

**KIRINYANGA**  
**SCHOOL BASED FORM 4 EXAMINATION**  
**JULY /AUGUST 2017**  
**443/1**  
**AGRICULTURE**  
**PAPER I**  
**TIME 2 HOURS**

**SECTION A (30MARKS)**

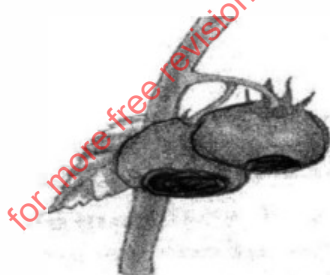
**Answer ALL the question in this section in the spaces provided**

1. Give **one** reasons why agriculture is regarded as a science (1mk)
2. List **four** methods of farming (2mks)
3. Differentiate between soil structure and soil texture (1mk)
4. State **four** reasons for draining a water logged land (2mks)
5. State **two** effects of siltation in dams and reservoirs (1mk)
6. Give **three** **benefits** of under sowing in pasture production (1mk)
7. Give **four** reasons for growing crops under optimum temperature condition (2mks)
8. Name **one** vegetative material used to propagate each of the following crops (2mks)
  - (a) Bananas
  - (b) Pineapples
  - (c) Irish Potatoes
  - (d) Pyrethrum
9. List four advantages of the title deed to a farmer (2mks)
10. What is meant by the following terms in crop as production?
  - (a) Crop rotation (1mk)
  - (b) Mulching (1mk)
11. Give **two** factors than can increase seed rate in crop production (2mks)
12. State **three** functions of Nitrogen in crops (1½ mks)
13. State **four** ways of improving labour productivity on the farm (2mks)
14. State **four** advantages of applying lime as a measure of improving soil condition (2mks)
15. List **three** sources of organic matter in the soil (1½ mks)
16. List **four** post-harvest practices that are carried out in maize production (2mks)
17. Give **three** factors affecting selectivity and effectiveness of herbicides (1½ mk)
18. What is meant by the term preference and choice as used in agriculture economics (1mk)

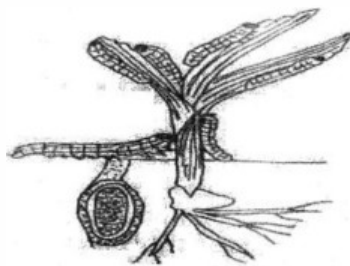
**SECTION B (20 MKS)**

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

19. The diagram below shows a physiological condition of tomatoes . Use it to answer the following questions.



- (a) Identify the condition (1mk)
  - (b) Give **three** causes of the condition identified in (a) above (3mks)
20. The diagram drawn below shows pests that attack crops in the field. Use it to answer the questions that follows.



- (a) Identify the pest (1mk)
- (b) Classify the above pest depending on the feeding habit (1mk)
- (c) List **three** effects of the pest above in crop production (3mk)

**KIRINYANGA**  
**SCHOOL BASED FORM 4 EXAMINATION**  
 JULY /AUGUST 2017  
 443/2  
 AGRICULTURE  
 PAPER 2  
 TIME: 2 HOURS

JULY /AUGUST 2017

**SECTION A ( 30 MARKS)**

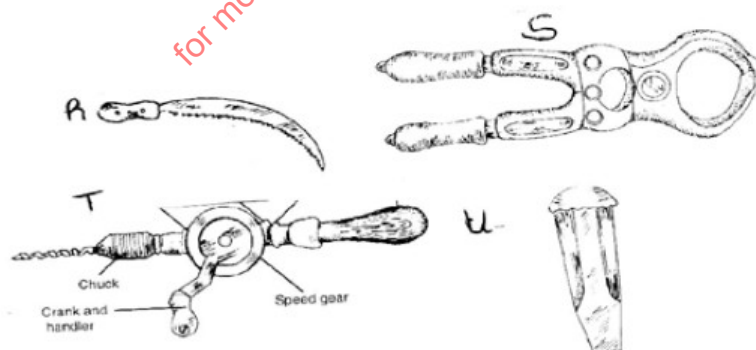
**Answer ALL questions in this section in the space provided**

1. Name a goat breed kept for hair production (½ mks)
2. State **four** predisposing factors to livestock diseases (2mks)
3. Outline **four** factors that determine the amount of water required by an animal (2mks)
4. State the role of each of the following parts of the male's reproductive system
  - (a) Testes (1mk)
  - (b) Epididym's (1mk)
  - (c) Penis (1mk)
5. Differentiate between crutching and ringing in sheep management (2mks)
6. Define the term dry cow therapy in cattle production (2mks)
7. Outline **four** features of a good egg for incubation (2mks)
8. Mention **four** causes of egg eating in a flock of layers (2mks)
9. Highlight four factors to consider when choosing construction material (2mks)
10. Name four **major** groups of livestock diseases according to causes (2mks)
- (b) State **three** symptoms of Anthrax disease in cattle (1½ mks)
11. State the distinguishing colour of the following livestock breeds
  - (i) Duroc jersey pig (½ mk)
  - (ii) Saanen goat breed (½ mk)
  - (iii) Dorper sheep breed (½ mk)
  - (iv) Light Sussex poultry breed (½ mk)
12. Outline **two** criteria for classifying tractor engines (1mk)
13. Mention **four** advantages of embryo transplant in cattle breeding (2mks)
14. State **four** effects of internal parasites on livestock (2mks)
15. Name a tool/equipment to perform each of the following farm operation
  - (a) Driving and removing nails from wood (½ mk)
  - (b) Cutting thin sheet of metal (½ mk)
  - (c) Checking right angles during construction of a wall (½ mk)
  - (d) Smoothing curved surfaces in wood (½ mk)

**SECTION B ( 20mks)**

**Answer all the questions in this section**

16. Study the diagrams below then answer the questions that follow



- (a) Identify each of the farm tool/equipment illustrated above (2 marks)
- (b) State the use of tool/equipment labeled R and U (2marks)
- (c) Give **two** maintenance practices of tool labeled S (2mks)
17. Using Pearson's square method, compute a 300 kg calf rearing ration containing 18% DCP using maize meal ( 8% DCP) and soya bean meal ( 35 % DCP ( show your working) (5 mks)

18. Study the illustration below then answer the questions that follow

(1mk)



(a) Identify the method of identification illustrated by the diagram above

(1mk)

(b) State the identification number of the above animal

(1mk)

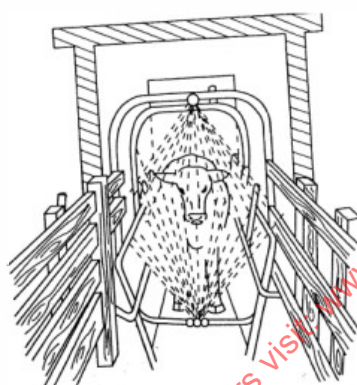
(c) Using the above diagram, draw animals to represent the following identification numbers

(i) 65

(ii) 24

(1mk)

19. The illustration below represents a farm structure used in the control of external parasites in livestock



a) Identify the structure

(1mk)

b) State **two** advantages of using the above farm structure

(2mk)

c) Other than the structure shown above, name two other farm structures that can be used for carrying out similar operation as the one shown above

(2mk)

### **SECTION C ( 40 MARKS)**

**Answer Two questions in this section in the spaces provided after question 22**

20. (a) Explain the advantage of artificial insemination as a method of service in livestock

(7mks)

(b) Give **five** importance of keeping livestock healthy

(5mks)

(c) Describe the short term tractor service

(8mks)

21. (a) Discuss the factors that affect milk composition

(10mks)

(b) State **five** control measures of tapeworms

(5mks)

(c) Describe the characteristics of indigenous cattle breeds .

