



**4.3 AGRICULTURE (443)**

**4.3.1 Agriculture Paper 1 (443/1)**

**SECTION A (30 marks)**

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

- 1 (a)** Name **two** field management practices that are carried out to obtain optimum plant population in a crop field. (1 mark)

.....  
.....

- (b)** Explain how each of the practices named in (a) above achieves optimum plant population. (1 mark)

.....

- 2** Give **two** examples for each of the following types of costs incurred in broiler production.

- (a)** variable costs; (1 mark)

.....  
.....

- (b)** fixed costs. (1 mark)

.....  
.....

- 3** State **four** disadvantages of mono cropping in crop production. (2 marks)

.....

- 4** Give **three** reasons for early seedbed preparation. (1½ marks)

- 5** State **two** ways in which crop rotation controls weeds. (1 mark)

- 6** Outline **four** qualities of a mother plant from which vegetative propagation materials should be obtained. (2 marks)

- 7** Give **three** factors that should be considered when choosing the type of labour to use on the farm. (1½ marks)

- 8 State the use of each of the following in farm accounting:
- (a) balance sheet; (½ mark)
- (b) inventory; (½ mark)
- .....
- (c) cash book. (½ mark)
- .....
- 9 State **four** functions of Agricultural Society of Kenya (A.S.K.). (2 marks)
- 10 How does leaching lead to loss of soil fertility? (½ marks)
- .....
- .....
- 11 Give **two** reasons for imposing quarantine on imported planting materials. (1 mark)
- .....
- .....
- 12 State **four** ways of controlling bean anthracnose disease. (2 marks)
- 13 List **four** post-harvest practices that are carried out in maize production. (2 marks)
- 14 Name **two** types of non-competitive markets. (1 mark)
- 15 Name **four** settlement schemes that the Kenyan government started as a result of the success of the Million Acre Scheme. (2 marks)
- 16 Give a weed for each case, which has the following effect on cattle:
- (a) poisoning; (½ mark)
- .....
- (b) tainting milk when eaten before milking. (½ mark)
- .....
- 17 Apart from training and extension services, state **four** other agricultural support services the Kenyan government provides to a maize farmer. (2 marks)
- 18 State **three** methods of harvesting trees in agroforestry. (1½ marks)

19 Give **three** maintenance practices for trees in agroforestry.

(1½ marks)

**SECTION B (20 marks)**

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

20 The diagram below illustrates a seed potato prepared for planting. Study it carefully and answer the questions that follow:



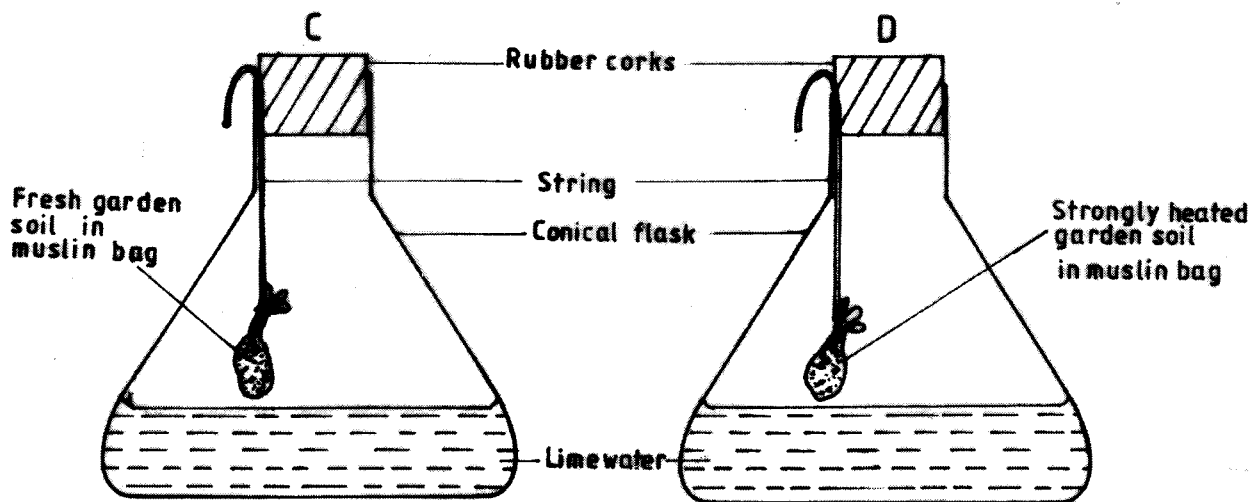
(a) Name the practice used in preparing the seed potato above for planting. (1 mark)

.....

