THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

FORM TWO SECONDARY EDUCATION EXAMINATION

0034 AGRICULTURAL SCIENCE

Time: 2 Hours **ANSWERS** **Monday 01st December 2014.**

Instructions

1. This paper consists of Ten questions in section A and B.
2. Answer all questions.
3. All writings must be in **blue** or **black** ink.
4. Communication devices and any unauthorized materials are **not** allowed in the assessment room.
5. Write your **Examination Number** at the top right hand corner of every page.

1. (i) One of the following is not the component of the First Aid Kit.
A. Razor blade
B. Cotton wool
C. Antiseptic
D. Chloroquine

Answer: D. Chloroquine
Reason: A First Aid Kit typically contains items like razor blades, cotton wool, and antiseptics to treat injuries, but chloroquine is a medication used for treating malaria and not commonly found in a First Aid Kit.

(ii) Woodwork in farm workshop is referred to as
A. Masonry
B. Carpentry
C. Plumbing
D. Metallurgy

Answer: B. Carpentry
Reason: Carpentry refers to the craft of working with wood, which is commonly practiced in farm workshops for repairing and constructing wooden structures or tools.

(iii) One of the factors limiting livestock production in Tanzania is
A. Occurrence of diseases and pests
B. Presence of exotic breeds
C. Presence of established pasture
D. Effective extension service

Answer: A. Occurrence of diseases and pests
Reason: Livestock production in Tanzania is significantly affected by diseases like foot-and-mouth and pests, limiting productivity and increasing costs.

(iv) Which one of the following is not among the principles of crop production?
A. Weeding
B. Excessive fertilization
C. Proper spacing
D. Soil conservation

Answer: B. Excessive fertilization
Reason: Proper crop production involves weeding, proper spacing, and soil conservation, while excessive fertilization can harm crops and the environment.

(v) The factor of production that has a characteristic of being fixed is known as
A. Labour

B. Capital
C. Entrepreneurship
D. Land

Answer: D. Land
Reason: Land is a fixed resource that cannot be increased or moved, unlike labor, capital, or entrepreneurship.

(vi) The single-grained structure of the soil is exhibited by
A. Loam soil
B. Clay soil
C. Sand soil
D. Silt soil

Answer: C. Sand soil
Reason: Sand soil has a single-grained structure with larger particles that do not bind together, giving it a loose texture.

(vii) Which one of the following is the most commonly used source of farm power in Tanzania?
A. Solar power
B. Animal power
C. Wind power
D. Human power

Answer: B. Animal power
Reason: Animal power is widely used in Tanzania for plowing and transportation, especially in rural areas.

(viii) Growing of crops and/or keeping of livestock under a limited area of land is referred to as
A. Extensive farming
B. Intensive farming
C. Large scale farming
D. Small scale farming

Answer: B. Intensive farming
Reason: Intensive farming involves maximizing output from a small area through careful management of resources.

(ix) What is the disadvantage of the deep litter system in poultry rearing?
A. Disease outbreak can spread very quickly
B. It needs large area for birds to search for food.
C. Birds are easily preyed upon by predators.
D. Theft of the birds is common.

Answer: A. Disease outbreak can spread very quickly
Reason: The accumulation of droppings in deep litter systems can create an environment conducive to the rapid spread of diseases.

(x) The speed with which weathering occurs is determined by
A. Climate of the area
B. Living organisms
C. Nature of the parent material
D. Topography of the area

Answer: C. Nature of the parent material
Reason: The mineral composition and hardness of the parent material influence the rate of weathering.

2. Match the items in List A with the responses in List B:
List A
(i) The First Aid Kit component that cover wounds to protect them from dirt and germs.
(ii) Component of the First Aid Kit which clean wounds to kill germs.
(iii) The First Aid Kit component which secures bandage.
(iv) Component of the First Aid Kit that clean and dry wounds.
(v) Component of the First Aid Kit which keeps dressing in place.

List B
A. Cotton wool
B. Soap
C. Sterile gauze
D. Bandage
E. Safety pin
F. Plaster
G. Antiseptic

Answers:
(i) A. Cotton wool
(ii) G. Antiseptic
(iii) E. Safety pin
(iv) F. Plaster
(v) D. Bandage

3. For each of the following statements, write True if a statement is correct or False if a statement is not correct.

(i) Cleaning all the equipment used after the experiments is one of the laboratory rules.
Answer: True
Reason: Cleaning equipment after use is a standard laboratory rule to maintain hygiene, safety, and functionality of tools.

(ii) In carpentry, mallet is used to drive in chisel.
Answer: True
Reason: A mallet is typically used to apply force to a chisel while ensuring precision in carpentry work.

(iii) Land preparation involves the practices carried out on land after planting.
Answer: False
Reason: Land preparation is done before planting and includes activities like plowing and leveling to prepare the soil for cultivation.

(iv) Horticulture constitutes the production of fruits.
Answer: True
Reason: Horticulture is a branch of agriculture focused on the production of fruits, vegetables, and ornamental plants.

(v) A hen is a one day to eight weeks bird.
Answer: False
Reason: A hen refers to a mature female bird, not one that is one day to eight weeks old, which is considered a chick or pullet.

4. (a) (i) What do you understand by agricultural science laboratory?
Answer: An agricultural science laboratory is a facility equipped with tools and materials where practical activities related to agricultural studies, such as soil testing, plant analysis, and animal studies, are conducted.

(ii) Why is it important to know the safety practices in the workshop?
Answer:
i. To prevent accidents and injuries.
ii. To protect tools and equipment from damage.
iii. To ensure a safe working environment for everyone.
iv. To enhance the efficiency and effectiveness of the work being done.