(5mks)

22. (a) Mention **four** precaution when handling farm tools and equipment

(1mk )

(b) Describe the uses of fences in the farm

(8mks)

(c) Name two hormones that influence milk let down

(2mks)

(c) Describe the control, measure of mastitis in cattle production

(6mks)

## NAKA EVALUATION TEST

## Kenya Certificate of Secondary Education (K.C.S.E)

443/1

AGRICULTURE

PAPER 1

2017

TIME: 2 HOURS

**SECTION A (30 MARKS)**Answer all questions in this section.

- 1 List **two** aspects of light that influence agriculture. (1mk)
- 2 State **two** reasons why land settlement schemes were established in Kenya. (1mk)
- 3 Define the following terms as used in crop production. (2mk)
  - a) Pomology
  - b) Olericulture
- 4 Outline **two** methods used by farmers to harden – off seedlings in the nursery. (1mk)
- 5 State **four** circumstances that could make shifting cultivation practicable in an area. (2mks)
- 6 State **two** biotic factors that are useful in agricultural production. (1mk)
- 7 State **four** advantages of overhead irrigation. (2mks)
- 8 Give **four** signs that could enable you to identify a compost manure that is ready for use. (2mks)
- 9 State **four** agricultural services available to a crop farmer. (2mks)
- 10 State **two** factors that must be considered when constructing a cut-off drains. (1mks)
- 11 Give **four** methods of harvesting water in the farm. (2mks)
- 12 Give any **two** factors that should be considered before deciding to use chemical method of pest control. (1mk)
- 13 a) What is biological weed control? (1mk)
- b) State **two** advantages of biological weed control. (1mk)
- 14 State **two** farming practices that can be carried out to increase the amount of moisture harnessed by crops. (1mk)
- 15 Give **two** ways in which agriculture contributes to industrial development in Kenya. (1mk)
- 16 State any **three** characteristics of trees used in agro forestry. (1 ½ mks)
- 17 State what is meant by “trap crop” as used in crop pest control. (1mk)
- 18 Outline **two** factors that could determine the amount of fertilizer to be top dressed to a crop in the field. (1mk)
- 19 State **two** factors that determine the scale of agricultural production. (1mk)
- 20 State **four** benefits of budgeting to a farm manager. (2mks)
- 21 Give **three** reasons for practicing minimum tillage. (1 ½ mks)

**SECTION B (20 MARKS)**Answer all questions in this section.

- 22 The diagram below shows a maize stalk infested by a certain pest. Observe it and answer the questions that follow.



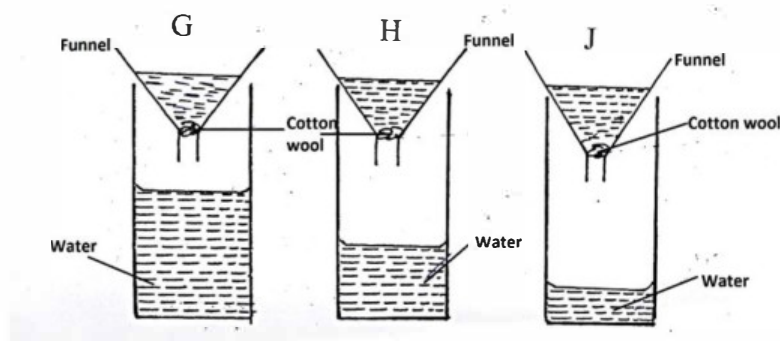
- a) Identify the pest in the diagram above. (1mk)
- b) Give **two** damages caused by the pests identified in (a) above. (2mks)
- c) Other than maize name **two** other crops attacked by the pest (a) above. (1mk)
- d) Give **two** cultural measures for the pest (a) above. (1mk)

- 23 Below is a diagram of a tomato plant.

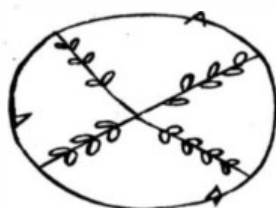


- i) Identify the practice illustrated. (1mk)
- ii) Describe the procedure followed in spraying the crops with a fungicide in power form, water and a knapsack sprayer. (2mks)
- iii) Name **one** fungal disease that can be controlled in the crop using the procedure above. (1mk)
- iv) State **two** safety measures that should be taken while spraying the crops with fungicides. (2mks)

- 24 The diagram below shows an experiment set up using soil types G, H and J. Observations were made after 24 hours. Study the diagram and answer the questions that follows



- What is the experiment above designed to study.
  - Name the three soil type. G,H,J
  - Explain how the farmer can improve the soil type G.
- 25 The diagram below shows a method of bringing the tea into bearing. Study it carefully and use it to answer the question that follow.



- Identify the method in the diagram above.
- Why is it necessary to prune a young tea plant as illustrated in the diagram above.
- Outline the procedure followed when using the pruning method shown above.

### SECTION C (40 MARKS)

Answer any two questions from this section.

- Explain **five** factors that influence soil productivity.
  - Outline **five** factors that a farmer would consider before deciding on the type of irrigation in crop production.
  - Describe the qualities of the mother plant that should be considered when selecting vegetative material for planting.
- Explain cultural measures used in the control of weeds in a field of cereal crop.
  - Explain **six** factors that can influence a well designed crop rotational program.
  - Give four reasons why timely ploughing of the seedbed is important in crop production.
- A farmer has 30 hectares of arable land, 20 hectares of which is planted with maize and 10 hectares with grass hay. He wishes to replace 10 hectares of maize with Irish potatoes next year. The fertilizer rate will have to be increased from 2 bags per hectare for maize to 4 bags per hectare for potatoes. As a result of the change extra 40 men days of actual labour per hectare will be necessary at the rate of Kshs.100 per man a day. The average yield per hectare of maize is 35 bags and for potatoes 120 bags. The price paid is Kshs.1,000 per bag of maize and Kshs.600 per bag of potatoes. Maize seeds cost .750 per hectare and potatoes cost Kshs.800 per hectare. Fertilizer costs are 650 per hectare. Draw up a partial budget and advice the farmer accordingly.
  - Discuss maize production under the following sub-headings
    - Ecological conditions.
    - Field preparation.
    - Planting and field management.



## NAKA EVALUATION TEST

Kenya Certificate of Secondary Education (K.C.S.E)

443/2

AGRICULTURE

PAPER 2

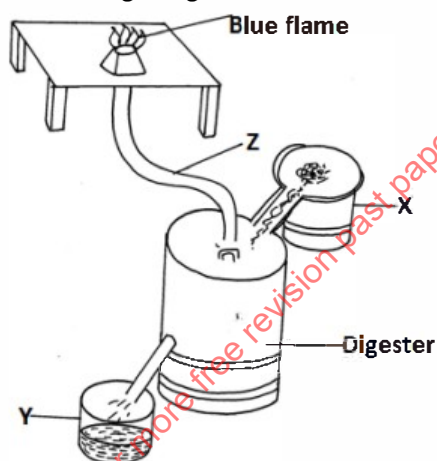
TIME: 2 HOURS

**SECTION A (30 MARKS)**Answer all questions

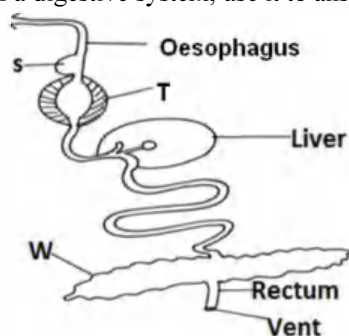
- 1 State **four** factors that influence the quality of bricks. (2mks)
- 2 Give **four** functions of vitamins in livestock production. (2mks)
- 3 Give **two** characteristics of a good creep feed. (1mk)
- 4 State **two** limitations of wood fuel as a source of firm power. (1mk)
- 5 Mention **four** ways in which power is transmitted from the engine of a tractor. (1mk)
- 6 Give **four** pre-disposing factors of scours in calves. (2mks)
- 7 What is the functional difference between cold chisel and wood chisel. (2mks)
- 8 State **three** characteristics of goats that make them adaptable to arid – areas of Kenya. (1 ½ mks)
- 9 Give **two** signs that would indicate that a cow has died of cowthrax. (1mks)
- 10 List **two** tools you would require when smoothening concrete walls during plastering. (1mk)
- 11 List **four** farm structures that would assist in control of livestock parasites. (2mks)
- 12 State **three** desirable characteristics to be considered when a heifer for a milk production. (3mks)
- 13 Distinguish between interbreeding and out crossing in livestock production. (3mks)
- 14 a) Mention **four** reasons why bees swarm. (2mks)
- b) State **two** methods to stock bee hives. (1mk)
- 15 State **four** reasons for castrating a male cattle. (2mks)
- 16 Give **two** reasons for steaming up in dairy cattle management. (1mk)
- 17 Give **three** reasons why honey harvesting should be discouraged at night. (1 ½ mks)

**SECTION B (20 MARKS)**Answer all questions.

- 18 The diagram below is a biogas digester.

