

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
FORM TWO NATIONAL ASSESSMENT

034

AGRICULTURE

Duration: 2:30 Hour

SOLUTIONS

Year: 2025

Instructions

1. This paper consists of sections A, B and C with a total of **ten (10)** questions.
2. Answer **all** questions in the spaces provided.
3. Section A carry and C **fifteen (15)** marks each and section B carries **seventy (70)** marks.
4. Communication devices and any unauthorised materials are **not** allowed in the examination room.
5. All writing must be in **blue** or **black** ink.
6. Write your **Assessment Number** on every page of your answer booklet(s).

FOR ASSESSOR'S USE ONLY		
QUESTION NUMBER	SCORE	ASSESSOR'S INITIALS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S SIGNATURE		

SECTION A (15 Marks)

Answer all questions in this section.

1. For each of the items (i)–(vii), choose the correct answer and write its letter in the answer booklet provided.

(i) A dairy livestock keeper experienced an increase in milk production as a result of feeding animals supplements. What type of product relationship is observed in this case?

- A. Supplementary products
- B. Joint products
- C. Complementary products
- D. Competitive products

Correct answer: C

Reason: Supplements are used together with normal feeds to improve milk yield. Since both feeds and supplements are consumed jointly to enhance production, they are complementary products.

(ii) Why at the end of the accounting period, a farmer should take a physical count of stocks and liabilities for the farm business?

- A. To count important events of the farm
- B. To know amount of profits in the farm
- C. To assess the performance of the farm
- D. To find financial position of the farm

Correct answer: D

Reason: Stocktaking at the end of the accounting period is done to determine assets and liabilities, which shows the financial position of the farm business.

(iii) Which farming activity would you suggest to improve the structure of the soil?

- A. Over cultivation of the soil
- B. Use of heavy machinery on wet soils
- C. Ploughing at constant depth
- D. Minimum tillage of the soil

Correct answer: D

Reason: Minimum tillage reduces soil disturbance, helps maintain soil aggregates, and improves soil structure compared to excessive cultivation.

(iv) Suppose you want to cultivate a field having sticky and hard soil, which farm machinery could appropriately be used?

- A. Chisel plough
- B. Mouldboard plough
- C. Disc plough
- D. Sub plough

Correct answer: C

Reason: Disc ploughs are suitable for sticky, hard, or heavy soils because their rotating discs cut and turn soil without clogging.

(v) When going through the vertical section of the soil from the top, remains of dead plants and animals on the surface are observed. Which conclusion can be drawn from such observation?

- A. Complete decomposition of organic matter has taken place
- B. Little decomposition of organic matter has taken place
- C. Weathering of rocks has taken place
- D. Supply of decomposers of dead materials has stopped

Correct answer: B

Reason: The presence of visible plant and animal remains shows that decomposition has started but is not yet complete.

(vi) The following are criteria used to classify crops except:

- A. Agronomic classification
- B. Lifecycle classification
- C. Fertilizer application classification
- D. Uses classification

Correct answer: C

Reason: Crops are classified by their life cycle, agronomic use, or purpose, but not by fertilizer application methods.

(vii) Which one best describes contributions of agriculture to both country and family economies?

- (1) Source of raw materials
- (2) Supply of food
- (3) Source of income
- (4) Offers employment

- A. (1) and (2)
- B. (2) and (3)
- C. (1) and (4)
- D. (3) and (4)

Correct answer: D

Reason: Agriculture directly provides income to families and employment opportunities, benefiting both household and national economies.

(viii) Spice crops are important for improving aroma and taste of food used by human beings. Which crops are these?

- (1) Ginger
 - (2) Leek
 - (3) Onions
 - (4) Tomatoes
-
- A. (1) and (4)
 - B. (2) and (3)
 - C. (1) and (3)
 - D. (3) and (4)

Correct answer: C

Reason: Ginger and onions are spices used mainly for flavour and aroma, while tomatoes and leeks are mainly vegetables.

(ix) Which one is a merit of using living organisms such as insects or large animals to suppress weed growth?

- A. It does not require expensive research
- B. It eliminates weeds quickly
- C. It is environmentally friendly
- D. It does not consume a lot of time

Correct answer: C

Reason: Using living organisms for weed control is a biological method that reduces the use of chemicals, minimizes pollution, and preserves ecological balance, making it environmentally friendly.

(x) In a field of crops, only few plants are infected. Which methods of plant disease control would you advise the farmers to use?

- A. Roguing
- B. Deep ploughing
- C. Timely planting
- D. Crop rotation

Correct answer: A

Reason: Roguing involves removing and destroying infected plants. It is most effective when only a few plants are affected, as it prevents the disease from spreading to healthy plants.

