

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING
FORM TWO SECONDARY EDUCATION EXAMINATION, 2008

0034

AGRICULTURAL SCIENCE

Time: 2 Hours

ANSWERS

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.

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1. Write TRUE for a correct statement and FALSE for a statement that is not correct.

i. Hand hoes, sickles, forked hoes, planters, and coping saws are examples of hand tools.

Answer: TRUE

ii. The use of traditional tools with low investments and hence low output are among the characteristics of subsistence farming.

Answer: TRUE

iii. A nursery is a place where seeds are sown, raised, and cared for better transplanting.

Answer: TRUE

iv. Generative propagation is done by planting plant parts other than the seeds.

Answer: FALSE

v. In the battery cage system of poultry keeping, many birds are kept in one room or house.

Answer: FALSE

vi. Soil porosity is the percentage of the soil volume that is occupied by water and air.

Answer: TRUE

vii. A moldboard plough is a primary tillage implement.

Answer: TRUE

viii. Grafting is a process where egg sacs are tested for fertility and other defects within the yolk.

Answer: FALSE

ix. Herbicides are sometimes known as insecticides.

Answer: FALSE

x. Nitrogen, Phosphorus, and Potassium are trace elements in the soil.

Answer: FALSE

2. Match the items in Set A with those in Set B by writing the letter of the correct answer next to each number in Set A.

Set A

i. Beverage crops

ii. Cereal crops

iii. Fibre crops

iv. Fruit crops

v. Medicinal crops

vi. Oil crops

- vii. Ornamental crops
- viii. Spice crops
- ix. Vegetable crops

Set B

- A. Beans and simsim
- B. Barley and maize
- C. Coffee and cocoa
- D. Cotton and kapok
- E. Hibiscus and roses
- F. Aloe vera and sage
- G. Vines and mangos
- H. Sunflower and simsim
- I. Lucida 142 and Herbal afternoon
- J. Lettuce and cauliflower
- K. Pepper and cardamom
- L. Tobacco and bananas

Answers

i	ii	iii	iv	v	vi	vii	viii	ix
C	B	D	G	F	H	E	K	J

3. Write down the letter of the correct answer in the box provided for each question.

i. A good intercropping practice comprises:

- A. Beans and groundnuts
- B. Beans and bananas
- C. Cassava and maize
- D. Sorghum and maize

Answer: B. Beans and bananas

Reason: Intercropping beans with bananas is beneficial as beans fix nitrogen in the soil, which benefits bananas.

ii. The feedstuffs which are rich in either proteins or energy or both of them are known as:

- A. Roughages
- B. Succulents
- C. Concentrates
- D. Vitamins

Answer: C. Concentrates

Reason: Concentrates are feeds high in energy and protein, essential for animal growth and production.

iii. The farming system in which livestock owners move from one place to another is:

- A. Nomadic pastoral farming

- B. Settled farming
- C. Ranching
- D. Rotational grazing

Answer: A. Nomadic pastoral farming

Reason: Nomadic pastoralists move with their livestock in search of pastures and water.

iv. When people buy milk directly at the dairy unit, the type of price they pay is known as:

- A. Market price
- B. Farm gate price
- C. Retail price
- D. Subsidized price

Answer: B. Farm gate price

Reason: Farm gate price refers to the price at which farmers sell products directly from their farms.

v. The botanical name of cabbage is known as:

- A. Allium cepa
- B. Brassica oleracea
- C. Zea mays
- D. Daucus carota

Answer: B. Brassica oleracea

Reason: Brassica oleracea is the scientific name for cabbage.

vi. In areas with heavy rainfall, soils are usually poor in fertility due to:

- A. Erosion
- B. Leaching
- C. Low infiltration rate
- D. High evaporation rate

Answer: B. Leaching

Reason: Leaching occurs when nutrients are washed away by heavy rainfall, leaving the soil infertile.

vii. Which of the following tools is not a carpentry tool?

- A. Chisel
- B. Jack plane
- C. Rip saw
- D. Hoe

Answer: D. Hoe

Reason: A hoe is an agricultural tool, not used in carpentry.

viii. Which of the following is not caused by disease-causing agents?