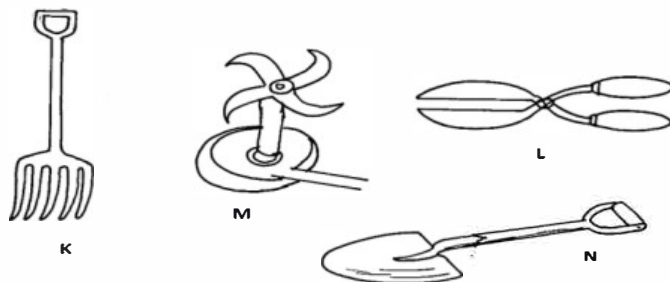


- a) Name the parts labeled X and Z. (2mks)
  - b) Name **two** inputs periodically channeled through X. (2mks)
  - c) Name the use to which material Y is put. (1mk)
  - d) Name **two** uses of biogas on the farm. (1mk)
- 19 Below is the diagram of a digestive system, use it to answer the question that follows.

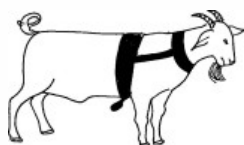


- i) Which farm animal has a digestive system similar to the above system. (1mk)
- ii) Name the parts labeled S, T and W. (3mks)
- iii) Explain the work of the parts S and T. (2mks)

20 Study the diagrams below and answer the questions that follow.



- a) Identify the tools K, L, M and N. (2mks)  
 b) Give the use of K and L. (2mks)
- 21 The diagram below illustrates a breeding management practice.



- a) Identify the practice. (1mk)  
 b) Outline **three** reasons for carrying out this practice. (3mks)  
 c) Give three causes of infertility in farm animals. (3mks)

### **SECTION C ( 40 MARKS )**

**Answer any two questions from this section on the space provided**

- 22 a) Describe the factors to be considered before siting a cattle dip. (4mks)  
 b) Name any **six** essential parts of a spray race and describe their functions. (6mks)  
 c) Describe **five** disadvantages of using a spray race. (5mks)  
 d) Give **five** advantages of Kenya Top Bee Hive. (5mks)
- 23 a) Describe hand milking in a dairy cow. (12mks)  
 b) Explain the practices observed in a clean milk production. (8mks)
- 24 Discuss the management of layers from day old up to point of laying in a deep litter system. (20mks)

**MOSTA JOINT EVALUATION EXAMINATION 2017**

443/1

AGRICULTURE

PAPER 1

2017

2 HOURS

1. List three types of vegetables (1½mks)
2. State four ways through which pests affect Agriculture (2 mks)
3. Name four methods of controlling smuts disease in maize (2mks)
4. State four types of micro-catchments used in soil and water conservation (2mks)
5. Outline the importance of keeping breeding records in dairy farming
6. Give a reason for each of the following practices during compost making (2mks)
  - (i) Adding soil
  - (ii) Adding farm yard manure
  - (iii) Adding ash
  - (iv) Adding calcium ammonium nitrate
7. Define the following terms as used in pasture establishment
  - (i) Nurse crop
  - (ii) Over sowing
8. Outline utilization of Napier grass as a forage crop (2mks)
9. Give practices done to achieve single stem capped system pruning in coffee production
10. State two reasons for cutting back in pyrethrum production (1mk)
11. Give four harmful effects of weeds in crop production (2mks)
12. State **three** advantages of shifting cultivation
13. Give **five** benefits of top –dressing in the management of grass pasture
14. Outline how you would prepare a store for grain storage
15. State four ways in which land reform can be implemented in Kenya
16. (a) Give two reasons for sub soiling (1mk)
- (b) Give two reasons for leveling as a tertiary operation in land preparation (1mk)

**SECTION B (20 MARKS)**

Answer All the questions in this Section in the spaces provided

17. The illustration below shows a farm pest. Study it carefully and answer the questions that follow



- (a) Identify the pest (1mk)
- (b) Classify the pest (1mk)
- (c) Give four effects of pest (4mks)
- (d) Give two physical methods of controlling the pest
18. (a) Outline how you would mix a fungicide on the farm to spray on tomato crop (4mks)
- (b) Give four precautions you would take when spraying the fungicide (4mks)
19. Outline how you would prepare a rooting mixture in tea production (2mks)

**SECTION C 40 MARKS**

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

20. (a) Describe transplanting of tomatoes (10 mks)
- (b) Give ten reasons for keeping farm records (10mks)
21. (a) Explain six factors that should be considered when selecting seeds for planting (2mks)
- (b) Describe how you would prepare seeds collect to establish Agroforestry in the school (5mks)
- (c) Give three reasons for chiting in potato production (3mks)
22. Describe bean production under the following sub headings (6mks)
  - (a) Selection and preparation of materials
  - (b) Planting (4mks)
  - (c) Weed control (3mks)
  - (d) Field management and harvesting (7mks)



**MOSTA JOINT EVALUATION EXAMINATION 2017**

Kenya Certificate of Secondary Education

443/2

AGRICULTURE

PAPER 2

[THEORY]

2017

2 HOURS

**SECTION A [30 MARKS]**

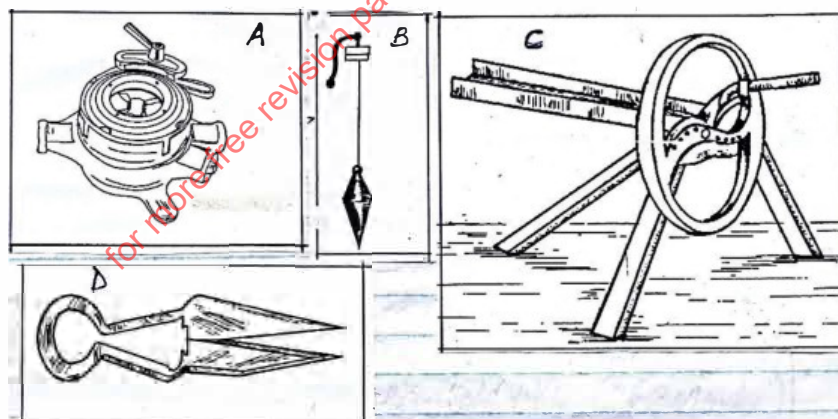
Answer all the questions in this section in the spaces provided.

