THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

034/1 **AGRICULTURE 1**

Time : 3 Hours **ANSWERS** **Year : 2023**

Instructions

1. This paper consists of section A, B and C.
2. Answer **all** questions in section A and B and **two (2)** questions from section C.
3. Communication devices and any unauthorised materials are **not** allowed in the examination room.
4. Write your **Examination Number** on every page of your answer booklet(s).

1. For each of the items (i) – (x), choose the correct answer from the given alternatives and write its letter beside the item number in the answer booklet provided.

(i) How does the act of possession of right to the ownership and use of land called?

A Land tenure

B Landlordism

C Land reforms

D Land fragmentation

E Land consolidation

Correct answer: A Land tenure

Reason: Land tenure refers to the legal system that defines the right to own and use land.

(ii) A market in which the conditions of perfect competition are lacking is referred to as:

A Spot market

B General market

C Specialised market

D Perfect market

E Imperfect market

Correct answer: E Imperfect market

Reason: An imperfect market exists when conditions of perfect competition are absent, such as monopoly or oligopoly.

(iii) Which system of keeping domesticated birds creates a habit of cannibalism and egg eating?

A Free range

B Deep litter

C Battery cage

D House and run

E Fold unit

Correct answer: B Deep litter

Reason: In deep litter system, birds live together in confined spaces, which increases chances of stress, cannibalism, and egg eating.

(iv) In farming, there are some unexpected challenges which are beyond farmers' control. The encountered challenges can be controlled by any of the following methods except:

A Diversification

B Insurance

C Production on contract basis

D Maintaining liquidity

E Specialisation

Correct answer: E Specialisation

Reason: Specialisation increases risk, it does not help control unexpected challenges. Other methods like insurance and diversification reduce risks.

(v) Which practice would you recommend to support for tall varieties of tomatoes before they bear fruits?

A Propping

B Pruning

C Staking

D Defoliation

E Topping

Correct answer: C Staking

Reason: Staking supports tall tomato plants to grow upright and prevent breaking before bearing fruits.

(vi) Some animals are able to produce a significant amount of hair for clothing. Which set of livestock animals' best represents this category?

(i) Pigs

(ii) Cattle

(iii) Sheep

(iv) Rabbit

(v) Goats

A (i) and (ii)

B (ii) and (iii)

C (ii) and (v)

D (iii) and (v)

E (i) and (v)

Correct answer: D (iii) and (v)

Reason: Sheep and goats produce wool and hair (like mohair and cashmere) used in clothing.

(vii) Which tools are commonly used by most peasants in small scale Agriculture?

(i) Wheelbarrow

(ii) Hand hoe

(iii) Knapsack sprayer

(iv) Machete

(v) Hand duster

A (i) and (ii)

B (ii) and (iv)

C (iii) and (iv)

D (i) and (v)

E (i) and (iv)

Correct answer: B (ii) and (iv)

Reason: Hand hoe and machete are the most basic tools widely used in small-scale peasant farming.

(viii) Farmyard manure is the organic materials added to the soil in order to supply nutrients. Its quality depends on:

(i) Animal type

(ii) Type of feed eaten

(iii) Age of an animal

(iv) Type of beddings used

(v) Weight of an animal

A (i), (ii) and (v)

B (ii), (iii) and (iv)

C (iii) and (v)

D (ii) and (iv)

E (i), (ii) and (v)

Correct answer: B (ii), (iii) and (iv)

Reason: The quality of manure depends on what the animal eats, its age, and the type of bedding material, not its weight or species.

(ix) You have observed a mass of soot which has occurred on some parts of maize plants. What diagnosis are you going to make from your observation?

A Sign of blight

B Sign of damping off

C Sign of mildews

D Signs of mosaics

E Sign of smuts

Correct answer: E Sign of smuts

Reason: Smuts appear as black soot-like masses on plant parts, especially maize.

(x) What is the use of bee veil as a protective gear in bee keeping?

A Keeping the head cool on hot days

B Covering the ankles

C Covering the face up to the neck

D Protecting the body against bee sting

E Calming down bees

Correct answer: C Covering the face up to the neck

Reason: A bee veil is designed to protect the face and neck from bee stings while allowing visibility.

2. Match the signs or symptoms of plant diseases in List A with their corresponding diseases in List B by writing the letter of the correct response beside the item number in the answer booklet provided.

List A	List B
(i) Appearance of masses of orange-brown spores on leaves and on the green tender parts of the plant.	D Rusts
(ii) Appearance of white or grey substance on the leaves and stems.	F Downy mildew
(iii) Appearance of water-soaked parts in the plant.	C Anthracnose
(iv) Appearance of soot which occurs on some parts of a plant.	G Smuts
(v) Appearance of irregular patches which are light green or dark green in color that develop on leaves.	E Mosaics
(vi) Appearance of small isolated areas on leaves which become necrotic.	A Leaf spot

3. A team of extension officers visited farmers in a particular village and found that, they planted late and used seeds with low quality.

(a) Give three disadvantages of the late planting.

Late planting often exposes crops to unfavorable climatic conditions such as drought, frost, or excess rainfall which reduce germination and yield.

It causes crops to mature outside the normal harvesting period, leading to losses because of market glut or unfavorable prices.

Late planting also encourages pest and disease outbreaks since the crop cycle may coincide with the peak multiplication period of harmful organisms.

(b) Briefly describe six factors that farmers were suppose to observe during the selection of seeds.

Farmers should consider the germination percentage of the seeds, as seeds with high viability produce uniform and vigorous crops.

They should look at the seed purity, ensuring that seeds are free from admixtures and weed seeds.

Seed health is another key factor, where farmers need to choose seeds free from diseases and pests.

