic elements. Dust is trapped in the filter material as air passes through, ensuring only clean air enters the combustion chamber for proper ignition.

3. (a) Account for the five benefits of a proper irrigation.

Proper irrigation ensures continuous water supply to crops, enabling stable growth even during dry seasons. This increases production and reduces the risk of crop failure.

It improves crop quality because plants receive adequate moisture. Healthy plants produce uniform and high-value yields.

Irrigation allows cultivation of crops in dry regions where rainfall is insufficient. This expands agricultural land and increases food security.

It supports multiple cropping per year by ensuring water availability. Farmers can grow crops throughout the year, improving income.

Irrigation assists in nutrient uptake. Water dissolves nutrients in the soil, enabling plants to absorb them efficiently and grow vigorously.

(b) Enumerate five ways in which irrigation water is conveyed to the farm.

Water can be conveyed using canals which distribute water across fields by gravity.

Pipes convey water under pressure, allowing precise application and reduced loss.

Sprinklers distribute water through nozzles that simulate rainfall.

Drip systems deliver water slowly to the root zone, minimizing wastage.

Buckets or watering cans manually transfer water, often used in small-scale farming.

4. Briefly explain four factors which are influential for soil formation.

Climate influences soil formation through temperature and rainfall. Rainfall affects leaching and weathering, while temperature affects organic matter decomposition.

Parent material determines the mineral composition and texture of the soil. Different rocks produce different soil types during weathering.

Organisms such as plants, animals, and microorganisms contribute organic matter and aid in soil structure development.

Topography affects drainage and erosion. Steep slopes lose soil easily, while flat areas accumulate deep fertile soils.

5. Account for five factors that influence formation of soil structure.

Organic matter binds soil particles together, improving structure and water-holding capacity.

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Soil organisms mix and decompose materials, forming aggregates that enhance soil stability.

Climate affects drying and wetting cycles that influence particle arrangement.

Cultivation practices can improve or destroy soil structure through tillage intensity.

Clay content affects aggregation. High clay soils develop strong but dense structures.

6. Briefly explain five superiorities of foliar fertilisation over soil fertilisation.

Foliar fertilisation provides faster nutrient absorption because nutrients enter directly through leaves.

It corrects nutrient deficiencies quickly since nutrients bypass slow soil processes.

It requires small amounts of fertiliser, making it economical and efficient.

Foliar feeding avoids soil fixation, especially in soils where nutrients become unavailable through chemical reactions.

It improves plant growth during stress conditions when root uptake is limited.

7. Assess two effects of each of the following soil reactions on its fertility:
(a) Very low soil pH
Very low pH increases soil acidity, causing toxicity of elements like aluminium, which harms roots and reduces growth.
Very low pH reduces availability of essential nutrients such as phosphorus, leading to poor plant development.

(b) Very high soil pH

Very high pH reduces availability of micronutrients like iron and zinc, causing deficiencies.

Very high pH leads to poor microbial activity, slowing decomposition and nutrient cycling.

8. Write down an Inventory and Valuation for this farmer as on 30th June 2018.

Cattle: $20 \times 100{,}000 = 2{,}000{,}000$ Tsh

Sheep: $30 \times 40{,}000 = 1{,}200{,}000$ Tsh

Goats: $25 \times 50{,}000 = 1{,}250{,}000$ Tsh

Animal feeds: $10 \times 5{,}000 = 50{,}000$ Tsh

Fertiliser: $4 \times 40{,}000 = 160{,}000$ Tsh

Tractor value (depreciation):

Cost $= 15{,}000{,}000$

Residual value $= 1{,}000{,}000$

Life $= 30$ years

Depreciation per year $= (15{,}000{,}000 - 1{,}000{,}000) \div 30 = 466{,}666.67$

Depreciated value for 5 years $= 2{,}333{,}333.35$

Book value $= 15{,}000{,}000 - 2{,}333{,}333.35 = 12{,}666{,}666.65$ Tsh

Total inventory value = sum of all above amounts.

9. (a) Total production without specialisation (each country uses 200 ha per crop):

Tanzania beans: $200 \times 4 = 800$ bags

Tanzania potatoes: $200 \times 30 = 6{,}000$ bags

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Uganda beans: 200 × 15 = 3,000 bags

Uganda potatoes: 200 × 6 = 1,200 bags

Total beans = 800 + 3,000 = 3,800 bags

Total potatoes = 6,000 + 1,200 = 7,200 bags

(b) Production with specialisation:

Tanzania specialises in potatoes: 400 × 30 = 12,000 bags

Uganda specialises in beans: 400 × 15 = 6,000 bags

Total beans = 6,000 bags

Total potatoes = 12,000 bags

10. (a) Five impacts posed by HIV/AIDS on agriculture and labour productivity.

HIV/AIDS reduces the labour force because sick workers cannot perform physically demanding farm activities.

The disease causes loss of skilled farmers, reducing knowledge transfer and productivity.

Family income declines due to high medical costs, limiting investment in agriculture.

Children leave school to care for sick parents, reducing future skilled labour.

Crop production decreases as affected households reduce cultivated areas.

(b) Five measures the government of Tanzania can take to mitigate the problem.

Government can strengthen awareness campaigns to promote prevention behaviours.

It can improve access to HIV testing and counselling to support early detection.

Providing antiretroviral drugs improves health and productivity of affected persons.

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Supporting affected households with subsidies reduces financial burdens.

Government can partner with NGOs to support education and reduce stigma.

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