(b) Describe the procedure followed in preparing seed potatoes for planting. (3 marks)

.....

21 The diagrams below show a set up of an experiment to study an aspect of soil. The set up was left undisturbed for five hours. Study it and answer the questions that follow.



(a) What was the aim of the experiment? (1 mark)

(b) State **one** observation that was made in each of the flasks labelled C and D.

C..... (½ mark)

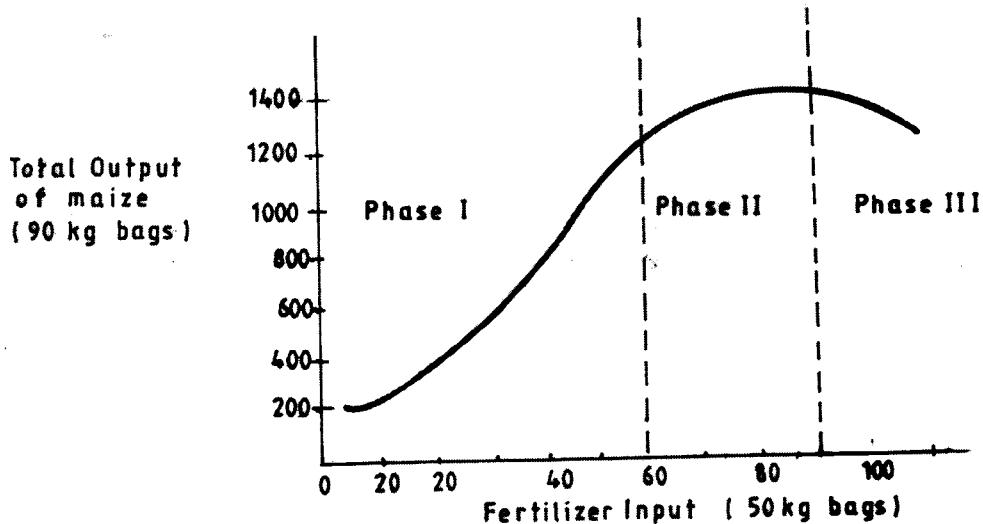
D..... (½ mark)

(c) Give a reason for each of your answers in (b) above.

C..... (1 mark)

D..... (1 mark)

22 Below is a graphical representation of a law in agricultural economics. Study the graph carefully and answer the questions that follow:



(a) Identify the law illustrated by the graph. (½ mark)

(b) Explain how each additional unit of fertilizer input relates to the total output of maize in phases II and III.

Phase II..... (1 mark)

Phase III..... (1 mark)

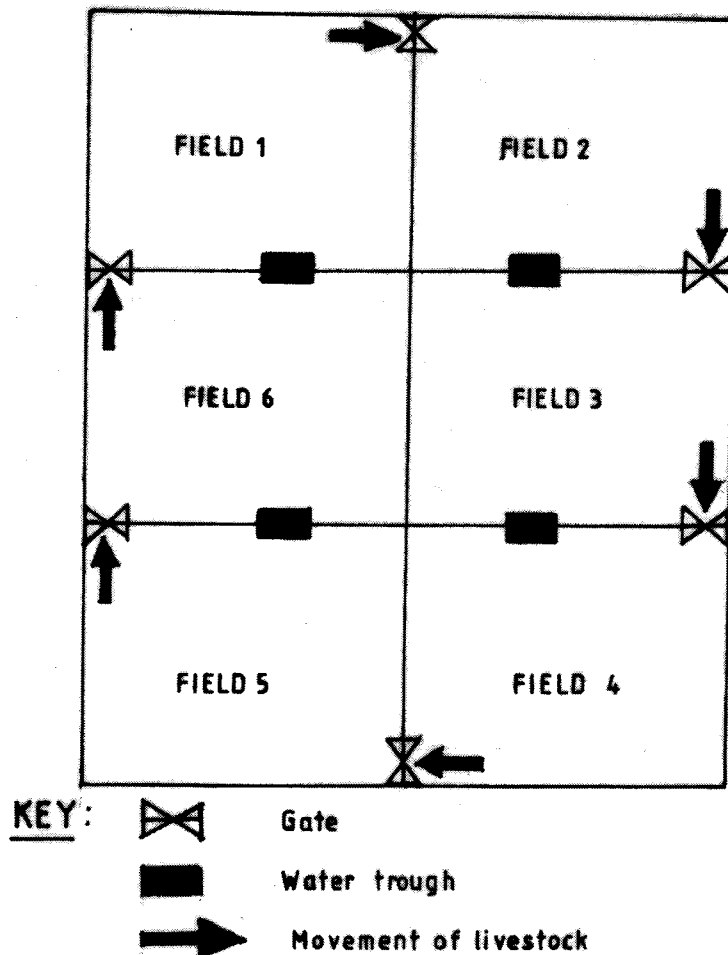
(c) State the importance of the law identified in (i) above to the maize farmer. (1 mark)

23 The following information was extracted from Makueni Farm Records for the financial year ending on 30th June 2009. Study it and prepare a profit and loss account for the farm.

