THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

735 **AGRICULTURE TEACHING METHODS**

Time: 3 Hour. **ANSWERS** **Year: 2008**

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 qualities of a good agricultural extension officer.

A good agricultural extension officer must possess strong communication skills. This helps in conveying technical information clearly to farmers and students using understandable language.

They must have practical knowledge and technical competence in agriculture, enabling them to demonstrate and apply modern techniques in real-world settings.

A good extension officer must be approachable and patient, allowing farmers and learners to feel comfortable seeking advice and asking questions without fear.

They should be committed and passionate about improving agriculture, always motivated to update their knowledge and help communities solve farming challenges.

2. List four modern methods of weed control and give one example for each.

Chemical control uses herbicides like glyphosate to kill weeds efficiently over large areas with minimal labor.

Mechanical control involves using machinery such as a tractor-mounted weeder to uproot or cut down weeds from fields.

Biological control uses natural enemies such as insects or diseases to suppress weed growth. For example, introducing cochineal insects to control prickly pear cactus.

Mulching involves covering the soil surface with organic materials like grass or plastic sheets to block sunlight and prevent weed germination.

3. State four characteristics of healthy seedlings ready for transplanting.

Healthy seedlings have strong and upright stems that are firm and capable of supporting the plant after transplanting.

Their leaves are green and free from discoloration or spots, indicating good nutrition and absence of diseases.

The root system is well-developed but not root-bound, showing the seedling can establish itself quickly after transplanting.

Seedlings should have reached an appropriate height and number of leaves, usually 4–6 true leaves, to survive transplant shock.

4. Give four reasons why keeping farm records is important.

Farm records help track the performance of crops or livestock, allowing farmers or schools to make informed decisions about management.

They provide data for planning and budgeting by showing past input use, labor needs, and income generated.

Records support teaching by giving learners real examples to analyze and interpret during agriculture lessons.

They can serve as evidence for accountability and auditing when applying for support from the government or donors.

5. Identify four limitations of agriculture practical lessons in secondary schools.

Lack of funds to purchase tools, seeds, or animals hinders the execution of meaningful and consistent practical lessons.

Inadequate land space in some schools limits the ability to establish gardens, animal units, or compost pits.

Shortage of trained agriculture teachers affects the quality and depth of practical instruction provided to learners.

Irregular scheduling or interference by other subjects reduces the time allocated for practical activities, affecting continuity and outcomes.

6. Mention four components of an effective lesson note in agriculture.

A clear topic and sub-topic ensure that the lesson remains focused and relevant to the syllabus.

Specific and measurable lesson objectives guide both teaching and assessment throughout the session.

Teaching and learning materials listed help the teacher and learners prepare adequately for the lesson.

The lesson development section outlines the steps and methods used, ensuring a smooth flow of activities and learner engagement.

7. Explain five uses of farm tools and equipment in practical agriculture lessons.

Farm tools help learners develop hands-on skills. When students handle hoes, rakes, or pruning shears, they gain practical experience that reinforces classroom knowledge.

They are used to demonstrate specific agricultural techniques. For instance, a watering can is used to show proper irrigation, and a spade to teach digging and planting.

Tools ensure safety and efficiency during farm work. A wheelbarrow helps learners transport manure or compost without injuring themselves or overexerting.

They allow students to practice maintenance and care. Learning how to clean, sharpen, and store tools teaches responsibility and prolongs tool lifespan.

Farm tools also support school production activities. When learners use them in school gardens or livestock units, they contribute to real outputs like vegetables or eggs.

8. Describe five ways in which school gardens can be used to support teaching and learning.

School gardens provide a living laboratory where learners can observe plant growth stages from germination to harvest, deepening their understanding of theory.

They offer opportunities for students to carry out experiments, such as comparing growth under different fertilizers or planting methods.

Gardens encourage interdisciplinary learning. Topics like mathematics (measuring plots), biology (plant parts), and environmental science (conservation) are taught practically.

They develop soft skills such as teamwork, patience, and responsibility as students work together to maintain their garden.

Produce from the school garden can be used for feeding programs or sold to support school activities, teaching learners entrepreneurship and business planning.

9. Discuss five contributions of agriculture to the national economy of Tanzania.

Agriculture is the main source of employment in Tanzania, engaging over 65% of the population in farming, fishing, or livestock activities.

It contributes to food security by producing staple crops like maize, rice, and beans, which support national stability and reduce hunger.

Agriculture supports export earnings through crops like coffee, tea, cashew nuts, and tobacco, generating foreign exchange and funding development.

It promotes industrial development by supplying raw materials to agro-industries such as cotton for textile factories and sugarcane for sugar mills.

The sector also boosts rural development by improving infrastructure, creating markets, and encouraging services like transport and agro-dealer networks.

10. Describe five steps a teacher should follow when preparing students for a field trip to a research station.

The teacher should first identify and communicate with the research station to secure permission, set objectives, and agree on visit arrangements.

A detailed plan should be written, outlining the purpose, date, time, transport, expected number of students, and topics to be covered during the visit.

Students should be briefed on the objectives of the trip, expected behavior, items to carry (like notebooks), and safety guidelines before departure.

Grouping learners and assigning specific roles, such as reporters or recorders, ensures active participation and organized observation during the trip.

