THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

735 **AGRICULTURE TEACHING METHODS**

Time: 3 Hour. **ANSWERS** **Year: 2017**

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. Briefly explain four factors that influence the selection of teaching and learning aids in agriculture.

One important factor is the relevance of the teaching aid to the topic. A learning aid should be directly related to the lesson objectives and should help learners understand specific agricultural concepts. For instance, using a model of a maize plant when teaching about crop anatomy enhances clarity and retention.

Another factor is the availability of the teaching aid. Some teaching aids may be ideal but are not accessible within the school environment or community. Teachers often have to rely on locally available resources such as real tools, soil samples, or live plants that learners can observe and interact with.

The cost of the aid also influences its selection. Schools with limited budgets may not afford expensive equipment or imported models. Teachers must therefore choose aids that are cost-effective, reusable, and within the financial capability of the school.

Lastly, the learners' level of understanding is a crucial consideration. The aid should match the learners' cognitive level and language ability. If it is too complex or abstract, it may confuse rather than assist them. Teachers must ensure that aids simplify concepts and suit the age and background of the learners.

2. Name four components of the agricultural science syllabus for secondary schools.

The first component is the general objectives. These describe the broad learning intentions for students, such as understanding agricultural principles and developing practical skills in farming. They provide direction for the overall curriculum implementation.

The second component is the content outline. This includes the topics and subtopics to be covered at each level, such as soil science, crop production, animal husbandry, and agricultural economics. It ensures consistency across different schools.

The third component is the suggested teaching and learning methods. This section guides the teacher on how to deliver the content effectively using demonstrations, field visits, discussions, and experiments depending on the topic.

The fourth component is assessment strategies. It outlines how student learning should be evaluated, including written tests, practical exams, continuous assessment, and project work to ensure a balanced measurement of knowledge and skills.

3. State four routine maintenance practices for animal housing structures in school farms.

Regular cleaning is one key practice. It prevents accumulation of waste, controls pests, and reduces the spread of diseases within the animal shelters. Clean housing improves animal health and productivity.

Another practice is repairing damaged structures. This includes fixing broken doors, roofs, or fences to ensure animals are secure and protected from weather and predators. Timely repairs also extend the lifespan of the housing.

Proper waste disposal is essential. Waste from animal houses such as manure and leftover feed should be collected and disposed of or used properly, for example as organic fertilizer, to prevent odor and pollution.

Disinfection of housing is also crucial. It helps to kill germs and parasites that might cause diseases. Disinfectants should be applied after cleaning and before introducing new animals into the shelter.

4. List four advantages of using real objects when teaching agriculture.

Real objects provide tangible experience. Learners can touch, observe, and manipulate actual tools, plants, or animals which reinforces learning through direct experience and makes abstract concepts more understandable.

They enhance retention. Learners are more likely to remember what they see and handle physically compared to just listening or reading, because it engages multiple senses in the learning process.

Real objects bridge the gap between theory and practice. For example, teaching about fertilizers using actual samples allows learners to link textbook knowledge to real-world application.

They also increase learner motivation and interest. Seeing and using real-life materials in class sparks curiosity and enthusiasm, especially when learners can relate them to their daily lives or future careers.

5. Mention four modern communication techniques that can be used by an agriculture teacher during a lesson.

Digital presentations using projectors or smart boards allow teachers to present videos, diagrams, and slides which make the lesson more engaging and visually informative.

Online platforms such as Google Classroom or WhatsApp groups enable teachers to share notes, assignments, and receive feedback even outside classroom hours, promoting continuous learning.

Use of agricultural apps and simulations provides interactive learning experiences. Students can explore farming scenarios virtually and practice decision-making skills in crop and livestock management.

Educational videos and documentaries streamed from platforms like YouTube enhance understanding of complex topics such as soil formation or machinery operation through real-life demonstrations.

6. Outline four important characteristics of a good lesson plan in agriculture teaching.

A good lesson plan has clear and measurable objectives. These guide the teaching process and help evaluate whether students have achieved the desired learning outcomes.

It should have well-organized content. The lesson should follow a logical sequence from introduction to conclusion, covering key points without overwhelming learners.

It includes appropriate teaching methods. The chosen methods should suit the topic and the learners' level, combining theory with practice, especially in agriculture.

It also allows for assessment and feedback. A good plan includes strategies to check learners' understanding during and after the lesson, ensuring that learning goals are being met.

7.Explain five major components of an effective scheme of work for teaching agriculture in secondary schools.

General objectives are the first component. They outline what learners are expected to achieve after a particular topic or unit, providing a clear focus for instruction.

Topic and subtopic breakdowns specify the exact content to be taught in each lesson, ensuring the curriculum is covered comprehensively and systematically.

Time allocation helps in planning how many lessons will be dedicated to each topic, allowing for effective pacing and coverage within the school term.

Teaching and learning activities indicate how the content will be delivered, such as through discussions, fieldwork, or practical demonstrations, making lessons more interactive.

Assessment methods suggest how learners' progress will be evaluated, including quizzes, assignments, oral questions, and practical tests to ensure learning is being achieved.

8.(a) Define formative and summative evaluation. (b) Highlight three differences between the two in the context of agriculture education.

Formative evaluation is an ongoing assessment conducted during the learning process to monitor progress and provide feedback for improvement. Summative evaluation is done at the end of a learning period to measure the overall achievement of objectives.

Formative evaluation is continuous and often informal, such as through oral questioning or short exercises, while summative evaluation is formal and occurs after instruction, such as final exams or standardized tests.

The goal of formative evaluation is to improve teaching and learning, identifying areas needing support. Summative evaluation focuses on grading and certification, determining whether learning outcomes have been achieved.

