

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING
FORM TWO SECONDARY EDUCATION EXAMINATION, 2010

0034

AGRICULTURAL SCIENCE

Time: 2 Hours

ANSWERS

Instructions

1. This paper consists of Ten questions in section A, B, C and D with total of eight question.
2. Answer all questions in section A, B and C and one question in section D.
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.

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1. The following statements are either correct or not correct. Write TRUE for a correct statement or FALSE for a statement that is not correct.

i. Agriculture is a science because it uses the background knowledge of natural sciences.

Answer: TRUE

ii. Antibiotics are substances known as medicines.

Answer: TRUE

iii. In the battery cage system of poultry rearing, many birds are kept in one room.

Answer: FALSE

iv. Under given market conditions, the value of goods or services is called price.

Answer: TRUE

v. The first aid rule reminds us to observe the nature of the universe.

Answer: FALSE

vi. Clay soil has the lowest water-holding capacity.

Answer: FALSE

vii. Freezing in meat work is known as the process of joining two parts of metals together.

Answer: FALSE

viii. A trench is a place where runoff, gas stores, mud, and sand for hollow storage from one area fall.

Answer: FALSE

ix. Socioeconomic factors are among the factors which limit livestock development in Tanzania.

Answer: TRUE

x. Early planting of crops in the season is a mechanical method of controlling weeds.

Answer: TRUE

2. Match the items in Set A with those in Set B by writing the correct letter below the corresponding question number in the answer table provided.

Set A

i. A method of controlling anaerobic poultry

ii. A fodder feedstuff

iii. Artificial fertilizer

iv. Chooks vertical arrangement of laying cages

v. Choosing suitable spacing of crop and soil moisture

vi. Process of building implements in storage areas

- vii. Returns or payment for land use
- viii. The distance between plants on the same rows
- ix. The time when a female can only be served to receive service from the bull
- x. Wage

Set B

- A. Capital
- B. Debeaking
- C. Disbudding
- D. Double group
- E. Freezing
- F. Land farming
- G. Liming
- H. Livestock feedstuff
- I. Monocropping
- J. Plough spacing
- K. Potted milking
- L. Quota
- M. Young beasts leave

Answers

i	ii	iii	iv	v	vi	vii	viii	ix	x
B	H	G	C	J	F	E	L	M	A

3.

i. A system of poultry keeping which is most practiced in the rural areas of Tanzania is:

- A. Battery cage system
- B. Deep litter system
- C. Fold unit system
- D. Free range system

Answer: D. Free range system

Reason: In rural areas, free-range poultry farming is popular as it requires minimal resources and allows birds to roam freely, feeding on natural forage.

ii. The process of feeding highly nutritious feed to female farm animals before mating is called:

- A. Challenge feeding
- B. Drying off
- C. Flushing up
- D. Steaming up

Answer: C. Flushing up

Reason: Flushing increases the body condition of female animals before mating to enhance reproductive performance and improve conception rates.

iii. The recommended time for working animals (oxen) on the farm per day is:

- A. Three hours
- B. Four hours
- C. Five hours
- D. Six hours

Answer: C. Five hours

Reason: Working animals are recommended to work for about five hours to balance productivity and prevent exhaustion or injury.

iv. The process of removing unwanted plants which cause annoyance to the owner is called:

- A. Mulching
- B. Pruning
- C. Transplanting
- D. Weeding

Answer: D. Weeding

Reason: Weeding involves removing unwanted plants that compete with crops for nutrients, space, and sunlight.

v. The quantity of goods or services that is bought at a particular price during a certain period is termed as:

- A. Buffer stock
- B. Demand
- C. Equilibrium price
- D. Supply

Answer: B. Demand

Reason: Demand refers to the willingness and ability of consumers to purchase a product at a given price over a specific period.

vi. The most important factor which leads to the formation of a soil catena is:

- A. Climate
- B. Soil porosity
- C. Soil structure
- D. Topography

Answer: A. Climate

Reason: Climate affects soil formation by influencing processes like weathering, erosion, and organic matter decomposition, shaping soil characteristics over time.

vii. Which of the following tools is used to support a piece of metal in the process of forging?

- A. Anvil
- B. Brace
- C. Hammer
- D. Tong

Answer: A. Anvil

Reason: An anvil is used as a solid base to shape and forge metals during the blacksmithing process.

viii. The major portion of soil by volume is:

- A. Air
- B. Mineral matter
- C. Organic matter
- D. Water

Answer: B. Mineral matter

Reason: Mineral matter makes up the majority of soil volume, contributing to its structure and nutrient content.

ix. The following are examples of beverages EXCEPT:

- A. Cocoa
- B. Coffee
- C. Water
- D. Tea

Answer: C. Water

Reason: Water is not classified as a beverage but as a basic necessity, unlike cocoa, coffee, and tea, which are processed drinks.

x. If the price of rice at the market decreases, its demand will:

- A. Be substituted
- B. Decrease
- C. Increase
- D. Remain the same

Answer: C. Increase

Reason: A decrease in the price of rice typically leads to an increase in demand as more consumers can afford to purchase it.

Here is the response to the extracted questions:

4. (a) Define the term soil as used in Agriculture.