(3 marks)

• Rent received	Sh. 10,000
• Egg sale	Sh. 60,000
• Repair of tractor	Sh. 30,000
• Opening valuation	Sh. 80,000
• Interest on Bank loan	Sh. 20,000
• Tax paid	Sh. 40,000
• Closing valuation	Sh. 90,000
• Purchase of farm inputs	Sh. 90,000
• Debts receivable from farmers co-op society	Sh 100,000
• Maize sales	Sh. 55,000

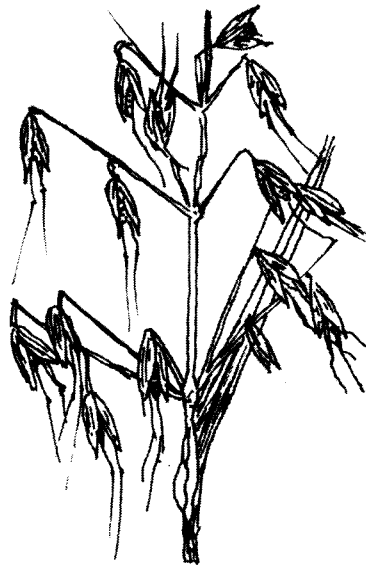
24 The diagram below illustrates a grazing system. Study it carefully and answer the questions that follow.



(a) Identify the grazing system illustrated above. (½ mark)

(b) State five advantages of the grazing system illustrated above. (2½ marks)

- 25 The diagram below is an illustration of a weed. Study it and answer the questions that follow.



- (a) Identify the weed. (½ mark)  
(b) State **two** harmful effects of the weed illustrated above. (2 marks)

**SECTION C (40 marks)**

*Answer any two questions from this section in the spaces provided after question 28.*

- 26 (a) Describe how water is treated to remove solid impurities. (5 marks)  
(b) Give a reason for each of the farm records kept on a dairy farm. (5 marks)  
(c) Describe the production of cabbages under the following sub-headings:  
(i) seedbed preparation; (3 marks)  
(ii) transplanting of seedlings. (7 marks)
- 27 (a) Describe the effects of pests on maize in the field. (6 marks)  
(b) (i) Describe the procedure of harvesting pyrethrum. (4 marks)  
(ii) Explain the precautions that should be observed during the harvesting of pyrethrum. (3 marks)  
(c) Describe the cultural methods of controlling soil erosion. (7 marks)
- 28 (a) Explain five ways in which biotic factors influence crop production in agriculture. (5 marks)  
(b) Describe how the stem cuttings for propagating tea are prepared. (9 marks)  
(c) Describe the properties of nitrogenous fertilizers. (6 marks)

4.3.2 Agriculture Paper 2 (443/2)

SECTION A (30 marks)

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

- 1 State **four** maintenance practices for a disc plough. (2 marks)
- 2 Name **three** methods that are used in selection of breeding stock in livestock production. (1 ½ marks)
- 3 State **four** advantages of using animals instead of tractors as a source of power on the farm. (2 marks)
- 4 Name **one** livestock disease that is transmitted by each of the following parasites:
- (a) blue ticks; (½ mark)  
.....
- (b) brown ear ticks; (½ mark)  
.....
- (c) tsetse flies. (½ mark)  
.....
- 5 State **four** methods of controlling round worms (*Ascaris sp*) in livestock. (2 marks)
- 6 Give the meaning of the following terms as used in livestock health:
- (a) disease; (1 mark)
- (b) vaccination. (1 mark)
- 7 State **three** maintenance practices for a tractor battery. (1 ½ marks)
- 8 Name the type of breed into which each of the following breeds of cattle are classified:
- (a) Aberdeen Angus; (½ mark)  
.....
- (b) Guernsey; (½ mark)  
.....
- (c) Sahiwal; (½ mark)  
.....
- (d) Red poll. (½ mark)  
.....

