THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

735 **AGRICULTURE TEACHING METHODS**

Time: 3 Hour. **ANSWERS** **Year: 2006**

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. **State four functions of agricultural education in national development.**

Agricultural education equips learners with practical skills that help them become self-reliant, especially in food production and agribusiness. This contributes to reducing unemployment.

It promotes food security by creating awareness and training individuals to apply effective and sustainable agricultural practices that increase productivity.

The subject supports environmental conservation as students learn methods such as afforestation, soil conservation, and proper use of agrochemicals.

Agricultural education enhances rural development by encouraging youth to apply modern techniques in villages, which boosts local economies and living standards.

2. **List four benefits of applying manure to school gardens.**

Manure improves soil fertility by supplying essential nutrients such as nitrogen, phosphorus, and potassium that promote plant growth.

It enhances soil structure and aeration, allowing better root penetration and moisture retention, especially in sandy soils.

Manure increases the population of beneficial soil organisms that decompose organic matter and enhance nutrient cycling.

Using manure in school gardens helps students practice sustainable agriculture and reduces dependency on chemical fertilizers.

3. **Give four symptoms of malnutrition in livestock.**

Livestock may show stunted growth, failing to gain weight or reach maturity as expected, due to lack of essential nutrients.

There is a noticeable rough coat and hair loss, particularly when proteins and vitamins are deficient in the diet.

Animals may become weak and lethargic, with reduced resistance to diseases and general unthriftiness.

Reproductive problems like delayed maturity, infertility, or low milk production in lactating animals can also signal nutritional deficiencies.

4. **Mention four reasons for keeping poultry in schools.**

Poultry serves as a source of learning materials for practical lessons, helping students understand management, feeding, and health care of birds.

They provide food products such as eggs and meat that can be used in school meals or sold to generate income for school activities.

The project teaches entrepreneurship and record keeping, equipping learners with skills to manage small agribusinesses.

Poultry keeping promotes responsibility and teamwork among students as they take turns in cleaning, feeding, and monitoring the birds.

5. Identify four classroom materials that can be used to teach agriculture effectively.

Charts and posters showing farming systems, parts of plants, or animal breeds help visualize concepts and enhance memory retention.

Models and specimens such as miniature irrigation setups or seed samples make abstract content more understandable.

Audio-visual tools like videos of farming practices and interactive slides can engage learners and improve their understanding.

Agricultural magazines and textbooks provide detailed explanations and images that support structured learning and reference.

6. State four examples of crops propagated through vegetative methods.

Cassava is commonly propagated using stem cuttings, making it one of the easiest crops to multiply.

Sweet potatoes are propagated using vine cuttings, which root quickly and grow well in loose soil.

Bananas are propagated using suckers that develop from the base of the parent plant.

Pineapples are propagated using crowns, slips, or suckers, each of which grows into a new fruiting plant.

7. Explain five reasons why practical lessons are important in the teaching of agriculture.

Practical lessons allow students to apply theoretical knowledge learned in class to real situations, helping them better understand concepts and techniques.

They develop hands-on skills such as planting, weeding, pest control, and animal care, which are essential for future employment or self-reliance.

Practical lessons make learning more engaging and memorable by involving the senses and encouraging active participation.

They help learners identify and solve real agricultural problems, such as diagnosing plant diseases or correcting poor soil structure.

Practical work prepares students for national exams and life beyond school by building confidence, accuracy, and independence in handling agricultural tasks.

8. Describe five methods used to control soil erosion on sloped land.

Terracing involves constructing horizontal steps along the slope to reduce water speed and prevent topsoil loss.

Contour farming requires planting along the natural contour lines of a slope, helping to slow down water flow and reduce erosion.

Cover cropping with fast-growing plants protects the soil surface and binds it with roots, preventing direct impact from raindrops.

Strip cropping alternates rows of crops with cover vegetation, which traps soil and water as it flows across the land.

Mulching with crop residues or grass shields the soil from raindrop impact and reduces evaporation, helping maintain soil integrity.

9. Discuss five challenges encountered by agriculture teachers during project supervision.

Limited time within the school timetable makes it hard to allocate adequate supervision for student projects, especially when multiple classes are involved.

Insufficient tools and equipment hinder effective participation by all students, making supervision disorganized and unequal.

Poor student commitment, especially during holidays or weekends, affects the continuity and success of school agriculture projects.

Lack of funds for inputs like seeds, fertilizers, or vaccines can delay activities or reduce the quality of the project.

Unreliable water supply, especially in dry seasons, makes supervision difficult as crops wilt or livestock suffer due to lack of essential resources.

10. Explain five characteristics of a good lesson plan in agriculture.

A good lesson plan has clear, specific, and achievable objectives that guide what the teacher expects learners to achieve.

It includes a detailed content outline showing what will be taught, supported by examples and appropriate teaching aids.

