

THE KENYA NATIONAL EXAMINATIONS COUNCIL
Kenya Certificate of Secondary Education

443/1

Paper 1

AGRICULTURE
(Theory)

Mar. 2022 – 2 hours



Name **Index Number**

Candidate's Signature **Date**

Instructions to candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of examination in the spaces provided above.
- (c) This paper consists of **three sections; A, B and C**.
- (d) Answer **all** the questions in sections **A** and **B**.
- (e) Answer **any two** questions in section **C**.
- (f) All answers should be written in the spaces provided.
- (g) Non-programmable silent electronic calculators may be used.
- (h) **This paper consists of 16 printed pages.**
- (i) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- (j) Candidates should answer the questions in English.

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1-15	30	
B	16-19	20	
C		20	
		20	
	Total Score	90	



SECTION A (30 marks)

Answer all the questions in this section in the spaces provided.

1. State **two** ways in which the foreign exchange earned from agriculture is important to Kenya. (1 mark)

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2. State **four** effects of excessive nitrogenous fertiliser application on tomatoes. (2 marks)

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3. State **four** ways in which burning during clearing of land reduces soil fertility. (2 marks)

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4. State **four** ways in which water pollution caused by farming activities can be controlled. (2 marks)

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5. What is meant by the term preference and choice as used in agricultural economics? (2 marks)

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6. State **four** disadvantages of shifting cultivation. (2 marks)

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7. Name **four** categories of nursery beds. (2 marks)

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8. (a) What is meant by the term conveyance of water? (1 mark)

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(b) State **two** ways of conveying water. (1 mark)

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9. (a) What is meant by the term land tenure reform? (1 mark)

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- (b) State **four** advantages of land registration. (2 marks)

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10. Name **four** types of landslides. (2 marks)

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11. State **four** advantages of small scale farming in Kenya. (2 marks)

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12. State **four** disadvantages of stall feeding. (2 marks)

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13. Give **four** reasons why livestock farmers prepare silage. (2 marks)

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14. State four reasons for carrying out minimum tillage. (2 marks)

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15. Name four financial documents used in farm accounting. (2 marks)

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SECTION B (20 marks)

Answer all the questions in this section in the spaces provided.

16. The diagrams below show certain weeds.



E



F



G

- (a) Identify the weeds labelled F and G.

F (1 mark)

G (1 mark)



- (b) State **one** way in which each of the weeds labelled **E** and **F** affects the quality of livestock products. (1 mark)

E

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F

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(1 mark)

- (c) State the **main** way in which the weed labelled **G** interferes with farm operations. (1 mark)

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17. (a) An agronomist recommends application of 120kg N, 60kg P₂O₅ and 80kg K₂O after testing a soil sample. Calculate the amount of urea (46%N), single super phosphate (20% P₂O₅) and potassium oxide (50% K₂O) that should be applied on the land. (4 marks)

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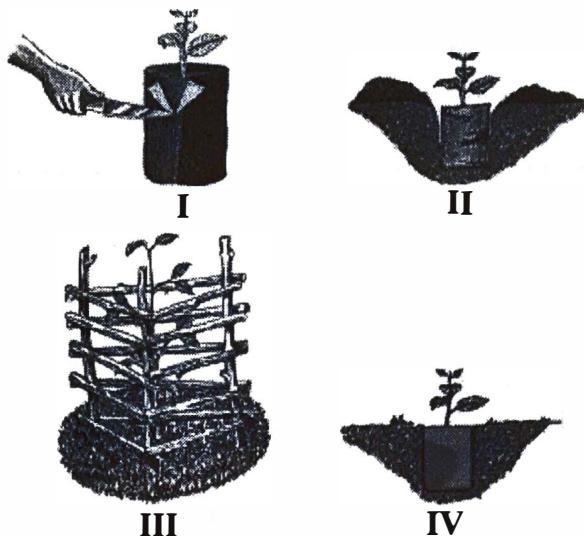
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- (b) Distinguish between fertiliser ratio and fertiliser grade. (1 mark)