1. Name four dairy breeds of goats. [2marks]
2. Give four characteristics of clean and high quality milk. [2marks]
3. Name two classes of livestock feedstuff. [1mark]
4. Give three systems of out breeding. [1.5marks]
5. Give the pathogens that cause the following livestock diseases.
  - [a] Anthrax [0.5marks]
  - [b] Gumboro [0.5marks]
6. State two reasons for hoof trimming in livestock. [1mark]
7. Give four symptoms of Newcastle disease. [2marks]
8. State four management activities done to piglets immediately after parturition [2marks]
9. Give four pre disposing factors of mastitis in dairy cows. [2marks]
10. State four routine management practices carried out on a replacement stock that is a heifer. [2marks]
11. Outline two control measures of roundworms. [1mark]
12. Give two maintenance practices carried out on a barbed wire fence. [1mark]
13. [a] Name a pig breed that is purely black with a long back and drooping ears . [0.5mark]
- [b] Name four materials collected by bees. [2marks]
14. State four mechanical methods of controlling ticks. [2marks]
15. Give two roles of ovaries in a cows reproductive system . [1mark]
16. State four reasons that make keeping of rabbits popular. [2marks]
17. Give two roles of a bee drone. [1 mark]
18. State four management practices carried out in a deep litter system of poultry keeping. [2marks]
19. Name two functions of a clutch in the tractors transmission system. [1mark]

**SECTION B [20MARKS]**

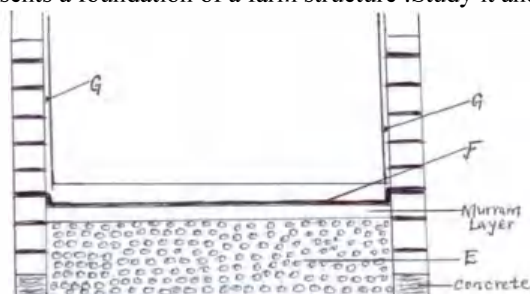
Answer all the questions in this section in the spaces provided .

20. The diagrams below represent some farm tools and equipment .Study them and answer the questions that follow .



- [a] Identify the tools labeled A and B (2 marks)
- [b] State one use of each of the tools labeled C and D
- [c] Explain one maintenance practice carried out on tool D. [1mk.]

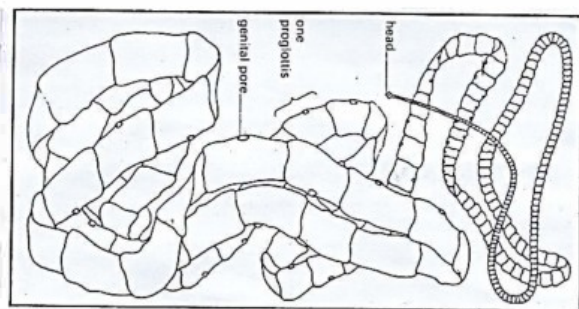
21. The diagram below represents a foundation of a farm structure .Study it and answer questions that follow .



- [a] Identify the parts labeled E and F .  
 [b] State two uses of part labeled F in a foundation structure .  
 [c] What ingredients are used to complete part G
22. The diagram below illustrates an internal parasite of livestock .

[2mks.]

[1mk.]



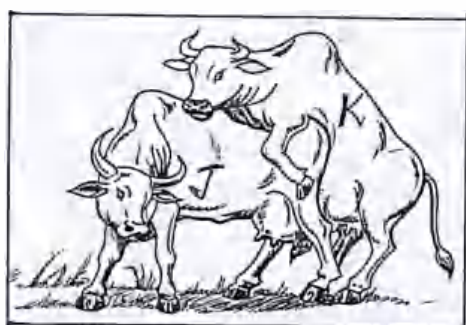
- [a] Identify the parasite above .  
 [b] Name two common species of the parasite illustrated above.  
 [c] Give two control measures of the above parasite.

[1mk.]

[2mks.]

[2mks.]

23. Study the diagram below and answer questions that follow .



- [a] Which of the above cows shows the signs of heat ?  
 [b] Give one reason to confirm your answer in [a] above.  
 [c] State two benefits of natural mating system.  
 [d] Name a disease that is easily spread by this method of mating.

[1mk.]

[2mks.]

[1mk.]

### SECTION C [40MARKS]

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

24. [a] Describe six signs of farrowing in a sow .  
 [b] Explain six benefits of the Kenya top bar hive .  
 [c] Explain eight factors considered when siting farm structures.
25. [a] Describe rinderpest disease under the following sub headings .  
 Animals affected.  
 Causal organism.  
 Symptoms of attack.  
 Control measures.
- [b] Describe the digestion of food in poultry from the beak to the duodenum .  
 [c] Explain five uses of solar energy in a farm .
26. [a] Describe the working of a two stroke cycle engine .  
 [b] Explain five factors considered when siting a fish pond.  
 [c] Explain five reasons for swarming of bees.

[6mks.]

[6mks.]

[8mks.]

[2marks]

[1 mark]

[5 marks]

[2 marks ]

[5marks]

[5marks]

[10mks.]

[5mks.]

[5mks.]

**TRIAL**  
**MOCK EXAMINATION - 2017**  
**Kenya Certificate of Secondary Education**  
**443/1**  
**AGRICULTURE**  
**PAPER 1**  
**TIME: 2 HOURS**

**SECTION A (30 MARKS)**

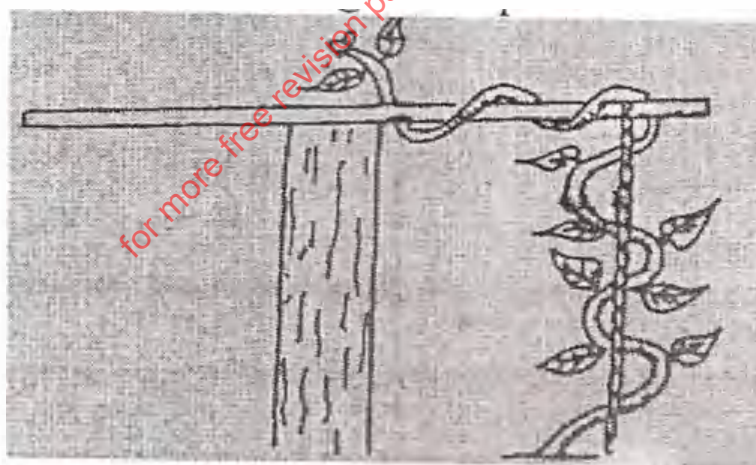
**Answer ALL the questions in the spaces provided.**

1. Give **two** ways in which good communication has contributed positively towards Agricultural growth. (1 mark)
2. State **four** factors that causes most farmers to adopt small scale farming in Kenya. (2 marks)
3. State **four** biotic factors that positively influence agriculture. (2 marks)
4. Name **two** positive effects of wind on farming. (1 mark)
5. Give **four** activities involved in land clearing during land preparation. (2 marks)
6. List any **three** leguminous forage crops. (1½ marks)
7. State **three** factors which determine the amount of fertilizer to be applied in the farm. (1½ marks)
8. A farmer was advised to apply 200kg of CAN per hectare while top dressing the maize crop, CAN contains 21% Nitrogen calculate the amount of Nitrogen applied per ha (show your working) (2 marks)
9. Give **two** features of perennial weeds that make them difficult to control. (1 mark)
10. Give **three** importance of time by planting. (1½ marks)
11. State **four** advantages of establishing seeds in a nursery instead of planting directly into the field. (2 marks)
12. Explain the term '**roguing**' as used in crop production. (1 mark)
13. State **four** advantages of practicing mixed farming in Kenya (2 marks)
14. a). What is irrigation? (1 mark)  
b). State **three** conditions under which irrigation is recommended to be used. (1½ marks)
15. State **two** methods of increasing soil pH. (2 marks)
16. Outline **four** ways in which amount of Light harnessed by crops can be increased. (2 marks)
17. Name **four** early maturing varieties of cabbages. (2 marks)
18. Distinguish between seed dressing and seed inoculation. (1 mark)

**SECTION B (20 MARKS)**

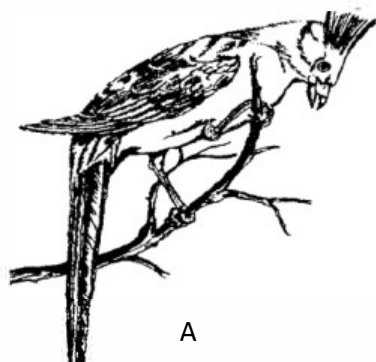
Answer **ALL** Questions

19. The diagram below illustrates a field management practice carried out on a fruit crop.

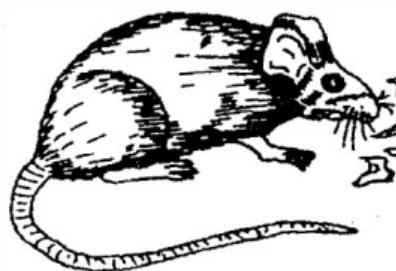


- a) Identify the practical illustrated above. (1 mark)
- b) Name the most likely crop managed as illustrated in the above. (2 marks)
- c) Give **two** reasons for carrying out the practice illustrated above. (2 marks)
- d) Name one other method of training crops apart from the one above. (1 mark)

20. Study the diagram **below** carefully and answer the questions that follow.



A



B

- (a) Identify the field pest shown in the illustration **A** and **B** above. (2 marks)  
 (b) State **two** effect the pest expressed in **A** above has on maize plant. (2 marks)
21. Shown below is a layout of a compost heap. Study it carefully and then answer the questions that follow.

