THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

735 **AGRICULTURE TEACHING METHODS**

Time: 3 Hour. **ANSWERS** **Year: 2013**

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 instructional objective in agriculture education.

A good instructional objective is specific. It clearly states what the learner is expected to achieve by the end of the lesson, avoiding vague terms like "understand" or "learn."

It is measurable. The objective should include observable actions such as "describe," "list," or "demonstrate" so that the teacher can assess whether the learner has met the target.

It should be achievable. The objective must match the learners' level of understanding, resources available, and time allocated for the lesson to ensure that it can realistically be accomplished.

It must be relevant. The objective should directly relate to the subject matter and contribute to the overall curriculum goals, ensuring that learning is meaningful and aligned with agricultural education standards.

2. State four reasons why it is important for agriculture teachers to prepare lesson plans before teaching.

A lesson plan helps in organizing content. It provides a roadmap that outlines what will be taught, how it will be taught, and what materials will be used, reducing confusion during delivery.

It improves time management. Teachers allocate specific time to each part of the lesson, ensuring that key points are covered without rushing or dragging.

Lesson planning ensures alignment with objectives. It helps teachers focus on activities and materials that support the desired learning outcomes, improving teaching effectiveness.

It also boosts teacher confidence. Entering the classroom with a clear plan reduces anxiety, enables smooth transitions, and enhances the overall teaching experience.

3. Identify four advantages of using field visits as a method of teaching agriculture.

Field visits provide real-life experience. Students see agricultural practices firsthand, such as irrigation systems or livestock management, making learning more practical and memorable.

They reinforce classroom learning. Visiting a farm or agro-industry allows learners to relate theoretical knowledge to real-world applications, improving understanding and retention.

Field visits stimulate learner interest. Being in a new environment and seeing actual processes in action keeps learners engaged and curious about agriculture.

They promote interaction and collaboration. Learners discuss observations, ask questions, and work together during field visits, improving communication and teamwork skills.

4. Mention four types of records that should be kept in a school farm.

Production records track the amount of produce harvested from crops or obtained from livestock, such as milk yield, egg count, or weight gain in animals.

Financial records document income and expenses related to the farm, helping to monitor profitability and inform budgeting decisions.

Input records detail the use of resources such as seeds, fertilizers, chemicals, and animal feeds, allowing accountability and efficient use of inputs.

Health records monitor the health status of animals, including treatments, vaccinations, and disease outbreaks, aiding in preventive and curative care.

5. Briefly explain four factors to consider when selecting a site for a school farm.

Soil fertility is crucial. The selected site should have rich, well-drained soil capable of supporting a variety of crops without excessive fertilizer input.

Water availability must be considered. A reliable water source ensures successful irrigation, especially in areas with irregular rainfall.

Accessibility is important. The site should be close to the school for easy supervision and convenient access by learners and teachers during lessons.

Security should also be evaluated. The area must be protected from theft, vandalism, or stray animals, ensuring safety of tools, crops, and livestock.

6. Outline four disadvantages of using the lecture method in agriculture teaching.

The lecture method limits student participation. It is often teacher-centered, which may cause learners to lose interest or become passive listeners.

It doesn't support skill development. Since learners only listen and take notes, they miss out on hands-on experience, which is vital in agriculture.

It may not suit all learners. Some students, especially kinesthetic learners, struggle to understand abstract concepts without visual aids or physical involvement.

Lectures can be monotonous. If not supplemented with visuals or interaction, they can bore learners and reduce the overall effectiveness of the lesson.

7. Describe five differences between a syllabus and a curriculum as used in agriculture education.

A curriculum is a broad plan that outlines the total learning experiences, including aims, content, teaching methods, and assessment strategies for a subject like agriculture, while a syllabus is a more specific breakdown of topics to be covered within a particular subject and class level.

The curriculum includes general objectives, values, attitudes, and skills to be developed over the course of education, whereas a syllabus mainly contains the subject content, learning objectives, and sometimes suggested methods for a specific time period.

Curriculum is usually developed at a national or institutional level to guide the entire education system, while the syllabus is extracted from the curriculum and guides classroom instruction over a term or year.

Curriculum influences the selection of textbooks, teacher training, and educational policy, while the syllabus guides the day-to-day lesson planning, scheme of work, and what is tested in exams.

The curriculum is revised less frequently and is long-term in nature, while the syllabus can be revised more often to accommodate emerging topics or align with current trends in agriculture.

8. Explain five qualities of a good teaching and learning aid in agriculture.

It must be relevant to the topic. The aid should directly relate to the content being taught, such as using a real sprayer when teaching about chemical application.

It should be clear and easy to understand. A good aid avoids unnecessary complexity and is designed in a way that learners of different levels can easily interpret its message or purpose.

It should be durable. In agriculture education where tools and aids may be used repeatedly in practical settings, the material should withstand regular handling and usage.

It should be attractive and engaging. Visual aids should capture learners' attention through color, shape, or real-life appearance, enhancing interest and concentration.

It must be accessible and cost-effective. The aid should be locally available or affordable for the school to acquire or produce, enabling frequent and consistent use in the classroom.

9. Describe five important considerations when planning a demonstration on compost manure preparation for Form One students.

The objective must be clearly defined. The teacher should determine what learners are expected to achieve, such as identifying compost materials or steps in the composting process.

The materials must be available. Items like dry leaves, animal manure, water, and a demonstration pit should be arranged before the lesson to ensure smooth flow.

The location should be safe and suitable. The site should allow enough space for learners to observe comfortably and be protected from direct hazards like sharp tools or harmful substances.