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- 18.** A farmer has a piece of land 200 m long and 36 m wide. If the farmer plants beans at a spacing of $30\text{ cm} \times 15\text{ cm}$, calculate the plant population on the piece of land. Show your working. (5 marks)

19. The diagram below shows a practice in agroforestry.



- (a) Identify the practice. (1 mark)

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- (b) State the importance of the activity labelled:

I

..... (1 mark)

IV

..... (1 mark)

- (c) Why was the soil separated as shown in the activity labelled **II**? (1 mark)

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- (d) State the **main** precaution observed when covering the seedling as illustrated in **III**. (1 mark)

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SECTION C (40 marks)

Answer any two questions from this section in the spaces provided after question 22.

20. (a) Describe **seven** ways in which a farm manager can provide incentives to increase the productivity of the farm workers. (7 marks)
- (b) Describe Blossom End Rot disease in tomatoes under each of the following sub-headings:
- (i) symptoms (1 mark)
 - (ii) causes (3 marks)
 - (iii) control measures. (3 marks)
- (c) Describe how a farmer should handle a bean crop from the time it is harvested until the dry seed is ready for storage. (6 marks)
21. (a) Give **two** effects of low temperature on crop growth. (2 marks)
- (b) Explain **four** aspects of rainfall that a farmer should consider when choosing a crop to grow. (8 marks)
- (c) Describe **five** types of layering used by farmers to propagate crops. (5 marks)
- (d) Give **five** functions of agricultural marketing boards in Kenya. (5 marks)
22. (a) Describe rice production under each of the following sub-headings:
- (i) land preparation (3 marks)
 - (ii) water control (3 marks)
 - (iii) weed control. (2 marks)
- (b) Describe millet production under each of the following sub-headings:
- (i) seedbed preparation (2 marks)
 - (ii) planting (2 marks)
 - (iii) harvesting. (3 marks)



(c) Explain five factors that influence mass wasting.

(5 marks)

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Paper 2

AGRICULTURE

(Theory)

Mar. 2022 – 2 hours



Name Index Number

Candidate's Signature Date

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C		20	
		20	
Total Score		90	



SECTION A (30 marks)

Answer all the questions in this section in the spaces provided.

1. Give **four** maintenance practices carried out on a knapsack sprayer. (2 marks)

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2. State **four** reasons why rabbits are kept by farmers in Kenya. (2 marks)

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3. State **four** maintenance practices carried out on a piggery unit. (2 marks)

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4. Name the **four** stomach compartments of a ruminant. (2 marks)

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5. State **four** causes of stress in poultry. (2 marks)

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6. Give **one** reason why the milkman should:

- (a) milk at regular intervals ($\frac{1}{2}$ mark)

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- (b) avoid milking with wet hands ($\frac{1}{2}$ mark)

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- (c) milk quickly and evenly ($\frac{1}{2}$ mark)

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- (d) practice complete milking ($\frac{1}{2}$ mark)

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7. State **four** factors that determine the amount of feed an animal consumes. (2 marks)

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8. Give **one** use of each of the following farm tools:

($\frac{1}{2}$ mark)

- (a) pipe wrench

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- (b) tenon saw

($\frac{1}{2}$ mark)

- (c) spoke shave

($\frac{1}{2}$ mark)

- (d) elastrator.

($\frac{1}{2}$ mark)

9. State **four** control measures for *Brucellosis* in cattle.

(2 marks)

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10. (a) Give **two** roles of wood shavings used as litter in the artificial brooder.

(1 mark)

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(b) Give **two** reasons why a chicken brooder should have a round shape.