2. Match the diameters of soil particles in List A with the names of soil particles in List B by writing the letter of the correct response below the corresponding item number in the table provided.

List A	List B
(i) Less than 0.002 mm	A Fine sand
(ii) 0.002–0.02 mm	B Loam
(iii) 0.02–0.2 mm	C Silt
(iv) 0.2 mm–2.0 mm	D Fine stones
(v) 2.0–20 mm	E Clay
	F Gravel
	G Coarse sand

Answers

List A	(i)	(ii)	(iii)	(iv)	(v)
List B	E	C	A	G	F

SECTION B (70 Marks)

Answer all questions in this section.

3. (a) Metal file is an important tool for sharpening metal blades. However, it is not recommended to apply oil or grease to the metal file for cleaning.

(i) Why is it not recommended to do so? Briefly explain.

It is not recommended to apply oil or grease on a metal file because oil and grease cause metal filings to stick between the teeth of the file. When the teeth become clogged, the file loses its cutting efficiency and may scratch the metal surface instead of cutting it properly. This reduces the effectiveness and lifespan of the file.

(ii) Which instrument is used for cleaning the tool?

A metal file is cleaned using a file card or wire brush. This tool removes metal particles trapped between the teeth without damaging the file.

(b) Briefly describe five measures to be taken to prevent accident occurrence when there are sharp edge tools in the workshop.

(i) Sharp-edged tools should be stored properly in racks, toolboxes, or protective covers to prevent accidental contact with sharp surfaces.

(ii) Users should always wear appropriate protective gear such as gloves and safety shoes when handling sharp tools to reduce the risk of cuts and injuries.

(iii) Tools should be carried with the sharp edge pointing downward or away from the body to avoid accidental injury.

(iv) The workshop floor and working benches should be kept clean and free from scattered sharp tools to prevent stepping on or tripping over them.

(v) Sharp tools should be inspected regularly and maintained in good condition, since damaged or loose tools are more likely to cause accidents.

4. (a) Form Two students did a careful examination to show that clay and sand soils have some properties which cause problems in crop production. What are the three agronomic problems which are likely to be determined for the clay and sand soil?

(i) Agronomic problems of clay soil.

Clay soil has poor drainage, which causes waterlogging and reduces oxygen supply to plant roots. It is also hard and sticky when wet and very hard when dry, making cultivation difficult. In addition, clay soil warms up slowly, which delays seed germination and early crop growth.

(ii) Agronomic problems of sand soil.

Sandy soil has low water-holding capacity, leading to rapid loss of moisture and frequent drought stress in crops. It also has low nutrient-holding capacity, resulting in poor soil fertility. Furthermore, sandy soil is easily eroded by wind and water, which reduces soil depth and productivity.

(b) Differentiate the following concepts as used in soil science.

(i) Available water from field capacity.

Available water from field capacity refers to the amount of water held in the soil after excess water has drained away and which is readily available for plant uptake.

(ii) Wilting coefficient from unavailable water.

Wilting coefficient is the level of soil moisture at which plants can no longer extract water and permanently wilt, while unavailable water is the portion of soil water that remains in the soil but cannot be absorbed by plant roots because it is held too tightly by soil particles.

5. (a) Briefly describe how rotational grazing system is practiced in livestock keeping.

Rotational grazing is practiced by dividing grazing land into several paddocks.

Livestock are grazed in one paddock for a short period and then moved to another paddock. The grazed paddock is left to rest and recover while animals feed in the next paddock. This cycle continues until all paddocks are used and the first one has fully regenerated.

(b) Briefly explain four advantages of practicing rotational grazing system.

(i) It allows pasture grasses to recover, resulting in increased pasture yield and quality.

(ii) It prevents overgrazing and reduces soil erosion.

(iii) It helps in controlling parasites and diseases since animals do not stay long in one area.

(iv) It improves efficient use of pasture and increases livestock productivity.

6. (a) Briefly explain two methods that can be used to monitor soil moisture of the farm.

(i) Feel and appearance method. Soil is taken by hand and pressed to feel its moisture condition. The texture and firmness indicate whether the soil is dry, moist, or wet.

(ii) Use of soil moisture measuring instruments such as tensiometers. These instruments measure the amount of water available in the soil accurately.

(b) For each of the following crops indicate the critical growth stage in relation to moisture requirement.

(i) Cabbage

Critical stage is head formation.

(ii) Carrot

Critical stage is root development.

(iii) Beans

Critical stage is flowering and pod formation.

(iv) Tomato

Critical stage is flowering and fruit setting.

(v) Maize

Critical stage is tasseling and silking.