4
3
2
1
MAIZE STALKS

Ground Level

- a) Name the materials in each of the parts labeled 1, 2, 3 and 4. (4 marks)  
 b) State one role of each of the material in the parts labeled 1 and 3. (2 marks)  
 c) (i) Give one reason for adding water to a compost heap. (1 mark)  
 (ii) Give one reason for regularly turning the materials in a compost heap (1 mark)  
 d) State **two** factors that affect the quantity of compost manure. (2 marks)

### SECTION C (40MKS)

**Answer any two questions in this section**

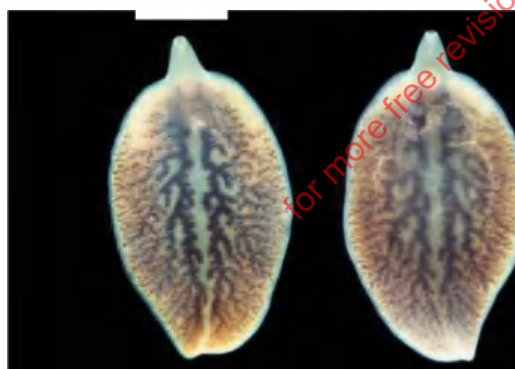
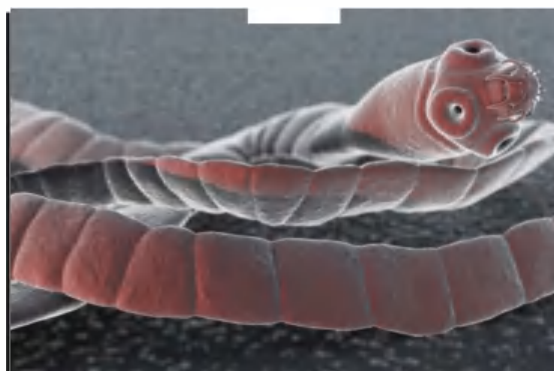
22. a) State and explain the influence of light aspects in Agriculture. (6 marks)  
 b) Explain **six** cultural methods of controlling crop diseases. (6 marks)  
 c) Describe the production of tomatoes under the following:-  
 (i) Transplanting: (3 marks)  
 (ii) Field Management (5 marks)
23. a) State and explain **four** methods of water harvesting. (8 marks)  
 b) Describe **six** precautions that should be considered while pruning mature tea bushes. (6 marks)  
 c) Describe **three** methods of breaking seed dormancy. (6 marks)
24. a) **Describe** the procedure of silage making. (10 marks)  
 b) Give **four** reasons why green manure is not commonly used. (4 marks)  
 c) State **six** advantages of land consolidation. (6 marks)

**TRIAL****MOCK EXAMINATION - 2017***Kenya Certificate of Secondary Education***443/2****AGRICULTURE****PAPER 2****TIME: 2 HOURS****JULY/AUGUST**

1. State **four** factors that necessitate handling of farm animals. (2 marks)
2. Name a breed of Rabbit which give high quality fur. (1 mark)
3. State **four** maintenance practices carried on a wheelbarrow. (2 marks)
4. Give **three** light breeds of poultry. (1½ marks)
5. State **four** predisposing factors of animal diseases. (2 marks)
6. Outline **four** harmful effects of lice in livestock production (2 marks)
7. Distinguish between digestible crude protein (DCP) and total digestible nutrients (DN) as used in livestock nutrition. (2 marks)
8. Name **four** diseases (disorders) resulting from mineral imbalances in livestock. (2 marks)
9. State **four** reasons why a breeding boar may be culled. (2 marks)
10. Outline **four** drenching drugs commonly found on the Kenyan market that are used for de-worming in livestock production. (2 marks)
11. State **four** maintenance practices carried out on a fish pond. (2 marks)
12. Name the cause organism of the following livestock diseases.
  - a) Contagious abortion. (½ mark)
  - b) East Coast fever (½ mark)
13. Give **three** examples of notifiable disease in livestock health. (1½ marks)
14. Outline **four** factors considered when sorting and grading eggs for market. (2 marks)
15. State **four** reasons for feeding colostrums to calves immediately after parturition. (2 marks)
16. Give **four** requirements of calf pen in livestock production. (2 marks)
17. Explain **two** reasons why raddling is necessary in sheep management. (1 mark)

**SECTION B: (20MARKS)****Answer all questions from this section.**

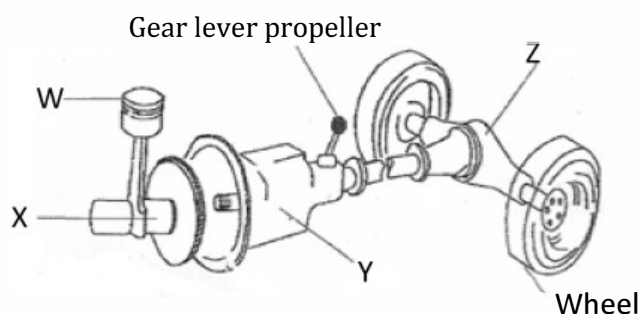
18. Study the organisms below and answer the questions that follow.

**G****S**

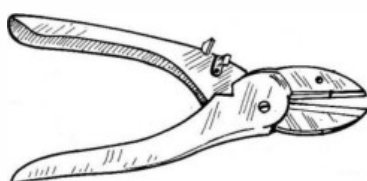
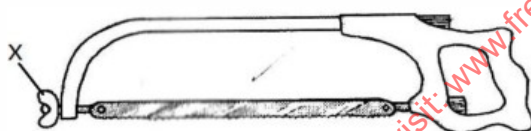
- a) Identify the organism G and S (2 marks)
- b) State the category to which the organisms belong to. (1 mark)
- c) Name the part of organ of the host body where parasites G is found (1 mark)
- d) Name the intermediate hosts for each of the parasites G and S. (2 marks)
- e) State the **three** adaptations of organism S to its mode of life. (3 marks)



19. The diagram below shows part of the power transmission system of a tractor. Study it carefully and answer the questions below.



- (a) Name the parts labeled **W** and **Y**. (1 mark)  
 (b) State the functions of the parts **X** and **Z**. (2 marks)  
 (c) Name two ways in which the power is transmitted from the engine. (2 marks)
20. The diagrams below represent tools used in the farm.

