

**THE UNITED REPUBLIC OF TANZANIA**  
**NATIONAL EXAMINATIONS COUNCIL OF TANZANIA**  
**CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**  
**735 AGRICULTURE TEACHING METHODS**

**Time: 3 Hours**

**ANSWERS**

**Year: 2011**

**Instructions**

1. This paper consists of section A and B with a total of sixteen questions.
2. Answer all questions in section A and four questions from section B.

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1. List four uses of a teacher's guide.

A teacher's guide helps in lesson planning by providing a structured outline of topics, objectives, and suggested teaching methods, ensuring effective content delivery.

It serves as a reference for assessment techniques, offering guidelines on how to evaluate student progress through tests, assignments, and practical activities.

The guide assists in resource selection, helping teachers choose appropriate teaching aids, textbooks, and materials that align with the syllabus and enhance learning.

It provides alternative teaching strategies, allowing teachers to adapt lessons based on student needs, class size, and available resources for better learning outcomes.

2. Name any four basic characteristic features of a good scheme of work.

A good scheme of work is systematically organized, with topics arranged in a logical sequence to ensure smooth progression of learning.

It is comprehensive and detailed, including lesson objectives, teaching activities, assessment methods, and resources needed for effective teaching.

It is flexible and adaptable, allowing teachers to adjust based on class progress, student needs, and unforeseen circumstances such as school closures.

A well-prepared scheme of work includes realistic time allocation, ensuring that each topic is covered within the available school calendar without rushing or skipping essential content.

3. List down four activities which you can perform when teaching "soil textural classes."

Performing a soil texture test by using the feel method, where students rub soil samples between their fingers to identify sand, silt, or clay content.

Conducting a sedimentation test using a jar filled with water and soil to observe the different layers settling, helping students classify soil texture.

Using soil sieving to separate different soil particles based on size, allowing students to compare proportions of sand, silt, and clay in various samples.

Carrying out a water infiltration experiment to demonstrate how different soil textures affect water retention and drainage, showing the practical importance of soil classification.

4. Explain four factors that should be considered before using a diagram as a teaching and learning aid.

The clarity and simplicity of the diagram must be ensured so that students can easily interpret its content without confusion. Overcomplicated visuals may hinder understanding.

The relevance to the lesson objective is crucial, meaning the diagram should directly support the concept being taught rather than providing unnecessary details.

The size and visibility of the diagram should be appropriate, ensuring that all students in the classroom can clearly see and understand it, whether it is on a board, projector, or handout.

The accuracy of information must be verified to avoid misleading students. The diagram should be scientifically and factually correct, especially in agricultural topics involving plant anatomy or machinery parts.

5. Name four advantages of an agricultural field trip.

Field trips provide practical learning experiences, allowing students to observe and interact with real-life agricultural operations such as farming, livestock management, and agribusiness.

They enhance knowledge retention, as students remember concepts better when they see and experience them in real-world settings compared to classroom learning alone.

Field trips encourage career awareness, exposing students to various agricultural professions and inspiring them to consider future opportunities in the sector.

They promote environmental awareness, helping students understand sustainable farming practices, conservation efforts, and the effects of human activities on natural resources.

6. State four objectives which you expect pupils to achieve at the end of teaching and learning the topic “Plant Nutrition” and the sub-topic “Mineral Requirements.”

Students should be able to identify essential plant nutrients required for healthy growth, including macronutrients like nitrogen, phosphorus, and potassium.

They should be able to explain the functions of different mineral nutrients, such as how nitrogen promotes leafy growth and how potassium strengthens plant resistance to diseases.

Learners should demonstrate an understanding of nutrient deficiency symptoms, such as yellowing leaves due to nitrogen deficiency or stunted growth caused by a lack of phosphorus.

Students should be able to apply knowledge of plant nutrition in agriculture, such as selecting appropriate fertilizers for different crops and soil conditions.

7. Briefly explain four curriculum materials.

Textbooks are primary instructional resources containing detailed explanations, diagrams, and exercises that help students understand agricultural concepts.

Workbooks provide practice questions and activities that reinforce theoretical learning, enabling students to apply knowledge through exercises and problem-solving tasks.

Multimedia resources, such as educational videos, online tutorials, and agricultural simulation software, enhance interactive learning by presenting concepts in a visual and engaging manner.

