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. For each of the items (i) – (x), choose the correct answer from among the given alternatives and write its letter in the box provided.

(i) The action of growing the same crop on a field or a particular part of the field season after season or year after year is termed as
A. monocropping
B. crop rotation
C. monoculture
D. intercropping
Answer: A

(ii) Which one is not a poultry breed?
A. Light breeds
B. Large white breeds
C. Heavy breeds
D. Dual purpose breeds
Answer: D

(iii) Which minerals are best in promoting the development of fruits and seeds in plants?
A. Phosphorus
B. Magnesium
C. Sodium
D. Zinc
Answer: A

(iv) The woodwork tool used for sawing timber across the grain is called
A. crosscut saw
B. tenon saw
C. rip saw
D. hack saw
Answer: A

(v) The quantity of a given commodity that producers are able and willing to offer for sale at a given price is called
A. demand
B. profit
C. supply
D. cost
Answer: C

(vi) Which one is not a crop storage structure?
A. Cribs
B. Warehouse

C. Granaries
D. Tin
Answer: D

(vii) Which factor causes changes in demand?
A. Changes in tastes and habits of consumer
B. Weather changes
C. Occurrence of pests and diseases
D. Changes in the costs of production
Answer: A

(viii) The term that refers to the maximum water that can be held against drainage in the soil is
A. field capacity
B. gravitational water
C. capillary water
D. soil solution
Answer: C

(ix) Which one of the following does not fall under the life cycle classification of crop plants?
A. Annual crop plants
B. Semi-annual crop plants
C. Biennial crop plants
D. Perennial crop plants
Answer: B

(x) One of the following refers to a group of plants which grow well even when there is very little moisture in the soil:
A. Hydrophytic plants
B. Xerophytic plants
C. Mesophytic plants
D. Saprophytic plants
Answer: B

2. Match the plants in List A with the plants' reproductive structures in List B by writing the letter of the correct response below the corresponding item number in the table provided.

List A:
(i) Banana
(ii) Sweet potato
(iii) Onion
(iv) Strawberry
(v) Irish potato

List B:
A. Stem tubers
B. Runners
C. Bulbs
D. Bulbils
E. Suckers
F. Root tubers
G. Corms

Answers:
(i) E
(ii) F
(iii) C
(iv) B
(v) A

3. For each of the following statements, write TRUE if a statement is correct or FALSE if a statement is not correct in the spaces provided.

(i) Low temperature enhances organic matter decomposition. FALSE

(ii) Management is one of the functions of an entrepreneur. TRUE

(iii) Hides and skins of livestock are used to make leather and leather products. TRUE

(iv) Unreliable rainfall is one of the institutional problems facing agriculture in Tanzania. FALSE

(v) Hand pulling is a cultural method of controlling weeds growing too close to crops. TRUE

4. (a) What do you understand by the following terms as they are used in the agricultural economy?

(i) Industrialization
Industrialization in agriculture refers to the integration of advanced machinery, technology, and industrial processes into farming activities to increase productivity and efficiency. It involves mechanization, large-scale production, and the use of agro-based industries.

(ii) Subsistence farming
Subsistence farming is a type of agriculture in which farmers grow crops and rear animals primarily for their own consumption, with little to no surplus for sale. It is often practiced on a small scale with traditional tools and methods.

(b) Which measures can be taken by the Government to improve the agricultural sector in Tanzania? Give seven measures.

i. Providing subsidies for agricultural inputs such as seeds and fertilizers.
ii. Promoting irrigation schemes to enhance water availability for farming.
iii. Offering training programs for farmers on modern farming techniques.
iv. Improving rural infrastructure such as roads to ease transportation of farm produce.
v. Establishing agricultural research centers to develop high-yield and disease-resistant crops.
vi. Encouraging investment in agro-processing industries to add value to agricultural products.
vii. Ensuring access to affordable credit facilities for farmers.

5. (a) Briefly describe four harmful effects of crop pests.

i. Reduction in crop yield due to damage caused by pests feeding on crops.
ii. Spread of diseases among crops, leading to poor quality produce.
iii. Increased production costs due to the need for pest control measures.
iv. Loss of income for farmers as a result of damaged or unsellable crops.

(b) How do the following methods practiced in controlling crop pests?

(i) Timely planting
Timely planting involves sowing crops at the right time to avoid peak periods of pest infestations, reducing the likelihood of severe damage.

(ii) Use of trap crops
Trap crops are planted near the main crop to attract pests, preventing them from damaging the primary crop and acting as a decoy.

(iii) Crop rotation
Crop rotation involves alternating crops grown in a field across different seasons to disrupt the life cycles of pests and reduce their populations.