Soil is the uppermost layer of the earth's surface composed of organic matter, minerals, water, air, and living organisms. It serves as a medium for plant growth, providing essential nutrients and support for agricultural activities.

(b) Mention four factors that influence soil formation.

- i. Parent material: The type of rock or mineral from which soil is formed influences its texture, structure, and composition.
- ii. Climate: Weathering processes such as temperature and rainfall significantly impact soil formation over time.
- iii. Organisms: Plants, animals, and microorganisms contribute to the decomposition of organic matter, enriching the soil.
- iv. Topography: The slope and drainage of the land affect soil erosion, deposition, and fertility.

(c) List four organic manures which are used to enrich soils in Tanzania.

- i. Compost
- ii. Farmyard manure
- iii. Green manure
- iv. Poultry droppings

5. (a) What is crop rotation?

Crop rotation is the practice of growing different types of crops in a systematic sequence on the same piece of land to maintain soil fertility, control pests and diseases, and improve crop yield.

(b) Outline four principles of crop rotation.

- i. Avoid planting the same crop species successively to prevent soil nutrient depletion.
- ii. Alternate crops with deep and shallow roots to utilize nutrients from different soil layers.
- iii. Incorporate legumes into the rotation to fix nitrogen and improve soil fertility.
- iv. Use crops that suppress weeds to reduce weed growth and competition.

6. Explain the importance of keeping poultry in Tanzania. Give four points.

i. Source of protein: Poultry provides affordable and high-quality protein through meat and eggs, improving nutrition in households.

ii. Income generation: Poultry farming serves as a source of income for farmers, contributing to poverty alleviation and economic growth.

iii. Employment creation: The poultry industry creates job opportunities in farming, processing, and distribution sectors.

iv. Fertilizer production: Poultry droppings are rich in nutrients and are used as organic fertilizer to improve soil fertility.

7. Mention a hand tool you will use to perform the following workshop operations:

- i. Cutting along wood grains: Saw
- ii. Cutting metals: Hacksaw
- iii. Smoothing rough surfaces of wood: Plane
- iv. Smoothing metals: File
- v. Loosening or tightening screws: Screwdriver
- vi. Making curves on wood: Spokeshave
- vii. Gripping or handling nuts when loosening or tightening: Pliers
- viii. Drilling holes in metal or wood: Hand drill
- ix. Holding a workpiece when a strong grip is necessary and for cutting thin wires: Bench vice
- x. Making joints in wood: Chisel

8. Briefly explain four ways through which industrial development helps the development of the agricultural sector.

- i. Provision of agricultural inputs: Industries produce fertilizers, pesticides, and farm machinery that enhance agricultural productivity.
 - ii. Processing of agricultural produce: Industries add value to raw agricultural products, creating processed goods for local and international markets.
 - iii. Employment creation: Industrial development provides jobs, increasing farmers' purchasing power for agricultural inputs.
 - iv. Infrastructure development: Industries drive the establishment of better transportation and storage facilities, facilitating efficient distribution of agricultural products.
- Here is the response to the extracted questions:

9. Explain the following terms as used in Agricultural Science:

i. Castration

Castration is the process of removing or rendering the reproductive organs of male animals non-functional to control breeding, improve meat quality, and manage animal behavior.

ii. Entrepreneur

An entrepreneur is an individual who identifies opportunities in the agricultural sector, invests resources, and takes risks to establish and manage a farming business for profit.

iii. Oxenization

Oxenization refers to the use of oxen as draft animals for plowing, transport, and other agricultural activities, particularly in small-scale farming.

iv. Dual-purpose chicken

Dual-purpose chickens are breeds that are raised for both egg production and meat, offering versatility and economic benefits to farmers.

v. Mutton

Mutton is the meat obtained from mature sheep, often preferred for its flavor and nutritional value.

vi. Mohair

Mohair is a fine, silky fiber obtained from the Angora goat, used in making high-quality textiles and fabrics.

vii. Ornamental plants

Ornamental plants are cultivated primarily for decorative purposes in gardens, landscaping, and interior designs due to their aesthetic appeal.

viii. Arable farming

Arable farming involves the cultivation of crops on plowed land, focusing on food and cash crops like cereals, vegetables, and legumes.

ix. Soil structure

Soil structure refers to the arrangement of soil particles (sand, silt, clay) into aggregates, which affects water retention, aeration, and root penetration.

x. Soil profile

Soil profile is the vertical section of soil from the surface to the parent material, showing different layers (horizons) with distinct physical and chemical properties.

10. (a) Write the common names of the following botanical names of crop plants:

i. *Lycopersicon esculentum*

Tomato

ii. *Zea mays*

Maize

iii. *Ananas comosus*

Pineapple

iv. *Daucus carota*

Carrot

(b) List down six characteristics of a subsistence farmer:

i. Small land size: Subsistence farmers often cultivate small plots of land for their family's use.

ii. Low technology use: They rely on simple tools and traditional farming techniques.

iii. Labor-intensive: Family members typically provide labor for all farming activities.

iv. Low productivity: The output is usually just enough to meet the family's food needs, with little surplus for sale.

v. Crop diversity: Farmers grow a variety of crops to ensure food security and meet dietary needs.

vi. Limited market involvement: Subsistence farmers rarely engage in commercial markets, focusing mainly on self-sufficiency.