Time should be well-managed. The teacher should allocate time for explanation, actual demonstration, student questions, and summary, keeping within the lesson period.

The demonstration must be visible to all. The teacher should ensure that students can clearly see each step and repeat instructions for better understanding and participation.

10. With examples, discuss five challenges agriculture teachers face when implementing practical lessons in secondary schools.

Lack of teaching materials is a major challenge. Many schools do not have enough tools like hoes, watering cans, or protective gear, limiting the effectiveness of practicals.

Inadequate space is common. Some schools do not have farms or demonstration plots, making it difficult to conduct real-life activities such as planting or animal care.

Limited time in the timetable restricts practical sessions. Agriculture lessons may be scheduled back-to-back with theory-heavy subjects, reducing hands-on learning opportunities.

Poor attitude from learners may arise. Some students view agriculture as labor-intensive or non-academic, which affects their willingness to participate fully in practicals.

Weather conditions affect planning. Outdoor practicals depend on favorable weather, and rains or excessive heat may disrupt or postpone scheduled activities.

11. Identify five key elements that should be included in a well-prepared agriculture scheme of work and explain the role of each.

The topic and subtopics outline the content to be taught and help the teacher remain focused on curriculum coverage.

General objectives explain the overall purpose of the lesson or unit and guide the teacher in aligning classroom activities with syllabus goals.

Time allocation specifies the number of periods required for each topic, helping the teacher manage the term effectively and avoid rushing or skipping content.

Teaching and learning methods guide how the lesson will be delivered, ensuring variety through discussions, demonstrations, or group work.

Evaluation methods provide a way to assess whether learners have understood the topic, using tools like quizzes, oral questions, or practical tasks.

12. Explain five ways in which ICT can be used to improve the teaching and learning of agriculture in secondary schools.

ICT can be used to access agricultural videos and animations. These resources visually demonstrate processes like irrigation, soil testing, or pest control, making learning more engaging.

Teachers can prepare and deliver digital presentations using tools like PowerPoint or smart boards, enhancing clarity and structure during lessons.

Online platforms allow sharing of notes, assignments, and discussion forums. Tools like Google Classroom or WhatsApp groups support continuous learning beyond the classroom.

ICT enables access to agricultural databases and journals, keeping both teachers and students updated on modern practices, weather forecasts, and market trends.

Virtual simulations offer safe and interactive environments to learn about machinery operations or disease diagnosis, especially where real equipment is unavailable.

13. You are assigned to teach a topic on "Soil and Water Conservation." Write a summary of your lesson including: (a) Definition of soil and water conservation (b) Causes of soil degradation (c) Methods of conservation (d) Importance to agriculture

Soil and water conservation refers to the practices used to prevent the loss of soil and water through erosion, overuse, and mismanagement. These practices aim to maintain the productivity and sustainability of land resources for agricultural use.

Soil degradation is mainly caused by erosion due to wind and water, deforestation, overgrazing, poor farming practices such as continuous cropping, and the use of heavy machinery that compacts the soil. Water degradation occurs through excessive runoff, poor irrigation practices, and pollution from chemicals.

Methods of soil and water conservation include contour farming, which involves ploughing along the slope to reduce runoff; terracing, which converts slopes into steps to slow water movement; mulching, which

covers the soil to retain moisture and prevent erosion; agroforestry, which combines trees and crops to protect soil; and rainwater harvesting, which stores rainwater for use during dry periods.

Conserving soil and water is essential in agriculture because it maintains soil fertility, improves crop yield, reduces dependence on chemical inputs, and ensures sustainability of farming activities. It also helps prevent desertification and promotes resilience to climate change.

14. Suppose your school is organizing an agriculture exhibition. Describe how you would guide students to prepare and present the following exhibits: (a) Crop samples (b) Poultry products (c) Posters and charts (d) Demonstrations on tool use

For crop samples, I would guide students to select healthy and representative specimens of crops grown in the school farm, such as maize cobs or bean plants. They would clean and label each sample accurately, indicating the name of the crop, variety, date planted, and growth duration.

For poultry products, I would instruct learners to collect eggs, feathers, or even images and data about poultry breeds reared in school. These would be packaged attractively and labelled with details on breed, feeding practices, production rates, and disease control methods.

In preparing posters and charts, students would use manila sheets, markers, and drawings to present agricultural topics like crop rotation, livestock breeds, or irrigation systems. I would emphasize accuracy, neatness, and the inclusion of illustrations to attract attention and aid understanding.

For demonstrations on tool use, I would organize a simple station where students perform practical tasks such as sharpening a hoe or using a knapsack sprayer. Each demonstration would be accompanied by safety precautions, clear explanations, and question-and-answer sessions to engage the audience.

15. A student claims that agricultural economics is irrelevant in practical farming. Write a response to educate the student by explaining five reasons why knowledge of agricultural economics is important to farmers.

Agricultural economics helps farmers make sound financial decisions. By understanding costs, profits, and budgeting, a farmer can allocate resources wisely and avoid losses.

It guides investment decisions. Farmers can analyze whether purchasing a tractor or irrigation system is economically viable by comparing costs and expected returns.

It aids in market analysis. Farmers who understand supply, demand, and pricing trends can time the sale of their products better and choose the best market channels.

Agricultural economics promotes efficient resource use. It helps farmers identify the most profitable combination of land, labor, and capital, leading to maximum output with minimal waste.

It supports long-term planning. Farmers can forecast future production and market conditions, set goals, and manage risks more effectively, especially in a changing climate and economic environment.