Formative evaluation influences how instruction is delivered and adjusted during the course, whereas summative evaluation provides a summary of performance, usually with less opportunity for changes.

9. Describe five qualities that make an agriculture textbook suitable for use in classroom teaching.

It should be accurate and up to date. The content must reflect current agricultural practices, technologies, and scientific findings to ensure relevance and reliability.

A good textbook is aligned with the syllabus. It should cover all the required topics and objectives prescribed in the national curriculum, helping teachers plan effectively.

It should be student-friendly in language and layout. The language used should match the learners' comprehension level, and the layout should include diagrams, summaries, and examples.

The textbook should promote practical learning. It should include suggestions for experiments, fieldwork, and projects that encourage hands-on experience.

It must have exercises and questions. These help learners review content and allow teachers to assess understanding through tests or homework.

10. With examples, explain five benefits of teaching agriculture through demonstration method.

It makes learning more concrete. For example, showing how to transplant seedlings step-by-step helps students understand each stage better than verbal explanation.

It encourages active participation. Learners are more involved when they observe and practice tasks, such as mixing animal feed or planting crops, improving skill development.

It caters to different learning styles. Demonstrations appeal to visual and kinesthetic learners who grasp better through seeing and doing.

It builds confidence. Students who learn by doing gain competence and feel more capable of applying the skills independently in the future.

It reduces misconceptions. Demonstrations help clarify difficult concepts, such as how irrigation systems work, by visually presenting the correct procedures.

11. Outline five important considerations when designing a practical agriculture lesson on poultry management.

The first consideration is the availability of poultry and required materials. The lesson must ensure that chickens, feeders, drinkers, and protective clothing are accessible.

Safety of learners must be considered. Proper hygiene and handling techniques should be planned to prevent zoonotic diseases and injuries.

The learners' prior knowledge and skill level must be taken into account to ensure the lesson builds on what they already know and challenges them appropriately.

Time management is crucial. The teacher must allocate sufficient time for introduction, demonstration, student participation, and reflection.

Clear learning objectives should guide the lesson. These ensure that every activity during the practical session contributes to measurable outcomes like feeding, cleaning, or observing poultry behavior.

12. Identify and explain five common classroom management problems encountered by agriculture teachers and how to address them.

One common problem is lack of student discipline. Some learners may misbehave or not follow instructions. Teachers should set clear rules and consequences from the beginning.

Another issue is absenteeism, especially during practical lessons. This can be addressed by making lessons engaging and emphasizing the value of participation in assessments.

Inadequate time for practicals may arise due to packed timetables. Teachers should plan integrated lessons and seek flexible scheduling with school administration.

Insufficient teaching materials can hinder practical activities. Teachers should improvise using locally available materials and seek community or school support.

Diverse learner abilities can make it difficult to maintain a uniform pace. Teachers should use group work and peer support to ensure all learners are included and engaged.

13. Imagine you are teaching a topic on "Soil Conservation." Prepare a summary of the lesson that includes: (a) Meaning of soil conservation (b) Types of soil erosion (c) Control measures (d) Importance of conserving soil.

Soil conservation is the practice of protecting soil from degradation caused by natural or human activities to maintain its fertility and productive capacity.

There are several types of soil erosion, including sheet erosion (thin layer removal), rill erosion (small channels), gully erosion (deep wide cuts), and wind erosion, particularly in dry areas.

Control measures include contour ploughing, terracing, cover cropping, agroforestry, strip cropping, and mulching. These techniques reduce water run-off and wind exposure, helping to keep soil in place.

Conserving soil is important because it ensures sustainable crop production, prevents land degradation, maintains water quality by reducing siltation, and supports biodiversity and ecological balance.

14. You have been posted to a school that has no functional agriculture workshop. As a teacher, explain the steps you would take to establish and equip the workshop, including the role of learners and the community.

The first step would be to assess the needs of the agriculture syllabus. I would identify the key topics that require workshop activities such as tool maintenance, machinery operation, and irrigation system setup. This helps in determining the type and size of workshop needed and the equipment to be prioritized.

Next, I would engage the school administration by presenting a proposal outlining the importance of the workshop, estimated costs, and possible sources of materials. Getting approval and support from the head of school is necessary for resource mobilization and planning.

I would then mobilize the community. Parents, local farmers, and agricultural extension officers can contribute ideas, materials like timber or bricks, and even labor. Their involvement fosters a sense of ownership and cooperation which is vital for sustainability.

Learners would be actively involved in the construction phase. Tasks such as site clearing, measuring, painting, and assembling simple structures help them develop practical skills and appreciation for the facility they helped create.

Finally, I would ensure proper equipping of the workshop with basic tools like hoes, spades, pruning shears, sickles, and protective gear. As more resources become available, the inventory can be expanded to include larger equipment like sprayers, irrigation kits, and soil testing tools.

15. As an agriculture teacher, defend the importance of Block Teaching Practice (BTP) to teacher trainees by explaining five benefits it offers in professional development.

Block Teaching Practice allows teacher trainees to gain real classroom experience. They learn how to apply theoretical knowledge from college into actual teaching, including lesson planning, classroom management, and student assessment, which builds their confidence and readiness.

It improves communication and presentation skills. Trainees learn to speak clearly, explain agricultural concepts effectively, and use appropriate language for different learner levels, enhancing their teaching delivery.

BTP exposes trainees to real school environments and challenges. They learn to adapt to different school cultures, resource limitations, and varying student behaviors, which prepares them for diverse postings in the future.

Trainees receive feedback from mentor teachers and supervisors. This helps them identify strengths and areas for improvement, leading to professional growth and refinement of their teaching techniques.

Lastly, BTP helps trainees build professional relationships. They interact with school staff, students, and fellow teachers, creating a network that can support their career through mentorship, references, and shared teaching experiences.