6. (a) Describe five factors that influence soil formation.

i. Parent material: The type of rock or minerals from which the soil develops influences its composition and properties.
ii. Climate: Temperature and precipitation affect weathering processes and organic matter decomposition.
iii. Topography: Slope and drainage patterns influence soil erosion and water retention.
iv. Biological factors: Activities of organisms like plants, animals, and microbes contribute to soil development.
v. Time: Soil formation is a gradual process that depends on the duration over which weathering and other factors operate.

(b) Briefly explain five importance of soil structure.

i. Enhances water retention and drainage, promoting healthy plant growth.
ii. Facilitates air circulation within the soil, ensuring proper root respiration.
iii. Supports the penetration and development of plant roots.
iv. Reduces soil erosion by increasing stability and resistance to wind and water.
v. Improves soil fertility by maintaining the balance of nutrients and organic matter.

7. (a) State six factors to be considered in establishing and managing a livestock project.

i. Availability of land: Ensure sufficient space for grazing and other livestock activities.
ii. Capital: Secure adequate funding to cover infrastructure, feed, and health services.
iii. Water supply: Access to clean and adequate water for the livestock.
iv. Breed selection: Choose breeds suited for the climatic conditions and purpose (milk, meat, etc.).
v. Veterinary services: Ensure access to veterinary care for disease prevention and treatment.
vi. Management skills: Develop skills for efficient planning, feeding, and record-keeping.

(b) State one use for each of the following in a deep litter system.

i. Waterers: Provide drinking water for the poultry.
ii. Perches: Offer resting places for birds, reducing stress and competition.
iii. Nests: Provide a safe place for laying eggs.
iv. Feeders: Distribute feed to the birds in an organized manner.

8. (a) Elaborate on the following statements:

(i) Elasticity is the measure of change.
Elasticity refers to the degree to which the quantity demanded or supplied of a good changes in response to changes in price, income, or other factors.

(ii) Elasticity is greater than one.
When elasticity is greater than one, the percentage change in quantity demanded or supplied is higher than the percentage change in price, indicating a highly responsive market.

(iii) Elasticity is less than one.
When elasticity is less than one, the percentage change in quantity demanded or supplied is lower than the percentage change in price, indicating a less responsive market.

(iv) Elasticity is equal to one.
When elasticity is equal to one, the percentage change in quantity demanded or supplied is exactly equal to the percentage change in price, indicating unitary elasticity.

(b) Briefly explain how the following price determinants influence the price of an agricultural good:

(i) Taxation:
Taxes increase the cost of production, which can lead to higher prices for agricultural goods to compensate for the added expense.

(ii) Government levies:
Levies imposed by the government may raise the price of agricultural goods by increasing production and operational costs.

(iii) Supply:
An increase in supply reduces the price of agricultural goods, while a decrease in supply raises prices due to scarcity.

9. (a) Why is a farm workshop important to farmers?

A farm workshop provides a space for repairing and maintaining farm tools and equipment, ensuring they remain functional and reducing downtime during farming activities.

(b) Briefly explain six safety precautions to be observed in a workshop.

i. Wear appropriate safety gear, such as gloves and goggles.
ii. Keep the workshop clean and free from hazards.
iii. Use tools and machinery as instructed.
iv. Store sharp tools properly to prevent injuries.
v. Ensure proper ventilation to avoid inhaling harmful fumes.
vi. Disconnect machinery from power when not in use or during repairs.

(c) Account for five advantages of animal power in a farm enterprise.

i. Cost-effective: Animals are less expensive to maintain compared to mechanized equipment.
ii. Eco-friendly: Animal power does not emit pollutants, making it environmentally sustainable.
iii. Multipurpose: Animals can be used for plowing, transporting goods, and producing manure.
iv. Accessibility: Animal power is readily available in rural areas where machinery may be scarce.
v. Adaptability: Animals can work in various terrains and weather conditions.

10. Evaluate eight importance of livestock production on the economy of Tanzania.

i. Employment: Provides jobs in farming, processing, and marketing sectors.
ii. Food security: Supplies meat, milk, and eggs for local consumption.
iii. Export revenue: Contributes to foreign exchange earnings through exports of livestock and by-products.
iv. Industrial input: Supplies raw materials like hides, skins, and bones for industries.
v. Rural development: Enhances income levels in rural areas through livestock farming.

vi. Manure production: Supports crop farming by providing organic fertilizers.
vii. Transport: Animals such as donkeys and oxen are used for transportation in rural areas.
viii. Cultural value: Livestock plays a significant role in traditional ceremonies and as a form of wealth.