After the visit, a reflection session should be conducted to discuss experiences, clarify observations, and link findings to classroom lessons.

11. Explain five factors that influence the choice of teaching methods in agriculture.

The topic or content to be taught influences the method. Practical skills like grafting require demonstration, while theory-based content may use discussion or lecture.

The availability of teaching and learning resources also determines the method. Without tools, it may be difficult to use demonstration or fieldwork.

Learner characteristics, such as age, background knowledge, and interest, shape the choice. Younger learners may need simpler, more interactive methods.

Time available for the lesson affects the method. For example, role plays or projects may need longer sessions, while a short lesson may rely on direct instruction.

The teacher's competence and confidence in using a particular method can influence its use. A well-trained teacher can effectively use group work or ICT even in resource-limited settings.

12. Outline five functions of livestock in small-scale farming systems.

Livestock provide food in the form of milk, meat, and eggs, improving household nutrition and food security in rural communities.

They serve as a source of income when animals or animal products are sold, helping farmers meet other household needs.

Livestock contribute manure that is used to fertilize crops, improving soil fertility and reducing the cost of purchasing chemical fertilizers.

In some cultures, livestock play social and cultural roles, such as in dowries, ceremonies, or status symbols among certain communities.

Animals like oxen and donkeys offer draught power for ploughing and transport, reducing labor and improving farm productivity.

13. Prepare a summary for a Form One agriculture lesson on "Soil Fertility Maintenance," including: (a) Definition of soil fertility (b) Causes of soil fertility loss (c) Methods of maintaining fertility (d) Importance of maintaining fertility (e) Learners' activities

Soil fertility refers to the soil's ability to provide essential nutrients in the right amounts and balance to support healthy plant growth and optimum crop production.

Soil fertility can be lost through continuous cropping without replenishing nutrients, erosion that washes away the topsoil, leaching of nutrients due to heavy rains, and burning of vegetation which destroys organic matter. Overgrazing and poor tillage practices also contribute to fertility loss.

Soil fertility can be maintained using organic manure such as farmyard manure and compost, which restore soil nutrients and improve structure. Crop rotation helps prevent depletion of specific nutrients. Green manuring involves planting legumes and incorporating them into the soil. Application of chemical fertilizers provides targeted nutrient supply. Agroforestry and mulching also help in nutrient conservation and moisture retention.

Maintaining soil fertility increases crop yields, improves food security, and sustains long-term agricultural productivity. It also reduces the need for expensive chemical inputs and ensures environmental protection.

Learners' activities may include identifying signs of poor soil fertility, preparing compost, visiting a school garden to observe soil improvement practices, and drawing a table comparing organic and inorganic methods of soil improvement.

14. Imagine you have been asked to conduct a school-based project on poultry production. Write a project report including: (a) Objectives (b) Project activities (c) Roles of learners (d) Outcomes (e) Challenges and recommendations

Title: Report on School Poultry Project (Layers)
Date of Commencement: March 2025 **Project**
Duration: 4 Months

Objectives:

- To provide learners with practical experience in poultry keeping.
- To generate income through the sale of eggs.
- To reinforce classroom knowledge on poultry nutrition, housing, and disease management. **Project**

Activities:

The project involved constructing a simple poultry shed using local materials. Forty layer chicks were purchased and vaccinated according to a schedule. Learners participated in feeding, watering, cleaning the house, collecting eggs, and keeping daily records. **Roles of Learners:**
Students took turns in daily routines such as cleaning the house, monitoring feed and water, and recording egg production. Some were assigned to update health records and report abnormalities. Others were tasked with budgeting and marketing eggs to teachers and parents. **Outcomes:**
The students improved their confidence and competence in poultry management. The school earned money from selling eggs, which was reinvested in buying more chicks. Learners better understood diseases like Newcastle and vaccination procedures. **Challenges and Recommendations:**
There were initial losses due to poor brooding conditions. Also, some students missed their duties. Future projects should begin with a smaller group of dedicated learners and stronger supervision. Provision of proper lighting and ventilation should also be improved.

15. Write an essay discussing five factors contributing to low productivity in small-scale agriculture and propose five possible solutions to improve productivity.

Low productivity in small-scale agriculture is often caused by the use of traditional farming methods such as hand hoes and slash-and-burn, which limit the scale and efficiency of operations.

Inadequate access to inputs like fertilizers, improved seeds, and pesticides also reduces yields. Farmers depend on recycled seeds and cannot afford required nutrients.

Poor infrastructure, especially rural roads and storage facilities, leads to high post-harvest losses and discourages farmers from expanding production.

Limited access to credit and capital restricts farmers from investing in better tools, irrigation systems, or hiring labor, thus maintaining low productivity levels.

Lack of extension services and agricultural education results in poor farm management decisions and failure to adopt new innovations.

To improve productivity, farmers should be supported to access affordable credit through cooperatives or government-backed loans.

They should also receive improved inputs at subsidized prices, including quality seeds, fertilizers, and pest control products.

Training programs and extension services must be expanded to reach rural areas, enabling farmers to adopt better techniques.

Investment in rural infrastructure like feeder roads and storage facilities would reduce losses and link farmers to markets.

Mechanization and irrigation should be promoted where possible to reduce reliance on rainfall and manual labor, thus increasing yields sustainably.