**M****N****P**

- (a) Identify the tool represented by diagrams **M**, **N** and **P**. (3 marks)  
 (b) State the uses of the tools represented by **M** and **N**. (2 marks)  
 (c) Identify the part labeled **X** in the tool represented by **P**. (1 mark)

### **SECTION C (40MKS)**

#### **Answer any two questions in this section**

21. a) Explain any **four** factors considered in siting farm buildings and structures. (8 marks)  
 b) Explain foot rot under the following subheadings  
 (i) Predisposing factors (5 marks)  
 (ii) Symptoms (3 marks)  
 (iii) Control (4 marks)
22. (a) Describe the rearing of lambs from lambing up to weaning time. (10 marks)  
 (b) Explain **five** causes of livestock diseases. (5 marks)  
 (c) State **five** differences between Ruminants and non Ruminants (5 marks)
23. (a) Outline **five** advantages of mechanization in the farm. (5 marks)  
 (b) **Compare** between the use of a plunge dip and the use of a spray race. (10 marks)  
 (c) **Explain five** factors that affect digestibility of food in livestock. (5 marks)



**CEKENAS**  
**443/1**  
**AGRICULTURE**  
**THEORY**  
**JULY 2017**

**SECTION A. 30 MARKS**

**ANSWER ALL QUESTIONS IN THE SPACE PROVIDED.**

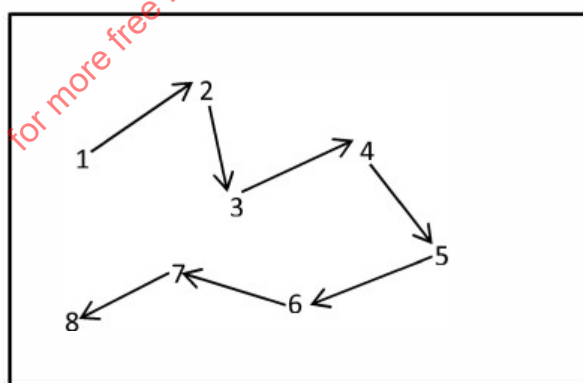
1. State any four conditions that may lead to small scale farming. (2 mks)
2. Give four methods of breaking seed dormancy. (2 mks)
3. Differentiate between soil texture and soil structure
4. Give four reasons for practicing minimum tillage. (2 mks)
5. State four conditions that may cause grain deterioration in the store. (2 mks)
6. Give three sources of soil acidity. (1½ mks)
7. State four qualities of a parent plant which should be considered when selecting vegetative material for propagation. (2 mks)
8. Give three reasons for grafting old trees in agroforestry tree management. (1½ mks)
9. Give four negative effects of mass wasting. (2 mks)
10. Name two classes of weeds on the basis of each of the following:
  - a) Growth cycle
  - b) Plant morphology
11. Name two methods which can be used to detect mineral nutrient deficiency in crops. (1 mk)
12. Distinguish between Gross domestic product (GDP) and Gross National product (GNP). (2 mks)
13. State three causes of blossom end rot in tomatoe. (1½ mks)
14. Name three types of capital in the farm.
15. A farmer in Nyeri observed the following symptoms of a disease on the leaves and stems of wheat crop.
  - (i) Orange-brown pustules on the leaves and stem.
  - (ii) Rusty coloured dust that stains her clothes in the field.
  - a) Identify the disease the wheat crop was suffering from. (1 mk)
  - b) Give one effective chemical method of controlling the disease. (1 mk)

Give any two other methods of control apart from the one you have mentioned above (1 mk)
16. Give four disadvantages of multiple stem pruning. (2 mks)

**SECTION B. 50 MARKS**

**ANSWER ALL THE QUESTIONS IN THE SPACES PROVIDED.**

17. The diagram below illustrates a method of collecting soil samples from a field.



- a) Identify the method illustrated above. (1 mk)
- b) Describe four steps that should be followed when collecting soil samples. (2 mks)
- c) State two precautions a farmer should take when collecting a representative soil sample from the field for testing. (2 mks)

18. The diagram below illustrates a type of a bird which is a crop pest.



- a) Identify the bird shown in the diagram. (1 mk)
- b) State two ways in which the bird causes damage to crops. (2 mks)
- c) State four control measures of the pest. (2 mks)

19. The following table gives the weekly demand and supply schedule of potatoes.

Price per Kg Ksh	Demand in millions of Kgs	Supply in millions of Kgs
10	23	59
9	30	57
8	36	54
7	41	50
6	45	45
5	48	39
4	50	32
3	51	25

Use the table to answer the following questions:

- a) What is the equilibrium price? (1 mk)
  - b) State the effects of a government imposing a maximum price of:
    - i) Ksh. 5 per bag (1 mk)
    - ii) Ksh. 7 per bag (1 mk)
  - c) If the government guaranteed a potato supply at a price of Ksh. 7 per kg, what quantity would it have to purchase to maintain this price? (1 mk)
  - d) If alternatively the government bought all the potatoes on offer at Ksh. 7 per kg, what price would it have to charge the consumers to dispose of this quantity? (1 mk)
20. The diagrams illustrated A and B are commonly used for harvesting and tree management in agroforestry. Study them and answer questions that follow.



**A**



**B**

- a) Identify the technique of harvesting and management of tree used in A and B above. (1 mk)
- b) Explain what kind of operations are involved in the technique used in the illustration A above. (1 mk)
- c) Give one reason for using technique A shown above when harvesting agroforestry trees. (1 mk)
- d) Give two reasons for using the harvesting and management technique shown in illustration B above. (2 mks)

**SECTION C (40 MARKS)****ANSWER ANY TWO QUESTIONS FROM THIS SECTION IN THE SPACES PROVIDED AFTER THE QUESTION.**

21. a) Outline the advantages of mulching in crop production using vegetative materials. (5 mks)  
 b) Discuss any five methods that can be used to harvest the rain water for farming. (5 mks)  
 c) Discuss measures that should be taken in a mixed farm production in order to minimize pollution. (10 mks)
22. Describe the production of cabbage seedlings under the following subheadings:  
 a) Nursery establishment. (8 mks)  
 b) Pricking out of seedlings. (6 mks)  
 c) Management of the seedlings up to transplanting. (6 mks)
23. a) The following information was obtained from Mr. Muoki's books of farm business. Prepare a profit and loss account for Mr. Muoki's farm financial position at the end of the business year 2010. (10 mks)

Sale of milk	20,000
Sale of cabbages	10,000
Sale of eggs	5,000
Wages	5,000
Depreciation of assets	7,000
Opening valuation	10,000
Sale of heifer	15,000
Tools & equipment	15,000
Closing valuation	10,000

- iii) Calculate the percentage loss or profit. (2 mks)  
 b) Describe the factors which may determine the stage and time of harvesting crops in farming. (10 mks)

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CEKENA

443/2

AGRICULTURE PAPER 2

THEORY

JULY 2017

**SECTION A (30 MARKS)** *Answer all questions in this section in the spaces provided*

1. What do you understand by the following terms as used in animal production. [3mks]
  - a) Caponisation
  - b) Epistasis
  - c) Kidding
2. List four factors that should be considered when grading eggs for marketing. [2mks]
3. Name four functions of lipids in animals body. [2mks]
4. Outline three methods of out breeding [1 mks]
5. Differentiate between drift and pen lambing [2mks]
6. Name the most appropriate tools used in the following operations [2mks]
  - a) Removing metals chipping on a file
  - b) Cutting wood along grains
  - c) Branding
  - d) Detaching honey combs during honey harvesting
7. Give two reasons for raddling in sheep management. [1mks]
8. Name four livestock diseases caused by viruses. [2mks]
9. Outline four uses of the gear box in a tractor. [2mks]
10. (a) Give two activities which would encourage milk let-down during milking of a cow. [1mks]
- (b) Name two hormones which influences milk let-down [2mks]
11. Give two harmful effects of keds infestation on sheep [2mks]
12. Give three ways of transmitting livestock diseases. [1 ½ mks]
  - a) Give the distinguishing observable characteristics between landrace and large white. [1 ½ mks]
  - b) California white and newzealand white breeds. [1mks]
13. State three disadvantages of using steel material in construction of farms building [1 ½ mks]
14. The following is a list of poultry breeds:
 

White leghorn  
Light Sussex  
Rhode Island Red  
Ancona

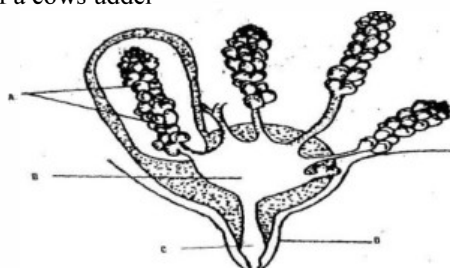
Categorize them into:

Light breeds [1 mk]

