THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

735 **AGRICULTURE TEACHING METHODS**

Time: 3 Hour. **ANSWERS** **Year: 2005**

Instructions

1. This paper consists of section **A** and **B**.
2. Answer **all** questions in section A, and **four (4)** questions from section B.
3. Section A carry **forty (40)** and section B carries **sixty (60)** marks.
4. Cellular phones are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

1. Mention four ways in which agriculture contributes to the school community.

Agriculture provides food products such as vegetables, eggs, and milk, which can be used in school meals, helping to improve the nutrition of students and staff.

It generates income through the sale of surplus produce, which can be used to support other school programs and reduce dependency on external funding.

School farms serve as learning laboratories where students acquire practical skills and apply theoretical knowledge gained in class.

Agricultural projects build a sense of responsibility and teamwork among students, promoting discipline and cooperation through shared tasks.

2. Identify four types of weeds commonly found in school gardens.

Blackjack is a fast-spreading weed with small white flowers that competes for nutrients and water with

crops. Pigweed is a broad-leaved annual weed that grows quickly and can dominate school gardens if not

managed.

Couch grass spreads underground through rhizomes and is difficult to eradicate due to its persistent root system.

Goosegrass has a clinging nature and grows rapidly, especially in moist soils, often interfering with the growth of young crops.

3. State four roles played by agroforestry in environmental conservation.

Agroforestry helps prevent soil erosion by stabilizing the soil with tree roots, especially on sloping land.

It improves soil fertility through leaf litter and nitrogen fixation, particularly when leguminous trees are used.

Trees planted in agroforestry systems provide shade and windbreaks, which protect crops and reduce evaporation.

Agroforestry increases biodiversity by creating habitats for birds, insects, and small animals, supporting ecological balance.

4. List four farm tools and give one use of each.

A hoe is used for cultivating the soil, especially for breaking the ground and removing weeds.

A watering can is used to apply water to young plants and seedlings in gardens or nurseries.

A panga is useful for cutting grass, small bushes, and clearing land during preparation of the farm.

A wheelbarrow is used for transporting manure, tools, harvested crops, or any farm input across the field.

5. Give four examples of livestock diseases that affect cattle.

Foot and Mouth Disease causes sores in the mouth and feet of cattle, leading to lameness and difficulty feeding.

East Coast Fever is a tick-borne disease that causes high fever and swelling of lymph nodes in infected cattle.

Anthrax is a deadly bacterial disease that causes sudden death in cattle and is highly contagious.

Mastitis is an infection of the udder in dairy cows, reducing milk production and affecting milk quality.

6. Mention four characteristics of sandy soil.

Sandy soil has a loose and gritty texture, which allows for easy cultivation and root penetration.

It drains water quickly, making it dry and requiring frequent irrigation to support crop growth.

The soil is usually low in nutrients due to its poor ability to retain organic matter and fertilizers.

Sandy soil warms up quickly in the sun, which can benefit early planting in cool seasons but may also cause water stress.

7. Explain five differences between organic and inorganic fertilizers.

Organic fertilizers are made from natural sources such as compost or animal manure, while inorganic fertilizers are manufactured using chemical processes.

Organic fertilizers release nutrients slowly over time, while inorganic fertilizers provide nutrients rapidly after application.

Inorganic fertilizers are easier to apply in specific amounts because they have known nutrient content, whereas organic fertilizers have variable composition.

Organic fertilizers improve soil structure and microbial activity, while inorganic fertilizers may degrade soil quality if overused.

Inorganic fertilizers are more concentrated and suitable for immediate nutrient correction, whereas organic fertilizers are better for long-term soil health.

8. Describe five qualities of a good agricultural extension officer.

A good extension officer must have good communication skills to explain agricultural concepts clearly to farmers and learners.

They should be knowledgeable in both theory and practice to provide reliable and up-to-date advice on farming techniques.

They must be approachable and patient, allowing farmers and students to ask questions and express concerns freely.

They should be well-organized and punctual when conducting demonstrations, trainings, or school visits.

A good officer must be committed to rural development and willing to travel and work under difficult field conditions.

9. Explain five precautions that should be taken when storing harvested crops.

Ensure that the storage facility is clean and dry to prevent mold growth and maintain grain quality.