Charts and posters display key information such as plant nutrient cycles, soil types, and pest identification, helping students recall and understand concepts more easily.

8. Identify four qualities of a good lesson note.

A good lesson note is clear and well-structured, presenting information in a logical order with concise explanations to enhance teacher preparedness.

It is aligned with the syllabus, ensuring that the content covered meets curriculum requirements and learning objectives.

A quality lesson note is interactive and engaging, incorporating examples, questions, and activities to promote student participation and deeper understanding.

It is flexible and adaptable, allowing modifications based on class progress, student feedback, and real-time classroom challenges.

9. List down four basic tools that you will use in a practical class on “piglet castration.”

A scalpel or surgical knife is used to make precise incisions in the piglet’s scrotum to remove the testicles.

A pair of forceps is used to grasp and hold tissues securely during the castration procedure.

A disinfectant solution such as iodine is applied to clean the incision site and prevent infections after the procedure.

A suture or wound dressing may be used in cases where bleeding needs to be controlled or to ensure proper healing.

10. Describe four criteria used for selecting teaching and learning materials.

The relevance to the subject matter is a key criterion, meaning the materials should directly support the lesson objectives and aid in understanding the topic being taught.

The age and cognitive level of students should be considered to ensure that the materials are appropriate for the learners' level of comprehension and engagement.

The availability and accessibility of materials must be ensured, as teachers should use resources that are affordable, easy to obtain, and practical for the classroom setting.

The durability and usability of materials matter, as teaching aids should be long-lasting, easy to handle, and reusable for future lessons without frequent replacements.

11. Questioning is a good teaching technique although most teachers experience a lot of problems when using it.

(a) Describe five problems that teachers face when making effective use of this technique.

Some students may be unwilling to participate, either due to fear of making mistakes, shyness, or lack of confidence, which limits class interaction.

Poorly framed questions may be unclear or ambiguous, leading to confusion among students and preventing them from giving meaningful responses.

Time constraints can be a challenge, as managing a questioning session effectively within the allocated lesson period may not allow every student to contribute.

Some students may provide irrelevant or vague answers, making it difficult for the teacher to achieve the lesson objectives and maintain focus.

Over-reliance on a few active students may result in unequal participation, where only a handful of students answer questions while others remain passive.

(b) Suggest five ways that can be done to overcome those problems.

Encouraging a positive classroom environment helps build students' confidence and reduces the fear of answering questions incorrectly.

Using a variety of questioning techniques, such as open-ended, probing, and recall questions, ensures that students engage at different cognitive levels.

Planning and structuring questions in advance allows teachers to frame them clearly and ensure alignment with the lesson objectives.

Allocating sufficient time for students to think before answering helps reduce pressure and encourages deeper responses.

Implementing random selection methods, such as calling on different students rather than relying on volunteers, ensures that all learners participate actively.

12. A Livestock Officer has been invited as a guest speaker on Pig Husbandry, Care, and Management of baby pigs (piglets). Prepare a summary of the guest's talk to be discussed by your pupils after the presentation.

The speaker explained that piglet care begins at birth, ensuring that newborns receive colostrum within the first few hours to build their immunity and increase survival rates.

Proper housing and warmth management are essential, as piglets are vulnerable to cold. The use of heat lamps or warm bedding helps maintain an optimal temperature.

Iron supplementation within the first few days prevents anemia, as piglets are born with low iron reserves and need additional nutrients for healthy growth.

Castration, tail docking, and teeth clipping are common management practices to improve meat quality and prevent injuries from aggressive behavior among piglets.

Weaning practices must be carefully handled by gradually introducing solid feed to piglets while reducing their dependence on sow milk, ensuring a smooth transition to normal feeding.

13. After teaching a lesson about "agricultural price," prepare a lesson note for your students.

Meaning of Agricultural Price: Agricultural price refers to the amount of money assigned to agricultural products such as crops and livestock, determined by factors like market demand, supply, production costs, and government policies.

Uses of Agricultural Prices in Agribusiness:

Regulating supply and demand: When prices are high, farmers are encouraged to produce more, while consumers reduce their purchases, and vice versa.

Determining farmer income: The selling price of agricultural products directly affects farm earnings and investment decisions.