- A. Coccidiosis
- B. Foot rot
- C. Poor hygiene
- D. Typhoid

Answer: C. Poor hygiene

Reason: Poor hygiene is a risk factor but not a disease-causing agent itself.

ix. The term "pore space" as used in Soil Science means:

- A. Liquid portion of the soil
- B. Gaseous portion of the soil
- C. Non-solid portion of the soil
- D. Solid portion of the soil

Answer: C. Non-solid portion of the soil

Reason: Pore space refers to the voids within the soil that hold air or water.

x. A farm manager in Farming Business Economics is known as:

- A. Casual labourer
- B. Consumer
- C. Entrepreneur
- D. Wholesaler

Answer: C. Entrepreneur

Reason: An entrepreneur is responsible for managing farm resources and making decisions to maximize productivity.

4. Fill in the gaps in the text below with terms from the box provided.

Terms: abomasum, caecum, colon, crop, gizzard, non-ruminant, ruminant, omasum, reticulum.

With reference to the digestive systems of farm animals, animals may be categorized as ruminant and non-ruminant. Farm animals like cattle, goats, and sheep have four chambers of the stomach. These chambers are rumen, reticulum, omasum, and abomasum. In poultry, the mechanical breakdown of feedstuffs takes place in the gizzard.

5. Define the following terms as applied in Agricultural Science:

i. Concentrates

Concentrates are high-energy or protein-rich feedstuffs used in livestock feeding to supplement roughages and improve animal productivity.

ii. Hay

Hay is dried grass or legumes harvested and stored for feeding livestock during periods when fresh forage is unavailable.

iii. Weathering

Weathering refers to the breakdown of rocks into smaller particles through physical, chemical, or biological processes, contributing to soil formation.

iv. Incubation of eggs

Incubation of eggs is the process of providing optimal conditions such as temperature and humidity to facilitate the development of embryos until hatching.

v. Soil profile

A soil profile is the vertical section of soil from the surface to the underlying bedrock, showing distinct layers (horizons) with unique characteristics.

6. Briefly show the importance of the following agricultural practices:

i. Debeaking

Debeaking reduces cannibalism and injury among birds by trimming their beaks, particularly in crowded poultry systems.

ii. Thinning

Thinning involves removing excess plants to reduce competition for nutrients, water, and sunlight, ensuring better growth of the remaining plants.

iii. Top dressing

Top dressing is the application of fertilizers to growing crops to provide nutrients during critical growth stages, enhancing yields.

iv. Mulching

Mulching involves covering the soil with organic or synthetic materials to conserve moisture, suppress weeds, and regulate soil temperature.

v. Buffer stocking

Buffer stocking ensures a reserve of essential commodities during periods of shortage, stabilizing market prices and ensuring food security.

7. (a) Briefly explain the term "equilibrium price" as used in Farming Business Economics.

Equilibrium price is the price at which the quantity of goods supplied equals the quantity demanded in a market, ensuring no surplus or shortage.

(b) What do you understand by the term "factors of production"?

Factors of production are resources used in the production of goods and services, including land, labor, capital, and entrepreneurship.

9. (a) Define the term "supply."

Supply is the quantity of a given commodity that producers are able and willing to offer for sale at a specific price and time.

(b) List four factors that may cause a change in the supply of agricultural products in your area.

i. Changes in technology

- ii. Availability of inputs
- iii. Occurrence of pests and diseases
- iv. Climatic conditions

(c) The supply of sugar fell from 300,000 kg to 200,000 kg. As a result of this fall, the price rose from Tsh. 2000 to Tsh. 4000 per kg. Calculate the elasticity of supply of sugar.

-Elasticity of supply (E_s) = (% Change in quantity supplied) / (% Change in price)

- % Change in quantity supplied = $(200,000 - 300,000) / 300,000 = -100,000 / 300,000 = -0.333$

- % Change in price = $(4000 - 2000) / 2000 = 2000 / 2000 = 1$

$E_s = -0.333 / 1 = -0.333$

The elasticity of supply is -0.333, indicating inelastic supply.

10. (a) Suppose you have been employed as an assistant extension officer in your village. Which cropping pattern will you recommend for each of the following crops?

- i. Maize: Intercropping with legumes (e.g., beans) to improve soil fertility through nitrogen fixation.
- ii. Paddy: Monocropping to ensure proper water management in flooded fields.

(b) When looking after chicks, what do the following chick behaviors indicate?

- i. Staying away from the lamp: Indicates the brooder is too hot.
- ii. Crowding together at the center: Indicates the brooder is too cold.
- iii. Crowding at a corner: Indicates poor distribution of heat or a draft in the brooder.
- iv. Staying evenly distributed throughout the floor of the brooder: Indicates optimal temperature and comfort.