

**THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

034/1

AGRICULTURAL SCIENCE 1
(For School Candidates Only)

Time: 2 Hours 30 Minutes

2006/10/20 p.m.

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and B and **one (1)** question from section C.
3. Cellular phones are **not** allowed in the examination room.
4. Electronic calculators are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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SECTION A (20 Marks)
Answer **all** questions in this section.

1. For each of the items (i) - (x), choose the correct answer among the given alternatives and write its letter beside the item number.
- (i) The practice of continuously growing one type of annual crop after the same crop has been harvested is called
A interplanting
B monocropping
C monoculture
D continuous cropping
E intercropping.
- (ii) A product market which several sellers each of whom sells a certain quantity of produce to consumers is called
A monopsony
B monopoly
C oligopoly
D oligopsony
E black market.
- (iii) When the soil solution contains more hydrogen ions than hydroxyl ions, the soil is said to be
A concentrated
B neutral
C alkaline
D saline
E acidic.
- (iv) Which of the following is a mass method of agricultural extension?
A Farm visit
B Radio broadcast
C Result demonstration
D Training and visit
E Method demonstration.
- (v) It is advisable to avoid grazing incalf dairy cows on a pasture which has plenty of green succulent alfalfa (Lucerne) in order to prevent the cattle from
A overfattening
B blotching
C miscarriage
D bloating
E contamination.

- (vi) In forestry, the process of transplanting seedlings from the seedbed to the field is called
 A pricking out
 B shading out
 C lining out
 D lifting out
 E plucking out.
- (vii) The hereditary unit which determines the characteristics of a farm animal is called
 A mitochondria
 B nucleus
 C autosome
 D chromosome
 E gene.
- (viii) The diagram in figure 1 below is an illustration of the root system of a carrot plant.

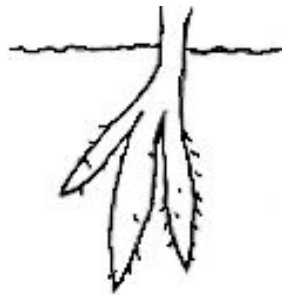


Figure 1

- Which of the following may cause the condition illustrated above?
 A Sandy soil
 B Wide spacing
 C Too much watering
 D Excessive organic matter
 E Shallow soil.
- (ix) Which of the following parts of an ox-plough controls the depth of ploughing?
 A Draft rod
 B Wheel
 C Frog
 D Landside
 E Mouldboard.
- (x) Which of the following types of fishponds is suitable for construction in a place where the ground is flat?
 A Paddy.
 B Barrage.
 C Contour.
 D Shallow.
 E Deep.

2. Match the responses in **List B** with the words/phrases in **List A** by writing the letter of the correct response beside the item number.

LIST A

- (i) The negative logarithm of the hydrogen ion concentration of the soil solution.
- (ii) A variety of eggplants.
- (iii) A breed of cattle which secretes plenty of milk with a low butter fat content.
- (iv) The rewards for good entrepreneurship on a farm.
- (v) Soft wood.
- (vi) A farm workshop tool which is suitable for planning convex or concave surfaces of timber or wood.
- (vii) A chemical substance which has to be applied to the water in a fish pond in order to prevent the water and the bottom of the pond from becoming acidic.
- (viii) A process whereby the intestines of a calf fail to absorb colostrum.
- (ix) One of the examples of joint agricultural products.
- (x) An example of predators which may be used for biological control of some agricultural pests.

LIST B

- A Spokeshave
- B Ribet plane
- C Gut closure
- D Indigestion
- E Wasps
- F Grasshoppers
- G Agricultural lime
- H Calcium ammonium nitrate
- I Cotton fibre and cotton seed
- J Maize roots and maize seed
- K Texas Grano
- L Black beauty
- M Broad-leaved trees
- N Trees with needle-like leaves
- O Jersey
- P Friesian
- Q Wages
- R Profits
- S Soil pH
- T $-\log H$ soil

SECTION B (60 Marks)

3. (a) Distinguish between “soil texture” and “soil structure” **(3 marks)**
- (b) What do you understand by the term “illuviation” as used in soil science **(3 marks)**

4. The following diagram (figure 2) represents one of the crops grown in Tanzania. Study it carefully and then answer the questions that follow.