Influencing production decisions: Farmers choose which crops or livestock to invest in based on expected market prices and profitability.

Affecting rural development: Stable agricultural prices support economic stability and job creation in farming communities.

Guiding government policies: Agricultural prices help governments in setting trade policies, subsidies, and market regulations.

Encouraging agribusiness investments: Favorable prices attract investors into agricultural production and processing industries.

14. Show a layout of a Table of Specification and discuss its four benefits to a subject teacher.

A Table of Specification (TOS) is a blueprint for test construction that aligns learning objectives with assessment items. A typical layout includes:

<b>Content area</b>	<b>knowledge</b>	<b>comprehension</b>	<b>application</b>	<b>Total %</b>
Soil science	3	2	1	6
Crop production	4	3	2	9
Livestock farming	3	2	3	8

Benefits of a Table of Specification:

Ensures balanced assessment: A TOS helps distribute test questions across different cognitive levels (knowledge, comprehension, and application).

Improves test validity: The TOS ensures that exam items reflect the learning objectives and syllabus coverage accurately.

Aids in fair evaluation: Teachers can ensure that all topics receive appropriate weight in the test, preventing content bias.

Enhances lesson planning: Teachers can use the TOS to focus on key areas that need more emphasis in classroom instruction.

15. (a) Define a subject syllabus.

A subject syllabus is a structured document that outlines the topics, subtopics, learning objectives, teaching strategies, and assessment methods for a particular subject within a given educational level.

(b) Describe the six components of an Agriculture science syllabus.

General objectives provide an overview of what students should achieve at the end of the course.

Content outline lists the specific topics and subtopics covered within the subject.

Teaching methods suggest the best instructional approaches, such as demonstrations, field trips, and discussions.

Assessment criteria specify how student progress will be evaluated, including tests, practicals, and projects.

Time allocation guides teachers on the number of periods required for each topic.

Resources and materials list textbooks, farm tools, and learning aids necessary for effective teaching.

16. There is an allegation by Principals of teacher colleges that Block Teaching Practice (BTP) should be stopped because it interferes with classroom teaching timetable and is costly. Refute this proposal by elaborating five ways in which BTP is helpful to student teachers.

Develops practical teaching experience: BTP allows student teachers to apply theoretical knowledge in real classrooms, improving their confidence and competence.

Enhances classroom management skills: Through BTP, student teachers learn how to handle different classroom situations, maintain discipline, and engage students effectively.

Provides assessment and feedback: Supervising mentors observe student teachers and provide constructive feedback for improvement.

Bridges the gap between theory and practice: BTP helps student teachers understand the realities of the teaching profession beyond what is taught in college.

Strengthens lesson planning skills: Teaching practice requires student teachers to prepare lesson plans, schemes of work, and assessments, fostering better organizational skills.



17. Imagine that you have assigned your pupils a task to make their own Herbarium. Describe to your pupils the meaning of the term “Herbarium” and its importance in the study of Agriculture.

A Herbarium is a collection of preserved plant specimens, either dried and mounted on sheets or stored in an organized system for reference and study.

Importance of Herbarium in Agriculture:

Aids in plant identification: Students can classify plants based on physical characteristics such as leaves, flowers, and stems.

Supports research and study: It provides a resource for studying plant diversity, medicinal plants, and agricultural crops.

Preserves plant species: A Herbarium serves as a historical record of plant species, helping in conservation efforts.

Enhances learning experience: Collecting and preparing plant specimens allows students to develop hands-on skills in botanical studies.

18. The rate of illegal fishing in Tanzania is high, causing loss of national income in the fishing sector. Suggest five measures to be taken to alleviate this problem.

Strengthening law enforcement: Implementing strict penalties for illegal fishing practices and increasing patrols in fishing zones.

Providing education and awareness: Conducting community outreach programs to inform fishers about sustainable fishing methods and the consequences of illegal activities.

Encouraging alternative livelihoods: Supporting fishers with alternative income-generating activities, such as fish farming and eco-tourism, to reduce over-reliance on illegal fishing.

Improving monitoring and surveillance: Using modern technology such as drones and satellite tracking to detect and prevent illegal fishing activities.

Regulating fishing licenses and quotas: Controlling the number of fishing permits issued and enforcing seasonal restrictions to allow fish populations to replenish.