Crops must be well dried before storage to reduce moisture content and prevent spoilage or pest infestation.

The store should be well ventilated to allow air circulation and avoid heat buildup, which could damage stored produce.

Use appropriate packaging materials like sacks or containers that prevent entry of rodents and insects.

Regular inspection and monitoring should be done to detect early signs of spoilage or pest activity so that corrective action can be taken.

10. Discuss five problems that can arise from poor agricultural marketing systems.

Farmers may receive low prices for their produce due to exploitation by middlemen and lack of access to better markets.

There is often high post-harvest loss when produce cannot be sold on time due to poor storage and transportation systems.

Inconsistent market demand and price fluctuations discourage farmers from investing in production.

Lack of market information limits farmers' ability to plan production according to demand and pricing trends.

Poor marketing systems reduce income and profits, making it difficult for farmers to improve production or adopt new technologies.

11. Describe five classroom strategies that can be used to teach agriculture effectively.

Using visual aids such as diagrams, charts, and models helps students to better understand agricultural concepts by providing concrete illustrations of abstract ideas.

Group discussions allow students to share experiences, exchange ideas, and deepen their understanding of topics like farming systems or pest control methods.

Demonstrations within or outside the classroom are effective in showing practical skills like seed planting, soil testing, or compost making, especially for visual and kinesthetic learners.

Problem-solving activities such as case studies or project-based learning encourage critical thinking and help learners apply knowledge to real-life agricultural situations.

Field trips to nearby farms or agricultural institutions expose students to real-world practices and modern technologies, bridging the gap between theory and practice.

12. (a) Calculate the total number of eggs collected in four weeks.

Week 1: 112
Week 2: 126
Week 3: 108
Week 4: 134

Total = 112 + 126 + 108 + 134 = 480 eggs

(b) Calculate the average number of eggs collected per week.

Average = Total number of eggs ÷ Number of weeks
Average = 480 ÷ 4 = 120 eggs per week

(c) Suggest two reasons for the fluctuation in egg production from week to week.

Changes in feed quality or quantity may have affected the hens' ability to produce eggs consistently across the four weeks.

Variations in environmental conditions such as temperature, lighting, or stress from noise and overcrowding could have influenced egg-laying patterns.

(d) Give two uses of such a record in agricultural education.

It helps learners understand the importance of keeping accurate farm records for monitoring productivity and making informed management decisions.

The record can be used to teach students how to analyze data, identify patterns, and solve problems in real agricultural situations.

13. You are preparing a lesson on "Soil Erosion Control Methods" for Form Two students. Write a summary of your lesson including: (a) Definition of soil erosion (b) Causes of erosion in school farms (c) Five control measures (d) Learning activities (e) Conclusion

Soil erosion is the removal of the top fertile layer of soil by agents like water, wind, or human activities. It leads to loss of nutrients and land degradation.

In school farms, erosion is often caused by over-cultivation, poor land preparation, and lack of protective cover on the soil surface.

Five control measures include terracing, planting cover crops, mulching, constructing contour bunds, and planting windbreaks to reduce the impact of water and wind.

Learning activities will include observing soil erosion signs in the school garden, drawing diagrams of control methods, and participating in a demonstration on mulching or contour planting.

The lesson will conclude by summarizing the causes and solutions to erosion and encouraging learners to apply the control measures in school and home gardens.

14. A group of students carried out a research project on irrigation methods used in school gardens. Prepare a report including: (a) Introduction (b) Objectives (c) Methods observed (d) Challenges faced (e) Recommendations

The research aimed to explore different irrigation methods used in the school garden and evaluate their effectiveness in vegetable production.

The objectives were to identify the types of irrigation methods, assess water use efficiency, and understand the students' role in managing irrigation.

The methods observed included manual watering using watering cans, furrow irrigation, and drip irrigation with recycled bottles. Each method was evaluated for coverage, water use, and ease of management.

Challenges faced included irregular water supply, difficulty in managing labor during holidays, and lack of proper tools for advanced irrigation.

It was recommended that the school install a water tank to ensure regular water availability, train students on simple irrigation techniques, and invest in cost-effective drip systems using local materials.