Figure 2

- (a) (i) How is this crop propagated? **(1 mark)**
(ii) State the botanical name of this crop. **(1 mark)**
- (b) (i) State **two (2)** most important pests of the crop. **(2 marks)**
(ii) Name **two (2)** diseases which infect the crop. **(2 marks)**
5. (a) Define the term masonry as used in farm workshop technology. **(1½ marks)**
- (b) State the use of each of the following masonry tools:
(i) Brick hammer.
(ii) Plumb bob.
(iii) Wood float.
(iv) Spirit level
(v) Square. **(7½ marks)**
6. (a) What do you understand by the term “pasture” as used in livestock production? **(1 mark)**
- (b) State **seven (7)** desirable qualities of good pasture grasses and legumes. **(7 marks)**
7. (a) What does “risks and uncertainties” mean as used in farming business economics? **(1½ marks)**
- (b) State **six (6)** advantages and **seven (7)** risks that may occur in a farming business. **(6½ marks)**
8. (a) Write **four (4)** common breeds of pigs which are kept in Tanzania. **(2 marks)**
- (b) State **seven (7)** factors that limit the pig industry in Tanzania. **(7 marks)**
9. (a) Differentiate between “market” and “marketing”. **(3 marks)**
- (b) (i) What is an imperfect market? **(3 marks)**
(ii) How will the price of mangoes in the short run be affected if the quantity of mangoes supplied in a market is increased? **(1 mark)**

10. (a) What is the meaning of the term “interplanting” as used in crop production? **(1½ marks)**
- (b) (i) State **seven (7)** advantages of interplanting. **(3½ marks)**
(ii) State **four (4)** disadvantages of interplanting. **(2 marks)**

SECTION C (20 Marks)

Answer **one (1)** question from this section. Credit will be given for answers which are precise, brief and to the point.

11. Using the following headings, explain how you would raise a crop of sunflower (*Helianthus* spp.):
- (a) Climate and soils
 - (b) Land preparation
 - (c) Propagation
 - (d) Spacing
 - (e) Weeding
 - (f) Manures and fertilizers
 - (g) Pest control
 - (h) Disease control
 - (i) Harvesting
 - (j) Storage. **(20 marks @ 2 marks)**
12. (a) Explain what you understand by the term farm records as used in agriculture. **(2 marks)**
- (b) Distinguish between financial and physical records which have to be kept on the farm. **(4 marks)**
- (c) The transaction below shows Mrs. Kisesa’s financial position in farm business for the year 2003. Use this information to answer the questions that follow:
- | | | |
|---|-----|------------|
| Milk sales ----- | Shs | 80,000.00 |
| Purchase of farm tools ----- | Shs | 10,000.00 |
| Sales of goats ----- | Shs | 5,000.00 |
| Construction of zero grazing unit ----- | Shs | 100,000.00 |
| Closing valuation ----- | Shs | 160,000.00 |
| Depreciation of machinery ----- | Shs | 8,000.00 |
| Interest payable ----- | Shs | 7,500.00 |
| Purchase of pesticides ----- | Shs | 3,000.00 |
| Veterinary bills ----- | Shs | 4,000.00 |
| Sales of cabbages ----- | Shs | 7,500.00 |
| Wages ----- | Shs | 48,000.00 |
| Sale of one heifer ----- | Shs | 94,000.00 |
| Opening valuation ----- | Shs | 120,000.00 |
| Tea sales ----- | Shs | 47,000.00 |
- (i) Prepare the profit and loss account of Mrs. Kisesa’s farm. **(12 marks)**