Heavy breeds [1 mk]

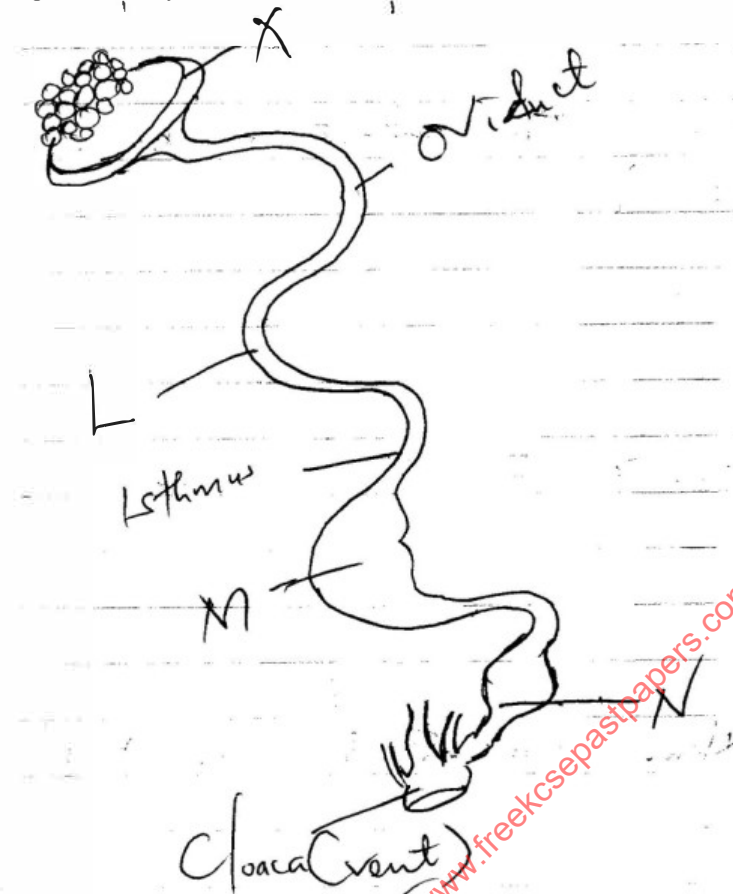
**SECTION B** 20 mks *(Answer All The Questions)*

15. The diagram below is a cross section of a cows udder

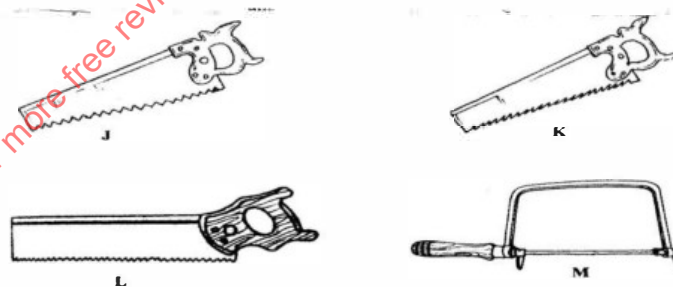


- a) Label parts marked A B C and D [2 mks]
- b) Name two essentials of clean milk production [2mks]
- c) What is dry cow therapy [1mks]

16. The diagram below shows reproduction system of a hen.

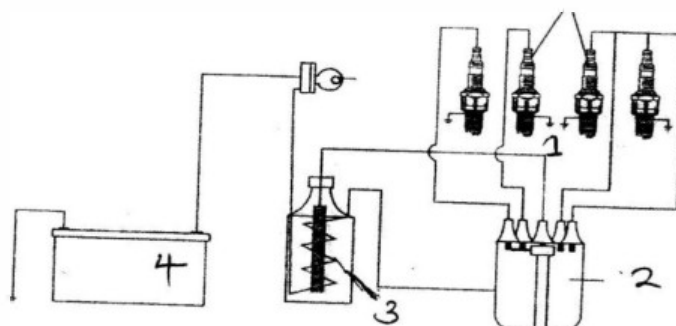


- a) Name parts labeled K L M N [2mks]  
 b) Give the function of the following parts in egg function [2mks]  
 c) How long does the egg take to form [1mks]
17. The diagram below represents various workshops tools basically used for cutting. Study them carefully and answer the question that follows.



- a) Identify the tools labeled J K L and M [2 mks]  
 b) Give one use of each of the tools labeled J K L and M [2 mks]  
 c) Give two maintenance practices which should be carried out on the tools labeled K [1mks]

18. The illustration below shows the major parts of a tractor ignition system study it and answer the questions that follow



- a) What are the functions of the parts of the system labeled 1 2 and 3 [3mks]  
 b) State the maintenance practices that should be carried out on the ignition system of the tractor. [2mks]

### SECTION C

#### Instructions:

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

19. (a) Describe the rearing of fresh water fish in an artificial pond under the following subheadings [2mks]  
 Types of fish reared [2mks]  
 Stocking of the pond [4mks]  
 Practice done to increase fish yield [3mks]  
 Cropping of fish [3mks]  
 (b) Describe the uses of fences in a farm. [3mks]
20. (a) Describe the maintenance practices carried out on a tractor before its put to daily uses. [10mks]  
 (b) Outline the factors that should be considered when siting a calf pen on the farm. [10mks]
21. (a) Explain nine management practices that should be carried out on dairy cows during gestation period. [9mks]  
 (b) Explain the factors that should be considered to ensure efficient cultivation using oxen and ox-drawn plough. [10mks]

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**KIGUMO**  
**443/1**  
**AGRICULTURE**  
**PAPER 1**  
**JULY/AUGUST 2017**

**SECTION A (30 MKS)**

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

1. Give two causes of hard pans in the soil. (1mks)
2. List three roles of mineral matter in the soil. (1 ½ mks)
3. State three advantages of direct planting over transplanting. (1 ½ mks)
4. List four natural factors that encourage soil erosion. (2mks)
5. Name the two main types of costs in farm accounting. (1mks)
6. List four factors that influence seed rate. (2mks)
7. Give four factors that influence the quality of hay. (2mks)
8. List four roles of phosphorous in crops. (2mks)
9. Mention four ways of acquiring agricultural land. (2mks)
10. State four factors that influence choice of farming methods in Kenya. (2mks)
11. Give two ways in which wind encourage agricultural production. (1mk)
12. State four advantages of paddocking in livestock management. (2mks)
13. List three ways in which biotic factors limit agricultural production. (1 ½ mks)
14. Name four insect pests of beans. (2mks)
15. State four factors that influence the quality of farm yard manure. (2mks)
16. List benefits of a title deed to a farmer. (1 ½ mks)
17. Name two chemicals used in the treatment of water for domestic use. (1mks)
18. List four ways in which pruning control pests in coffee. (2mks)

**SECTION B (20MKS)**

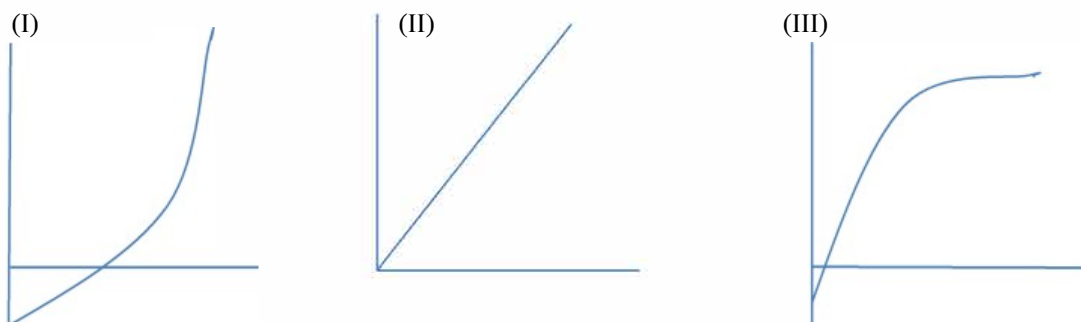
**Answer all questions in this section in the spaces provided.**

19. The diagram below represents a vegetative material used in the propagation of tea. Study it and answer the questions that follow.