- 9 Give **two** ways in which proper nutrition helps to control livestock diseases. (1 mark)
- 10 List **four** categories of livestock diseases. (2 marks)
- 11 Name **two** breeding systems that can increase the frequency of high milk production genes in indigenous cattle. (1 mark)
- 12 Name **two** bloodless methods of castration in lambs. (1 mark)
- 13 Give the meaning of the following terms as used in livestock breeding:
- (a) recessive gene; (1 mark)
- (b) epistasis. (1 mark)
- 14 State **four** signs that indicate that a doe is about to kindle. (2 marks)
- 15 Name **two** developmental stages of a liverfluke (*Fasciola sp.*) which occur in the fresh water snail (*Limnaea sp.*). (1 mark)
- 16 Name the strokes in a four stroke cycle engine. (2 marks)
- 17 State **four** signs of mite attack in poultry. (2 marks)
- 18 State **three** advantages of natural feeding in calf rearing. (1½ marks)

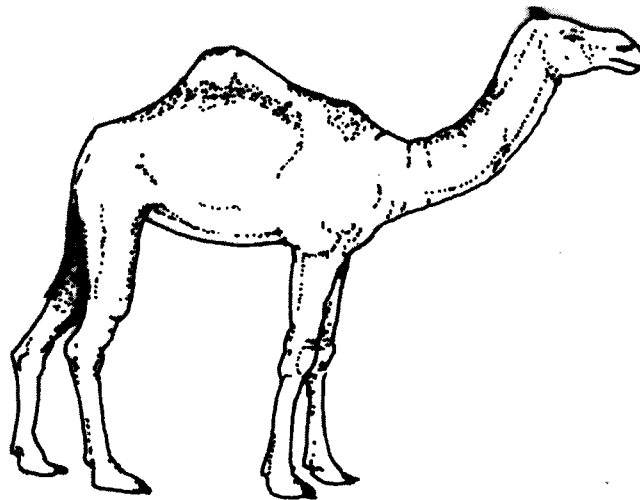
**SECTION B (20 marks)**

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

- 19 A dairy farmer is required to prepare 100 kg of dairy meal containing 20% Digestible Crude Protein (D.C.P.). Using the Pearson's Square Method, calculate the quantity of soya bean (40% D.C.P.) and rice (16% D.C.P.) the farmer requires for the dairy meal. (4 marks)



20 Below is an illustration of a camel. Study it and answer the questions that follow.



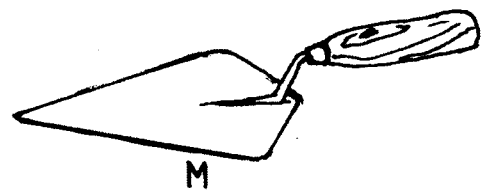
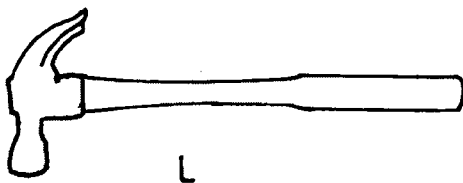
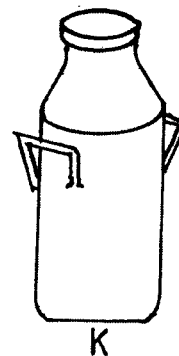
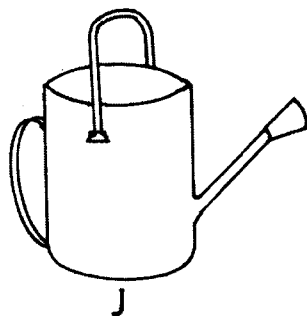
(a) Identify the camel species illustrated above. (½ mark)

.....

(b) Name **three** products that farmers obtain from the camel species illustrated above. (1½ marks)

(c) Give **two** reasons why the camel species illustrated above is able to survive in its natural habitat. (2 marks)

21 The diagram below represents farm tools and equipment. Study them and answer the questions that follow.



(a) Identify the tool / equipment labelled J, K and M.

