THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

735 **AGRICULTURE TEACHING METHODS**

Time: 3 Hour. **ANSWERS** **Year: 2009**

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. List four characteristics of a good agriculture lesson plan.

A good lesson plan is objective-based. It clearly outlines what learners should know or be able to do by the end of the lesson, ensuring focus and direction in teaching.

It is learner-centered. The plan includes activities that involve learners actively, such as discussions, demonstrations, or experiments, making the lesson more engaging and effective.

It is realistic and practical. A good lesson plan considers the time available, resources at hand, and the ability level of students, ensuring that planned activities can be successfully carried out.

It includes evaluation methods. A strong plan outlines how to assess whether learners have achieved the lesson objectives, through questions, assignments, or practical tasks.

2. Mention four common tools used in poultry management and give one use of each.

A feeder is used to provide poultry with dry feed in a clean and organized manner, minimizing wastage and contamination.

A drinker supplies clean drinking water to poultry, which is essential for maintaining health and productivity.

A brooder provides heat to chicks during their early stages of life, simulating the warmth normally given by a hen.

A laying nest offers a quiet and safe space for hens to lay eggs, reducing egg breakage and encouraging consistent laying behavior.

3. State four factors that affect the selection of livestock breeds for school farms.

The purpose of keeping livestock determines the breed selection. For example, dairy breeds like Friesian are preferred for milk, while broilers are selected for meat.

Environmental adaptability is crucial. The breed chosen should withstand local climatic conditions, diseases, and available feed resources.

Availability and cost of the breed influence the choice, as schools often operate under budget constraints and need affordable, accessible animals.

The ease of management is also important. Breeds that are docile, disease-resistant, and easy to care for are preferred for teaching and student handling.

4. Outline four principles of crop rotation.

Crops should be rotated based on plant family. This avoids buildup of pests and diseases specific to a particular crop type.

Crops with different nutrient demands should follow each other. For example, legumes that fix nitrogen can be followed by cereals that need more nitrogen.

Deep-rooted crops should be rotated with shallow-rooted ones to allow efficient use of soil nutrients and improve soil structure.

High-value or high-demand crops should alternate with soil-restoring crops, such as cover crops, to maintain soil fertility and reduce erosion.

5. Give four examples of instructional materials that can be improvised when teaching agriculture.

Used plastic bottles can be converted into mini-irrigation kits or plant germinators for lessons on irrigation and seed germination.

Old newspapers or cardboard can be used to demonstrate mulching or compost-making techniques.

Locally available seeds and leaves can be used to teach identification of crops, legumes, or plant families.

Animal bones, feathers, or dried dung can be used to teach topics related to livestock, nutrition, or farm hygiene.

6. Identify four benefits of integrating ICT in agriculture education.

ICT provides access to a wide range of updated agricultural information and teaching resources, such as videos, charts, and expert demonstrations.

It enhances student engagement through interactive tools like animations, simulations, and educational games tailored to agricultural topics.

It supports distance and blended learning, allowing students to access lessons and assignments even when away from school.

ICT also facilitates record keeping and data analysis, which are essential for managing school farms and agricultural projects effectively.

7. Describe five responsibilities of agriculture subject teachers in maintaining the school farm.

The agriculture teacher is responsible for planning farm activities, including crop calendars, livestock routines, and resource allocation. This ensures that farm operations align with the school schedule and syllabus.

They must supervise students during practical work, guiding them on correct techniques and ensuring safety. This helps learners acquire hands-on experience under proper instruction.

Teachers are expected to monitor the condition of tools and equipment. They must ensure tools are stored properly, repaired when damaged, and used safely during practical sessions.

Keeping records of farm activities such as planting dates, input usage, and production outcomes is also the teacher's duty. These records support teaching and are useful for decision-making.

The teacher should liaise with the school administration for farm inputs and coordinate with local agriculture officers or stakeholders to improve farm performance and student exposure.

8. Explain five key considerations when selecting a site for establishing a school vegetable garden.

The site must have fertile, well-drained soil to support healthy plant growth and reduce the risk of root diseases caused by waterlogging.

It should have access to a reliable water source, such as a tap, borehole, or water tank, to facilitate regular irrigation of vegetables, especially during dry seasons.

The site needs to receive adequate sunlight, preferably 6–8 hours per day, as vegetables require full sunlight for optimal photosynthesis and yield.

The location should be secure and protected from livestock or intruders to prevent destruction of crops and vandalism of irrigation tools.

It must be accessible to learners and teachers so that the garden can be used regularly for practical lessons and continuous observation.

9. Outline five ways in which agriculture education promotes environmental conservation.

Agriculture education teaches soil conservation methods such as contour farming, mulching, and agroforestry, which reduce erosion and maintain soil fertility.

It promotes afforestation and reforestation through lessons and projects that involve tree planting, reducing deforestation and improving air quality.

Learners are taught to manage waste from farms and households through composting and recycling, which reduces pollution and improves soil structure.

Agroecology principles introduced in agriculture classes encourage sustainable use of land, water, and other resources, reducing overexploitation and degradation.

The subject creates awareness about climate change and guides learners in adopting climate-smart agriculture practices that protect ecosystems and reduce greenhouse gas emissions.

10. Discuss five advantages of using demonstration as a teaching method in agriculture.

Demonstrations provide visual learning, helping learners observe real-life applications of agricultural concepts such as grafting or pruning techniques.

They simplify complex procedures. By breaking down a process into steps and performing it in front of students, teachers make learning clearer and easier to understand.

Demonstrations encourage learner engagement, as students can ask questions, participate in steps, and relate the practice to theory, enhancing retention.

