THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

FORM TWO SECONDARY EDUCATION EXAMINATION

0034 AGRICULTURAL SCIENCE

Time: 2 Hours **ANSWERS** **Monday, 21st November 2016.**

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) Procedural method that follows data presentation in scientific process is known as
A. data analysis
B. data collection
C. experimentation
D. observation
Answer: D. observation

(ii) All of the following are examples of farm hand tools except
A. machete
B. secateur
C. sickle
D. ox-plough
Answer: D. ox-plough

(iii) Which one of the following is an annual crop?
A. Coffee
B. Maize
C. Pyrethrum
D. Tea
Answer: B. Maize

(iv) What is the advantage of nomadic pastoralism?
A. There is no possibility of spread of livestock diseases.
B. It is a good way of utilizing marginal lands.
C. There is high productivity of animals.
D. It uses controlled power.
Answer: B. It is a good way of utilizing marginal lands.

(v) In developing agriculture, the government should do all of the following except
A. improving communication in the rural areas.
B. improving storage facilities for agricultural products.
C. encouraging taboos and traditions by farmers.
D. increasing extension services.
Answer: C. encouraging taboos and traditions by farmers.

(vi) In a soil profile, the horizons in which there is little or no weathering are called
A. R horizons
B. O horizons
C. A horizons
D. C horizons
Answer: A. R horizons

(vii) Which one of the following is the use of files in farm workshops?
A. Sharpening blades of cutting tools.
B. Cutting sharp curves in wood.
C. To cut through curved surfaces.
D. Smoothen wood surfaces.
Answer: A. Sharpening blades of cutting tools.

(viii) The chemical used to control weeds is known as
A. nematicide
B. pesticide
C. herbicide
D. fungicide
Answer: C. herbicide

(ix) Animal feed that contains a lot of water is termed
A. concentrate
B. roughage
C. marsh
D. succulent
Answer: D. succulent

2. Match the items in List A with the responses in List B by writing the letter of the correct response from List B below the corresponding item number in the table provided.

List A
(i) The process of testing the hypothesis.
(ii) The process of gathering the measured data.
(iii) Acceptance or rejection of hypothesis.
(iv) It is a process of looking for the problem.
(v) The process of arranging the conditions.

List B
A. Conclusion
B. Aim of the experiment
C. Observation
D. Problem definition
E. Hypothesis formulation
F. Logical data arrangement
G. Data collection
H. Data analysis

Answers
(i) A
(ii) G
(iii) E
(iv) D
(v) F

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

(i) Agriculture and industry sectors depend on each other. TRUE

(ii) Soil water constitutes 50 percent of the soil by volume. TRUE

(iii) Fair transactions occur when experiments are conducted. FALSE

(iv) Tomatoes grow well in hot climates. TRUE

(v) Debarking poultry prevents cannibalism. TRUE

(vi) Management is a factor of production that plans, organizes, and implements the production process. TRUE

(vii) Sandy clay soil is one of the soil structural types. TRUE

4. (a) (i) What is meant by First Aid?
First Aid refers to the immediate and temporary assistance or care given to an injured or ill person before professional medical treatment is available.

(ii) What is First Aid Kit?
A First Aid Kit is a collection of essential medical supplies, such as bandages, antiseptics, scissors, and gloves, used to administer First Aid in case of an emergency.

(b) Briefly describe six steps to follow when rendering First Aid to a person who has been punctured by a sharp-edged tool.
(i) Ensure your safety and the safety of the injured person.
(ii) Wash your hands or wear gloves to prevent infection.
(iii) Clean the wound with an antiseptic to remove dirt and bacteria.
(iv) Apply pressure to stop bleeding using a clean cloth or bandage.
(v) Cover the wound with a sterile dressing or bandage.
(vi) Seek medical attention if the injury is severe or shows signs of infection.

5. (a) (i) What do you understand by the term farm power?
Farm power refers to the energy sources used to perform agricultural operations such as plowing, planting, and harvesting. It can come from humans, animals, machinery, or other sources.

(ii) Name six sources of farm power.
(i) Human labor.
(ii) Animal power.
(iii) Mechanical power (tractors and machines).
(iv) Electrical power.
(v) Solar power.
(vi) Wind power.

(b) State three advantages and three limitations of using a tractor as a source of farm power.
Advantages:
(i) Increased efficiency and reduced time in farming operations.
(ii) Ability to perform heavy-duty tasks such as plowing and harrowing.
(iii) Reduced reliance on manual labor.