7. (a) A farmer decided to grow sorghum and cowpea on the same field at the same time. What are the six advantages that the farmer might obtain by practicing such a cropping system?

This system is mixed cropping or intercropping.

(i) Better use of land since two crops are grown on the same field at the same time.

(ii) Reduced risk of total crop failure because if one crop fails the other may survive.

(iii) Improved soil fertility because cowpea is a legume and fixes nitrogen in the soil.

(iv) Better control of weeds since crop cover reduces weed growth.

(v) Efficient use of nutrients, water, and sunlight by crops with different growth habits.

(vi) Increased total yield per unit area compared to growing one crop alone.

(b) Give four disadvantages of practicing mixed cropping system.

(i) Difficult to apply fertilizers and agrochemicals correctly to each crop.

(ii) Harvesting becomes difficult because crops mature at different times.

(iii) Competition between crops for nutrients, water, and sunlight may reduce yield.

(iv) Mechanization is difficult due to different crop spacing and growth patterns.

8. (a) How do the following cultural practices control weeds in ensuring land sustainability for future farming activities?

(i) Crop rotation

Crop rotation breaks the life cycle of weeds by changing crops each season. Different crops suppress different weed species, reducing weed buildup over time.

(ii) Use of clean seeds

Clean seeds prevent introduction of weed seeds into the field, reducing future weed infestation.

(iii) Mulching

Mulching covers the soil surface, preventing sunlight from reaching weed seeds and thus inhibiting their germination and growth.

(iv) Use of proper plant spacing

Proper spacing allows crops to grow vigorously and cover the ground quickly, reducing space and light available for weeds.

(v) Flooding in rice fields

Flooding deprives most weeds of oxygen, killing them while rice plants survive under flooded conditions.

(b) In order to increase crop production, the use of herbicides for controlling weeds is emphasized. What are the five merits for using such practice in crop production?

- (i) Herbicides save labor compared to manual weeding.
- (ii) They control weeds quickly and efficiently.
- (iii) They allow timely weed control, improving crop growth and yield.
- (iv) They are suitable for large scale farming.
- (v) They reduce crop competition with weeds for nutrients, water, and light.

9 (a) Briefly explain four main resources to be used in the farm during the process of sugar cane production.

(i) Land

Land provides the physical space where sugar cane is planted and grown. Fertile, well drained land is necessary for proper root development and high yields.

(ii) Labour

Labour is required for activities such as land preparation, planting, weeding, fertilizer application, irrigation, and harvesting of sugar cane.

(iii) Capital

Capital is needed to purchase farm inputs such as seed cane, fertilizers, pesticides, farm tools, machinery, and for paying labour costs.

(iv) Farm inputs and equipment

These include seed cane, fertilizers, chemicals, irrigation facilities, and farm tools or machines used to improve efficiency and productivity.

9 (b) Suppose you are a farm manager, outline four roles you will play to ensure higher production of sugar cane.

(i) Planning farm activities

I will plan land preparation, planting schedules, fertilizer application, and harvesting time to ensure timely operations.

(ii) Supervision of farm workers

I will supervise labour to ensure farm activities are carried out correctly and efficiently.

(iii) Ensuring proper use of inputs

I will ensure correct application of fertilizers, manure, and pesticides to promote healthy crop growth.

(iv) Controlling pests, diseases, and weeds

I will implement effective pest, disease, and weed control measures to minimize yield losses.

(v) Monitoring crop performance

I will regularly monitor crop growth and take corrective measures where necessary to improve productivity.

SECTION C

10. Recommend to the head teacher on how to raise maize crop production in a school farm.

(a) Climate and soils

Maize should be grown in areas with moderate rainfall and warm temperatures. The soil should be fertile, well drained, and rich in organic matter. Proper land preparation should be done to improve soil structure.

(b) Crop varieties

High yielding, early maturing, and disease resistant maize varieties should be selected to improve production and reduce losses.

(c) Propagation and spacing

Maize should be propagated using healthy certified seeds. Proper spacing should be observed to reduce competition for nutrients, water, and sunlight.

(d) Weeding

Regular and timely weeding should be done to reduce competition between maize plants and weeds for nutrients, water, and light.

(e) Application of manure and fertilizers

Organic manure should be applied to improve soil fertility. Recommended fertilizers should be applied at the right time and in correct amounts to promote healthy growth.

(f) Controlling pests and diseases

Appropriate control measures such as use of pesticides, resistant varieties, and field sanitation should be practiced to reduce pest and disease damage.

(g) Harvesting

Maize should be harvested at the right maturity stage to avoid losses due to pests, rotting, or shattering and to ensure good grain quality.