(1 mark)

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11. Name **four** parts of the ignition system of a petrol engine. (2 marks)

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12. (a) State **two** signs that show a rabbit is about to give birth. (1 mark)

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- (b) If a doe was served on 7th March 2021, determine the date it gave birth. ($\frac{1}{2}$ mark)

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- (c) What is the name given to the young one of a rabbit? ($\frac{1}{2}$ mark)

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13. State **four** advantages of artificial calf feeding. (2 marks)

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14. Give **four** characteristics of clean milk. (2 marks)

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15. (a) Name **two** methods of service used in livestock breeding. (1 mark)

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- (b) Name **two** cattle diseases controlled through Government-imposed quarantine in Kenya. (1 mark)

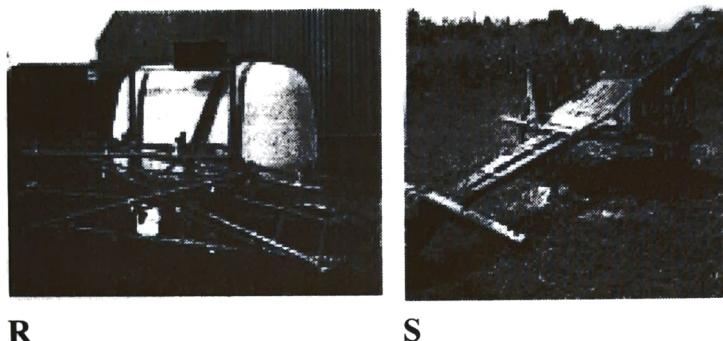
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SECTION B (20 marks)

Answer all the questions in this section in the spaces provided.

- 16.** The diagrams R and S show farm implements.

**R****S**

- (a) Name the source of power used to operate the farm implement labelled:

R (1 mark)

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S (1 mark)

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- (b) State the means by which the farm implement labelled S is attached to its source of power. (1 mark)

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- (c) Give two maintenance practices carried out on the implement labelled R. (2 marks)

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17. The diagram below shows a parasite commonly observed on sheep.



- (a) Identify the parasite. (1 mark)

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- (b) State **four** harmful effects of the parasite in sheep rearing. (4 marks)

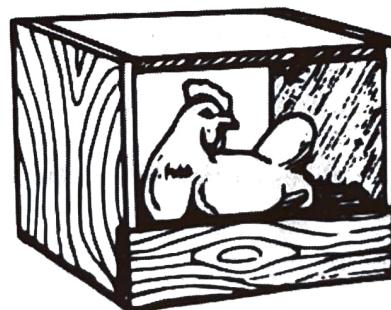
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18. The diagram below shows a method of incubation in poultry rearing.



- (a) Identify the method of incubation shown above. (1 mark)

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- (b) State **four** advantages of the method of incubation shown in Question 18. (4 marks)

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19. A poultry farmer wants to prepare 200 kilograms of chick mash containing 20% Digestible Crude Protein (DCP). Calculate the amount of maize (10% DCP) and fish meal (60% DCP) the farmer requires to make the chick mash. Use the Pearson's square method and show your working. (5 marks)

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SECTION C (40 marks)

Answer any two questions from this section in the spaces provided after question 22.

20. (a) Describe calf scours under the following subheadings:

 - (i) causal organism. (1 mark)
 - (ii) predisposing factors. (3 marks)
 - (iii) control measures. (4 marks)

(b) Describe the rearing of day-old layer chicks up to the age of eight weeks. (12 marks)

21. (a) Describe milk secretion in a dairy cow. (5 marks)

(b) Describe **six** factors that are considered when selecting a gilt for breeding. (6 marks)

(c) Give **nine** reasons why the battery cage system of rearing is popularly used by large scale poultry farmers. (9 marks)

22. (a) Describe **five** management practices carried out on a fish pond. (5 marks)

(b) (i) Give **five** reasons for farm mechanisation. (5 marks)

 (ii) Describe **six** symptoms observed on a calf heavily infested with internal parasites. (6 marks)

(c) Give **four** routine rearing practices in the handling of livestock. (4 marks)

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