The plan indicates appropriate teaching methods such as demonstration, discussion, or group work suited to the topic and learners' level.

It features a logical sequence of activities, starting from introduction, presentation, practice, and summary to ensure flow and engagement.

Assessment strategies are well included, enabling the teacher to evaluate whether the learning objectives were achieved through questions or practical tasks.

11. Outline five principles of good livestock housing.

Good housing must provide adequate space for each animal to move, rest, and feed without overcrowding, promoting comfort and productivity.

The house should be well ventilated to ensure free air circulation and prevent buildup of heat, moisture, or harmful gases.

It must offer protection against harsh weather conditions such as rain, wind, or direct sunlight, depending on the animal species.

The flooring should be dry and sloped for easy drainage, reducing the risk of disease and accidents.

Housing must be easy to clean and disinfect, with proper waste disposal systems to maintain hygiene and animal health.

12. Explain five reasons why school farms should be integrated into the school timetable.

Integrating school farms ensures regular student participation and allows agriculture teachers to supervise activities within scheduled class periods.

It supports continuous learning by linking theory with practice, reinforcing what is taught in class with direct application.

Farming activities become part of structured education rather than extra duties, encouraging seriousness and accountability.

Time allocation in the timetable enables planning of seasonal activities like planting or harvesting, improving farm productivity.

Students develop a positive attitude toward agriculture as a valued subject rather than an extra chore, increasing interest and long-term engagement.

13. Prepare a lesson summary on "Importance of Agriculture" for Form One students. Include: (a) Definition of agriculture (b) Main branches (c) Contribution to individual and national development (d) Learners' activities (e) Summary and conclusion

Agriculture is the science and art of cultivating crops and rearing animals for food, income, and other human needs. It is a foundational activity that supports life by providing basic necessities.

The main branches of agriculture include crop production, animal husbandry, agricultural economics, soil science, and agricultural engineering. Each of these branches focuses on a different aspect of food and resource production.

Agriculture contributes to individuals by providing employment, food security, income generation, and raw materials for personal and business use. At the national level, it supports the economy through export earnings, development of rural areas, and provision of raw materials to industries.

Learners' activities during the lesson may include discussing examples of agricultural products used at home, identifying branches of agriculture from images, and listing ways agriculture supports their families or communities.

In conclusion, students should understand that agriculture is more than farming; it is a vital part of life and national development. The lesson should end with a review of key points and short questions to test understanding.

14. You are assigned to lead a student research on the use of organic pesticides. Write a full report including: (a) Objectives (b) Methodology (c) Data collection and observation (d) Conclusion (e) Recommendations

Title of the Project: Investigation on the Effectiveness of Organic Pesticides in Vegetable Production

The objectives of the project were to compare the effectiveness of organic pesticides against chemical pesticides and to encourage sustainable pest control methods in school gardens.

The methodology involved preparing neem leaf extract by boiling and fermenting crushed neem leaves. The extract was then sprayed weekly on a plot of cabbage plants, while another plot was treated with chemical pesticides for comparison.

Data was collected weekly by observing pest presence, leaf damage, and plant growth. Students recorded the number of damaged leaves, pest types, and overall plant health on both plots.

The observation showed that neem extract significantly reduced pest damage compared to the untreated control. While chemical pesticides acted faster, the organic method was safer and had no harmful side effects on nearby plants or learners.

The project concluded that organic pesticides like neem are effective and safer for school use. It is recommended that agriculture teachers adopt organic methods for student projects. Further studies can test more natural alternatives like garlic or pepper extract.

15. Write an essay on five factors that hinder the adoption of improved farming technologies among rural farmers and propose five ways to overcome these barriers.

One major factor is lack of awareness and information. Many rural farmers are unaware of new technologies due to poor extension services or limited education, making them continue with traditional methods.

Limited financial resources make it difficult for farmers to afford improved seeds, tools, or irrigation systems, even when they are willing to try new methods.

Inadequate infrastructure, such as poor roads and communication networks, isolates farmers from markets, suppliers, and sources of new knowledge.

Cultural resistance to change, where farmers trust long-practiced methods over innovations, slows the adoption of technologies that require adjustments in habits or beliefs.

Lack of technical support discourages adoption, as farmers fear failure when no follow-up training or guidance is available to help them implement the new methods correctly.

To overcome these barriers, extension services should be strengthened through regular visits, demonstrations, and community outreach.

Government and NGOs should provide subsidized farm inputs and low-interest loans to enable poor farmers to access improved technologies.

Building rural infrastructure like roads and mobile networks will connect farmers to suppliers and information sources, making adoption easier.

Farmer education programs should use local languages and farmer field schools to address cultural barriers and build trust in new methods.

Training and mentorship should be made available at village level, allowing farmers to receive continuous support during the adoption process.