15. Write an essay explaining five factors that affect the choice of a site for a school farm and suggest five strategies to ensure proper site management.

The fertility of the soil is a key factor, as crops require adequate nutrients for growth. A site with rich, welldrained soil is ideal for both crop and animal farming.

Availability of water near the site is crucial for irrigation, cleaning, and feeding livestock, especially in dry seasons or when practicing intensive farming.

Accessibility of the site for learners, teachers, and equipment ensures active participation and regular supervision.

Security of the site is important to prevent theft or damage to crops and animals. A site that can be easily fenced is preferred.

Topography affects how water drains and whether erosion might be a problem. Flat or gently sloping land is preferred for easier cultivation and management.

To ensure proper management, the school should develop a timetable to integrate farming activities with classroom lessons.

Students should be assigned clear responsibilities in maintaining the farm, including weeding, watering, and record keeping.

The farm should be fenced to control entry and prevent damage from animals or unauthorized people.

Farm records should be kept regularly to monitor progress, inputs, and outputs.

Regular teacher supervision and evaluation of student participation will ensure the school farm remains productive and educational.

16. You are supervising a school beekeeping project. Explain five learning opportunities students can gain and five safety precautions they must observe.

Students learn how bees contribute to pollination and biodiversity, helping them appreciate the ecological value of beekeeping beyond honey production.

They gain skills in constructing and maintaining beehives, including the use of appropriate tools and equipment.

Students observe bee behavior and lifecycle firsthand, reinforcing topics related to reproduction, adaptation, and animal science.

They develop entrepreneurial skills by processing, packaging, and marketing honey, beeswax, and related products.

Beekeeping encourages teamwork and project responsibility, as students work together to manage hives and share duties under supervision.

For safety, students must always wear protective clothing such as bee suits, gloves, and veils to prevent stings.

They should avoid disturbing hives unnecessarily and must approach calmly and quietly to avoid provoking the bees.

Beekeeping should be done at a safe distance from classrooms and residential areas to reduce the risk of accidental stings.

First aid kits should be available nearby to treat allergic reactions or minor injuries that may occur during handling.

All activities must be supervised by a trained teacher or expert to ensure procedures are followed safely and correctly.

17. Discuss five reasons for keeping farm records in both crop and livestock enterprises, and explain five consequences of poor record keeping.

Farm records help track income and expenses, allowing schools to manage agricultural budgets more effectively and assess profitability.

They assist in monitoring production levels, such as crop yields or milk output, enabling planning and improvement over time.

Records support decision-making by showing which crops or livestock perform best under specific conditions.

They provide accountability and transparency, especially in school projects funded by external donors or the government.

Well-maintained records help students learn the importance of data collection, analysis, and documentation in farm management.

Poor record keeping may lead to financial losses because the school cannot track income, spending, or theft accurately.

It becomes difficult to detect production problems or patterns, such as declining yields or disease outbreaks.

Without records, planning for future activities is based on guesswork rather than facts, leading to poor resource use.

External support such as grants or loans may be denied if the farm lacks documented evidence of its operations and needs.

Teaching becomes less effective, as students miss the chance to learn through real data and practical farm business management.

18. Explain five factors that limit women and youth participation in agriculture and suggest five possible interventions that can promote their involvement.

Limited access to land, especially for women and young people, restricts their ability to own or control farms, reducing their investment in agriculture.

Cultural beliefs and gender roles often discourage women and youth from taking leadership in agricultural decision-making.

Lack of access to credit and inputs such as quality seeds or tools prevents them from starting or expanding agricultural ventures.

Limited agricultural education and training opportunities make it difficult for women and youth to acquire the knowledge needed for modern farming.

Poor market access discourages participation, especially when they cannot sell their products profitably or consistently.

To address these issues, land reforms and community sensitization should promote equal access to land and reduce cultural barriers.

Financial institutions should offer youth- and women-friendly loan schemes, with flexible repayment terms and low interest.

Agricultural training centers and extension services should specifically target youth and women with inclusive programs.

Use of mobile technology and digital platforms can help women and youth access market information, inputs, and training remotely.

Encouraging group-based farming, such as cooperatives or school youth clubs, enables shared resources and support for entrepreneurship.