Limitations:
(i) High initial cost of purchasing a tractor.
(ii) Requires regular maintenance and repair.
(iii) Not suitable for small or fragmented farms.

6. (a) Distinguish between food crops and cash crops.
Food crops are grown primarily for consumption by the farmer and their family (e.g., maize, rice, cassava), while cash crops are grown specifically for sale in the market to generate income (e.g., coffee, tea, cotton).

(b) Enumerate eight principles of crop production.
(i) Proper soil preparation.
(ii) Timely planting.
(iii) Use of high-quality seeds.
(iv) Proper irrigation practices.
(v) Efficient pest and disease control.
(vi) Adequate fertilization and nutrient management.
(vii) Timely weeding and cultivation.
(viii) Harvesting at the right stage.

7. (a) (i) Define the term livestock.
Livestock refers to domesticated animals that are raised and managed for agricultural purposes, such as producing food, fiber, labor, or other products. Examples include cattle, sheep, goats, and poultry.

(ii) Name eight products of livestock.
(i) Milk.
(ii) Meat.
(iii) Eggs.
(iv) Wool.
(v) Leather.
(vi) Manure.
(vii) Honey (from bees).
(viii) Draft power (plowing and transportation).

(b) Outline five principles of livestock production.
(i) Providing adequate and balanced nutrition for animals.
(ii) Ensuring proper health care and vaccination.
(iii) Maintaining proper housing and sanitation for animals.
(iv) Breeding animals with superior genetic traits.
(v) Practicing efficient management to maximize productivity.

8. (a) (i) What do you understand by the term subsistence farming?
Subsistence farming is a type of agriculture in which farmers grow crops and raise livestock primarily to meet the needs of their family, with little or no surplus for sale.

(ii) Account for five characteristics of subsistence farming.
(i) Small landholdings are used for cultivation.
(ii) Traditional farming methods are employed.
(iii) Low use of modern inputs such as fertilizers and pesticides.
(iv) Low productivity and limited marketable surplus.
(v) Diverse cropping systems are practiced to ensure food security.

(b) Briefly explain three ways in which industrial development contributes to the development of the agricultural sector in Tanzania.
(i) Providing agricultural machinery and tools to increase efficiency in farming operations.
(ii) Producing fertilizers, pesticides, and other inputs to enhance crop yields.
(iii) Developing food processing industries to add value to agricultural products and generate income.

9. (a) State the role of each of the following in the soil.

(i) Living organisms
Living organisms, such as bacteria, fungi, earthworms, and insects, play a key role in decomposing organic matter, recycling nutrients, and improving soil structure. They help in aerating the soil and facilitating water infiltration.

(ii) Soil water
Soil water is essential for the survival of plants as it provides nutrients in soluble form. It also acts as a medium for chemical reactions and helps maintain soil temperature and stability.

(iii) Air
Air in the soil provides oxygen for the respiration of plant roots and soil organisms. It also aids in the decomposition of organic matter and ensures proper root growth.

(b) (i) What is the meaning of soil formation?
Soil formation is the process by which rocks are broken down and organic matter accumulates over time to create soil. This process involves physical, chemical, and biological weathering of parent material influenced by climatic and biological factors.

(ii) Examine the influence of the five factors of soil formation.

(i) Parent material: The type of rock or material from which the soil originates determines its mineral composition and texture.
(ii) Climate: Temperature and precipitation influence the rate of weathering and organic matter decomposition, affecting soil fertility.
(iii) Topography: Slope and elevation affect soil erosion, drainage, and depth, influencing soil development.
(iv) Biological factors: The activities of plants, animals, and microorganisms contribute to nutrient cycling and soil structure formation.
(v) Time: Soil formation is a gradual process; older soils tend to be more developed and layered compared to younger soils.

10. (a) State four factors to consider when selecting a site for a vegetable garden.
(i) Access to sunlight.
(ii) Availability of water for irrigation.
(iii) Soil fertility and drainage.
(iv) Protection from strong winds and pests.

(b) Outline six features that should be considered when planning to establish a vegetable garden.
(i) Soil preparation and nutrient availability.
(ii) Crop rotation practices to maintain soil health.
(iii) Space availability for proper plant growth.
(iv) Watering systems for efficient irrigation.
(v) Pest and weed control measures.
(vi) Accessibility and fencing for protection from animals.