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

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

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

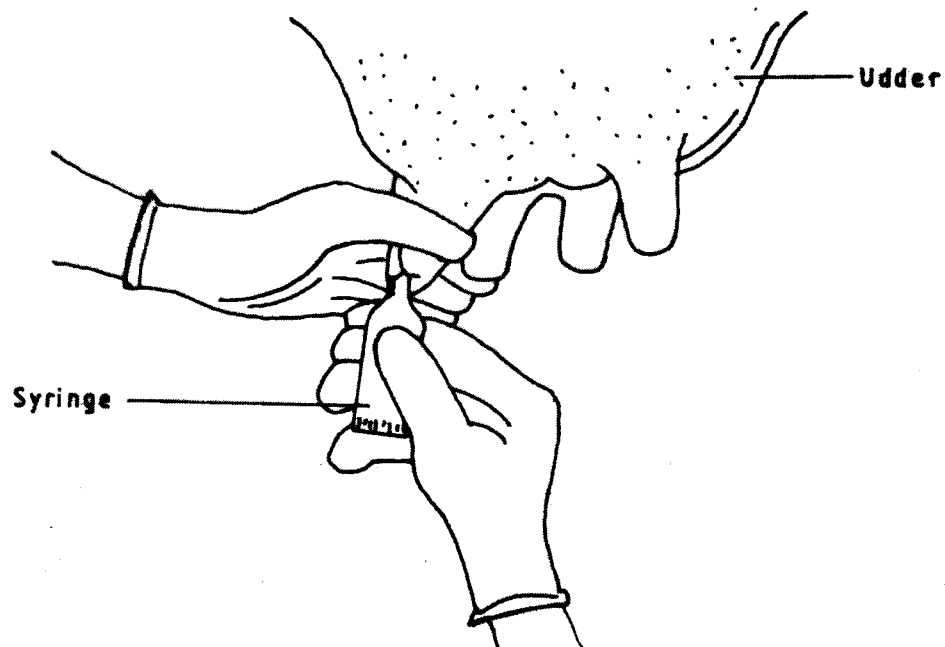
(b) State **one** use for each of the tool / equipment labelled **K** and **L**.

K .....(1 mark)

L .....(1 mark)

(c) Give **two** maintenance practices for the equipment labelled **K**. (1 mark)

22 The illustration below shows a practice carried out to prevent mastitis infection in a dairy cow.



(a) Identify the practice. (1/2 mark)

.....

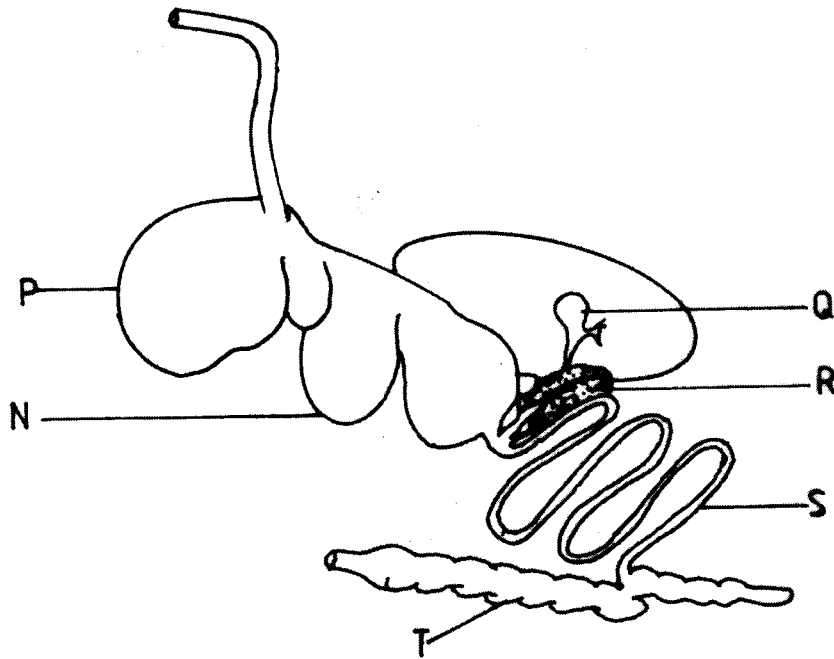
(b) At what stage is the practice carried out? (1/2 mark)

.....

(c) State **two** other practices that are carried out on the udder to prevent mastitis infection. (2 marks)

23

The diagram below shows the digestive system of cattle. Study it and answer the questions that follow.



(a) Name the parts labelled N, P and Q.

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

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

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

(b) State **one** function for each of the parts labelled S and T.

S .....(1 mark)

T .....(1 mark)

(c) Give **one** enzyme produced by each of the parts labelled R and S.

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

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

**SECTION C (40 marks)**

*Answer any two questions from this section in the spaces provided after question 26.*

- 24** (a) Explain the factors considered when culling livestock. (5 marks)
- (b) Describe poultry management under the following sub-headings:
- (i) causes of stress; (8 marks)
- (ii) control measures for cannibalism. (7 marks)
- 25** (a) Describe the feeding practices in artificial rearing of a dairy calf. (10 marks)
- (b) Describe Newcastle disease under the following sub-headings:
- (i) causal organism; (1 mark)
- (ii) signs of infection; (7 marks)
- (iii) control measures. (2 marks)
- 26** (a) Describe the uses of fences on the farm. (10 marks)
- (b) Give **five** harmful effects of liver flukes in sheep rearing. (5 marks)
- (c) State the differences between a diesel engine and a petrol engine. (5 marks)