Adaptability of the seeds to the local soil, rainfall, and temperature conditions should also be observed.

Farmers should consider the maturity period, selecting seeds that mature within the expected growing season.

Finally, yield potential is important, so seeds chosen should be of varieties known to give higher and stable yields.

4. Suggest six features to be considered when constructing livestock houses in a given area of land.

Livestock houses should have proper ventilation to allow circulation of fresh air and removal of harmful gases.

They should be constructed with durable materials to withstand weather conditions and animal activities.

The houses should have adequate drainage to prevent water stagnation and reduce disease risks.

Space allocation should be considered to avoid overcrowding and ensure comfort for the animals.

Orientation of the house should allow maximum sunlight exposure for warmth and disinfection.

Accessibility is also crucial so that animals and caretakers can move in and out easily for feeding, cleaning, and health checks.

5. Growing different crops in the same piece of land at different season should be done by observing six principles. Briefly describe each of the principles by indicating its importance.

The principle of crop rotation is important to reduce soil-borne diseases and improve soil fertility.

The principle of legume inclusion ensures nitrogen fixation which enriches the soil for subsequent crops.

The principle of alternating deep-rooted and shallow-rooted crops helps in efficient utilization of soil nutrients.

The principle of alternating heavy feeders and light feeders prevents nutrient depletion.

The principle of using crops with different maturity periods maintains continuous land use and income.

The principle of environmental conservation ensures that crop choices prevent erosion and improve soil structure.

6. (a) When Form Four students were digging the school pit latrine, they were surprised to see the layer-like structure of soil profile. In four points, explain to them on the processes through which that structure might have been formed.

The soil profile layers are formed through weathering of parent rock, which breaks down rocks into fine soil particles.

Leaching processes transport dissolved minerals downward from upper to lower layers, forming horizons.

Organic matter accumulation on the topsoil from decayed plants and animals contributes to humus formation.

Erosion and deposition redistribute soil materials, strengthening the differences between layers.

(b) Soil development is possible only through the effect of five factors. How does each of the factors contribute to its development?

Parent material influences the mineral composition and texture of the soil.

Climate affects soil formation through rainfall, which causes leaching, and temperature, which accelerates chemical weathering.

Topography determines drainage, erosion, and deposition of soil materials on slopes and valleys.

Living organisms, such as plants and microbes, contribute organic matter and accelerate decomposition.

Time allows the gradual accumulation, weathering, and development of well-differentiated soil horizons.

7. (a) Briefly explain the uses of the following building materials:

(i) Bricks – They are used for wall construction and provide strong, durable structures.

(ii) Aggregates – They are used in making concrete and improving the strength of farm buildings.

(iii) Timber – It is used for roofing, fencing, and making doors, windows, and furniture.

(iv) Thatch grass – It is used for roofing farm structures and animal houses at a low cost.

(b) What are the five factors one should consider when designing a farm structure?

The purpose of the structure must be considered, as different functions require different designs.

Climate conditions such as rainfall, wind, and temperature should influence design.

The type of materials available locally should be considered to reduce construction costs.

Durability and maintenance requirements should guide the design to ensure sustainability.

Animal or crop requirements must also be considered to provide comfort, hygiene, and safety.

8. Why farmers should practice sustainable agriculture production? Give six reasons.

Sustainable agriculture maintains soil fertility by reducing nutrient depletion and conserving organic matter.

It minimizes environmental pollution by encouraging safe use of inputs and waste recycling.

It ensures long-term productivity by balancing present and future farming needs.

Sustainable agriculture reduces costs through practices like organic farming and natural pest control.

It supports biodiversity by encouraging mixed cropping, agroforestry, and conservation of ecosystems.

It improves farmers' resilience to climate change by adopting adaptive and conservation practices.

SECTION C (30 Marks)

Answer two (2) questions from this section.

9. Account for the six agronomic methods to address the problem of soil fertility that affects crop plant growth.

The use of organic manures such as compost and farmyard manure restores nutrients and improves soil structure.

Crop rotation helps replenish soil fertility by incorporating legumes that fix nitrogen.

Application of inorganic fertilizers supplies specific nutrients needed by crops in the short term.

Green manuring enriches the soil with organic matter and nutrients when plants are ploughed back.

Agroforestry improves soil fertility through leaf litter and root nitrogen fixation.

Proper soil tillage and conservation prevent erosion and maintain soil fertility.

10. Agriculture is one of the science subjects taught in Tanzanian secondary schools. Using six points, explain how the knowledge of other subjects can be used in Agriculture subject.

Knowledge of Biology helps in understanding plant and animal physiology, diseases, and breeding.

Chemistry is used in understanding soil properties, fertilizers, pesticides, and herbicides.

Physics is applied in the design and operation of farm machinery and irrigation systems.

Mathematics assists in farm planning, budgeting, measurement, and analysis of data.

Geography provides knowledge of climate, soil types, and topography for agricultural planning.

Economics helps farmers understand marketing, pricing, and management of farm enterprises.

11. The agricultural sector absorbs about 70% of unemployed population in Tanzania. However, the productivity of the sector has remained low partly due to insufficient knowledge among the farmers on the proper use of factors of production. Account for the factors and roles each one play to increase agricultural productivity. Give two roles for each.

Land provides space for crop and livestock production, and its proper management prevents degradation and ensures higher yields.

Labor contributes human effort in cultivation and management, while skilled labor ensures efficiency and adoption of modern practices.

Capital provides machinery, tools, and money for investments, which improve efficiency and increase output.

Entrepreneurship organizes the other factors of production and encourages innovation in farming techniques.

Management ensures proper utilization of resources and decision-making for improved productivity.