(b) State six characteristics for a good agricultural science laboratory.
i. Adequate space for movement and operations.
ii. Proper ventilation for air circulation.
iii. Availability of safety equipment like fire extinguishers.

iv. Storage facilities for chemicals and tools.
v. Reliable water supply for cleaning and experiments.
vi. Well-organized workstations for efficient operations.

5. (a) (i) What is meant by the term 'carpentry'?
Answer: Carpentry refers to the craft and skill of working with wood to create, repair, or build structures, furniture, or tools using specialized tools and techniques.

(ii) Outline three safety precautions necessary to consider when using sharp-edged tools.
Answer:
i. Always wear protective gloves to prevent cuts.
ii. Ensure the tools are sharp and in good condition to avoid excessive force.
iii. Keep tools properly stored when not in use to prevent accidental injuries.

(b) State the use of the following farm workshop tools.

(i) Cross cut saw: Used to cut wood perpendicular to the grain.
(ii) Tenon saw: Used for precise and fine woodworking tasks like cutting tenons.
(iii) Coping saw: Used to cut intricate curves and shapes in wood or other materials.
(iv) Bow saw: Used for cutting large logs and branches.
(v) Rip saw: Used to cut wood parallel to the grain.
(vi) Hack saw: Used to cut metal or plastic pipes.

6. (a) Enumerate six general methods of controlling livestock diseases.
i. Vaccination to build immunity against diseases.
ii. Quarantine measures to prevent disease spread.
iii. Proper sanitation and hygiene in livestock environments.
iv. Regular veterinary check-ups and treatments.
v. Isolation of sick animals to avoid infecting healthy ones.
vi. Use of pest and parasite control measures, like spraying and deworming.

(b) Examine four importance of keeping poultry.
i. Provides a source of income through the sale of eggs and meat.
ii. Supplies nutritious food products like eggs and chicken meat.
iii. Contributes manure for soil fertility improvement.
iv. Offers employment opportunities in poultry farming activities.

7. (a) What is meant by crop production?
Answer: Crop production refers to the cultivation and management of plants, such as cereals, vegetables, and fruits, for food, fiber, or other uses.

(b) Briefly explain five economic problems facing farmers in Tanzania.
i. Lack of access to affordable agricultural loans to invest in inputs.

ii. Inadequate market access, leading to low prices for their produce.
iii. Poor infrastructure, including roads, affecting transportation of farm products.
iv. High cost of agricultural inputs like fertilizers and pesticides.
v. Limited access to modern farming technologies and techniques.

(c) Identify three characteristics of rainfall that makes it to be a drawback in agriculture.
i. Unreliable rainfall patterns leading to droughts or floods.
ii. Uneven distribution affecting crop growth in different regions.
iii. Inadequate rainfall amounts that fail to meet crop water requirements.

8. (a) Define the term 'price'.
Answer: Price refers to the monetary value assigned to a product or service, determined by factors such as production costs, demand, and market competition.

(b) Name six price determinants.
i. Demand for the product.
ii. Cost of production.
iii. Competition in the market.
iv. Government policies like taxes and subsidies.
v. Supply availability in the market.
vi. Consumer preferences and trends.

(c) Elaborate how forces of supply and demand may influence price of an agricultural good.
Answer: The forces of supply and demand determine the price of agricultural goods. When demand for a product is high and supply is low, prices rise due to scarcity. Conversely, when supply is high and demand is low, prices fall because of surplus. Balancing supply and demand ensures stable pricing, benefiting both producers and consumers.

(d) Differentiate between elasticity of demand and elasticity of supply.
Answer: Elasticity of demand measures the responsiveness of the quantity demanded to changes in price, while elasticity of supply measures the responsiveness of the quantity supplied to changes in price. Demand elasticity focuses on consumer behavior, whereas supply elasticity emphasizes producer behavior.

9. (a) (i) Distinguish soil from soil profile.
Soil is the uppermost layer of the Earth's crust, composed of organic matter, minerals, air, and water, which supports plant growth. A soil profile, on the other hand, is a vertical section of the soil that shows the different layers or horizons, each having distinct physical and chemical characteristics.

(ii) Briefly explain the importance of the soil profile in agriculture.
- The soil profile helps farmers understand the soil's fertility and its capacity to support crop growth.
- It provides insight into drainage and water retention capabilities, enabling better irrigation planning.
- Understanding the soil profile helps in selecting suitable crops for specific soil conditions.

- It aids in identifying soil compaction and erosion issues, which can affect root penetration and nutrient availability.

(b) Name four horizons which are found in a soil profile and in each state its characteristic.

(i) O Horizon: It is the topmost layer, rich in organic material like decomposed leaves and animal matter.
(ii) A Horizon: This is the topsoil, containing a mixture of organic matter and minerals, and is the most fertile layer.
(iii) B Horizon: Known as the subsoil, it contains minerals leached from the topsoil and has less organic matter.
(iv) C Horizon: This layer consists of partially weathered parent material and serves as the base for soil formation.

10. Explain the five general crop protection methods in controlling weeds and give three operations that a farmer should adopt to control weeds mechanically.

Five general crop protection methods:
(i) Use of herbicides: Chemical substances that kill or inhibit weed growth without harming crops.
(ii) Mulching: Covering the soil with organic materials to suppress weed growth.
(iii) Crop rotation: Growing different crops in a sequence to disrupt weed life cycles.
(iv) Hand weeding: Removing weeds manually using tools like hoes.
(v) Intercropping: Growing multiple crops together to reduce weed competition.

Three mechanical weed control operations:
(i) Plowing: Turning the soil over to uproot weeds.
(ii) Hoeing: Using a hoe to cut and remove weeds.
(iii) Mowing: Cutting weeds at ground level to prevent seed production.