They provide immediate feedback. Teachers can correct mistakes on the spot, ensuring learners understand the correct procedure and safety precautions.

Demonstrations promote skill acquisition. Repeated exposure to actual procedures builds learner confidence and prepares them for independent practice in the future.

11. Explain five challenges that agriculture teachers may face in preparing and using teaching aids.

Lack of funds may limit the teacher's ability to purchase or produce quality teaching aids such as charts, models, or audio-visual materials.

Limited access to technology, especially in rural schools, hinders the creation or use of digital aids like videos, slides, or interactive diagrams.

Inadequate time for preparation may lead teachers to rush or skip making aids, especially when handling many lessons or administrative duties.

Storage problems can arise, especially for real objects like plant specimens or perishable items, which may spoil before use if not stored properly.

Lack of training on how to create and integrate teaching aids effectively can reduce their impact, making the lesson less engaging or even confusing to learners.

12. Describe five uses of records in the management of school agricultural projects.

Records help in monitoring progress by keeping track of planting dates, input usage, livestock growth, and production trends over time.

They support budgeting and financial planning by showing the cost of inputs, sales from produce, and profits or losses, aiding accountability.

Records aid in teaching, as learners can analyze data from the school farm and draw conclusions during practical or project work.

They provide evidence for evaluation, helping teachers and school leaders assess the success of agricultural activities and make informed decisions.

In case of future planning or repeating projects, records serve as reference documents that guide crop choice, timing, and expected yields.

13. You are preparing a lesson for Form Three students on "Soil Erosion." Write a summary of your lesson including: (a) Definition of soil erosion (b) Causes of erosion (c) Types of erosion (d) Control measures (e) Importance of erosion control

Soil erosion is the removal and transportation of the top fertile layer of the soil by agents such as water, wind, or human activities. This process leads to reduced soil fertility and land degradation.

Erosion can be caused by several factors. Deforestation exposes soil to wind and rain. Overgrazing by livestock removes vegetation cover. Poor farming methods such as ploughing along the slope accelerate erosion. Heavy rainfall and steep slopes also contribute to the erosion process.

There are various types of soil erosion. Splash erosion occurs when raindrops hit bare soil. Sheet erosion involves the removal of thin layers of soil uniformly. Rill erosion results in small channels forming on the land surface. Gully erosion involves deeper and wider cuts in the soil, forming gullies.

Control measures include planting grass or cover crops to protect the soil surface. Terracing and contour farming reduce water runoff on slopes. Mulching helps preserve soil moisture and reduce the impact of raindrops. Agroforestry and building check dams also help minimize erosion.

Erosion control is important because it preserves soil fertility and ensures sustainable crop production. It also prevents siltation of rivers and dams, reduces the risk of floods, and supports environmental conservation.

14. As an agriculture teacher, write a report of a field visit to a local dairy farm. Include the objectives, activities carried out, what students learned, and recommendations for future visits.

Title: Report on a Field Visit to Mwenge Dairy Farm
Date of Visit: 12th July 2025
Class: Form Four Agriculture Students **Venue:**
Mwenge Dairy Farm, Arusha

Objectives:

- To expose students to practical dairy farming operations.
- To observe and learn about dairy cattle breeds, housing, and milking procedures.
- To understand dairy feeding systems and record-keeping practices. **Activities Carried Out:**

Upon arrival, students were welcomed by the farm manager who introduced the staff and gave an overview of the farm. Learners were taken through the cow sheds to observe different breeds such as Friesian and Ayrshire. The milking parlor was demonstrated, and students participated in observing milking, sanitation procedures, and milk storage techniques. Feeding systems, including the use of silage and concentrates, were also explained. The session concluded with a discussion on disease control, vaccinations, and daily record-keeping. **What Students Learned:**
Students gained practical knowledge of the daily operations in a dairy unit. They understood the importance of hygiene in milking, proper feeding practices, and breed selection for milk production. They appreciated the role of record-keeping and saw how technology can be used in modern dairy farming.

Recommendations for Future Visits:
Future trips should involve fewer students per visit to ensure better engagement. A worksheet should be provided in advance to guide observations. Follow-up classroom sessions should be conducted to link experiences to theory. More interaction with farm workers should be encouraged for deeper learning.

15. Many students in secondary schools are not motivated to study agriculture. Write an essay explaining five causes of this problem and propose five ways to promote learners' interest in agriculture.

One major cause of low motivation is the perception that agriculture is a subject for the academically weak. Students view it as manual labor rather than a modern, science-based career, discouraging interest.

Lack of practical exposure contributes to the problem. In many schools, agriculture is taught theoretically due to lack of school farms or equipment, making it boring and less engaging.

Poor teaching methods such as excessive lecturing without learner participation reduce curiosity and excitement, leading to disinterest among students.

Inadequate career guidance is another factor. Many learners are unaware of the opportunities in agribusiness, agricultural engineering, and biotechnology.

Limited success stories and role models in agriculture contribute to the lack of inspiration, as students rarely see successful youth engaging in farming as a career.

To address this, schools should strengthen practical activities by investing in school farms and encouraging projects like poultry or vegetable gardening.

Modern technologies such as irrigation kits, drones, and mobile applications should be introduced to show agriculture as innovative and relevant.

Teachers should adopt learner-centered methods such as group projects, competitions, and field visits to spark interest.

Career talks by professionals and entrepreneurs in agriculture can help change attitudes and show the subject's potential.

Lastly, integration of agriculture into entrepreneurship education will help learners see farming as a profitable business, increasing motivation and participation.