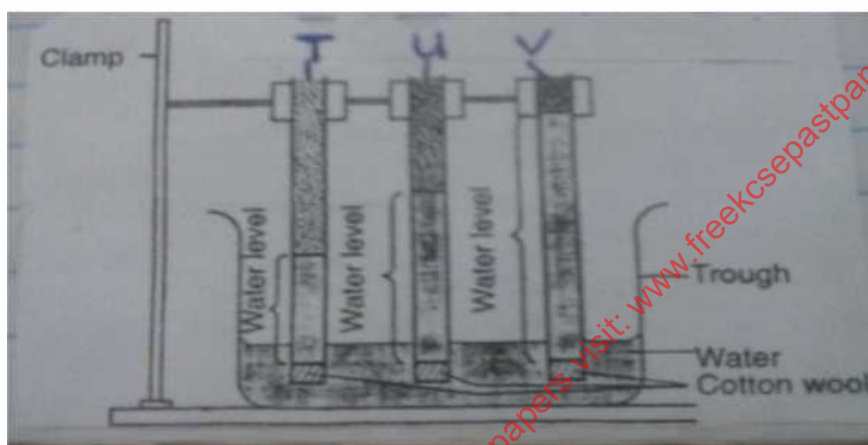


- a. Name the material. (½ mk)
- b. Name the part labeled X. (½ mk)
- c. Give three desirable characteristics from which the material in (a) above were obtained. (3mks)

20. Below are graphical representations showing different types of production functions. Study them and answer the questions that follow.



- Identify the types of production function represented by the diagrams. (3mks)
  - What is meant by production function as used in agricultural economics? (1mk)
21. The diagram below represents a set up used in soil study.



- What aspect of soil is investigated using the set up? (1mks)
  - Name the soil types T, U, and V. (3mks)
  - Name the characteristic texture of the soil types T and V. (1mk)
22. A farmer was advised to apply 40kg of  $P_2O_5$  per hectare of maize at planting time. He decided to use single super phosphate containing 20%  $P_2O_5$ .
- Calculate the amount of single super phosphate he would have to apply on his two hectare farm. (2mks)
  - State the reason for applying phosphatic fertilizers at planting time. (1mk)
  - Give one cause of phosphorous unavailability to crops. (1mk)
23. List three precautions observed during harvesting of cotton. (3mks)

### Section C ( 40 MKS)

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

- State five advantages of budgeting in farm management. (5mks)
  - Explain five problems faced in the marketing of milk in Kenya. (10mks)
  - Describe five management practices carried out in nippier grass to maximize production. (5mks)
- Explain five ways in which draining mashy land encourage crop growth. (10mks)
  - Giving an example in each case, describe five ways in which field pests reduce crop yields. (10mks)
- Describe six factors that determine the stage of harvesting crops. (6mks)
  - Describe production of carrots under the following subheadings.
    - Planting. (3mks)
    - Field management (6mks)
    - Harvesting. (2mks)
  - Describe three importance of agroforestry. (3mks)

**KIGUMO**  
**443/2**  
**AGRICULTURE**  
**PAPER 2**  
**JULY/AUGUST 2017**

**SECTION A (30MKS)**

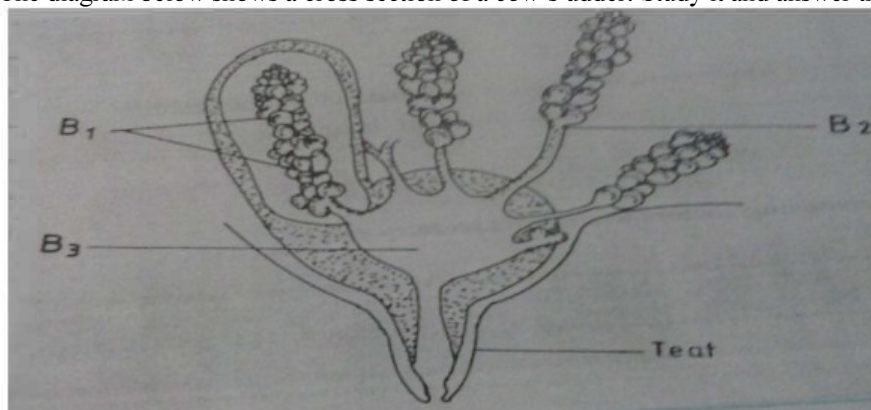
Answer all questions in this section in the spaces provided.

1. State the appropriate use of each of the following farm tool: (1mk)
  - (i) Stock and die
  - (ii) Oil stone
2. Give the distinguishing colour for each of the following breeds of livestock; (2mks)
  - (i) Essex saddle back pig.
  - (ii) Toggenburg goat.
3. What do the figures in the ratio 1:2:4 stand for in construction? (1 ½ mks)
4. State the use of the P.V.C Sheet when laying a foundation of a farm structure. (1mk)
5. Name three methods of applying acaricides on livestock. (1 ½ mks)
6. Identify two methods used in castration of cocks. (1mks)
7. List three functions of a carburetor in a petro engine. (1 ½ mk)
8. Name four systems of a tractor. (2mks)
9. Under what three conditions would a farmer prefer to use an ox-cart instead of a tractor drawn trailer. (1 ½ mks)
10. (a) State two reasons for docking young rams. (1mk)
- (b) What should be done to a ram during the mating season to enable a farmer to identify the ewes it has mated? (½ mk)
11. Why should eggs be packed in trays with their broad end facing upwards? (½ mks)
12. Name two recommended methods for identifying goats. (1mk)
13. State two maintenance practices that should be carried out in a wheel barrow. (1mks)
14. Name two developmental stages of a liver fluke (Fasciola Sp.) which occur in a fresh water snail (Limnaea sp.) (1mk)
15. Give a reason for each of the following practices in artificial incubation of eggs. (1 ½ mk)
  - a. Provision of fresh air.
  - b. Maintaining humidity at 60%
  - c. Regular turning of eggs.
16. Give four factors considered in grading of eggs. (2mks)
17. Why is castor oil important in preparation of artificial colostrum? (1mk)
18. Name three types of lubrication used in tractors. (1 ½ mks)
19. Give the meaning of the following terms as used in livestock health. (3mks)
  - a. Incubation period.
  - b. Mortality
  - c. Predisposing factors of a disease
20. State two functions of the crop in the digestive system of a hen. (1mk)
21. List four causes of infertility in a dairy cow. (2mks)

**SECTION B ( 20MKS)**

Answer all questions in this section in the spaces provided.

22. The diagram below shows a cross section of a cow's udder. Study it and answer the questions that follow.



- a. Identify the parts labeled B<sub>1</sub> B<sub>2</sub> and B<sub>3</sub> (3mks)  
 b. Give one function of the part labeled B<sub>1</sub>. (1mks)  
 c. Name the part of the teat which is likely to be injured by poor hand milking technique. (1mk)
23. (a) The diagrams below show the behavior of the chick at different condition. Study the diagrams and answer the questions below.



- Indicate below each diagram the conditions in the brooder. (2mks)
- (b) What are the features of a poor layer that a farmer should look for in the following parts of a hen during a culling? Give one feature in each. (4mks)
- Vent
  - Comb
  - Pelvic bones
  - Abdomen
24. The diagrams below illustrate various types of bees found in a colony. Study them and answer questions that follow.



- a. Name the type of bees labeled F, G and H. (1 ½ mks)  
 b. State two duties of each of the members in a colony. (2mks)  
 c. List three materials collected by bees. (1 ½ mks)
25. A dairy farmer is required to prepare 100kg 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. (4mks)

**SECTION C (40MKS)****Choose any two questions from this section only.**

26. (a) Discuss foot rot disease under the following sub-headings. (4mks)  
    (i) Signs of infection. (4mks)  
    (ii) Control measures. (4mks)  
    (b) Name five parts of a plunge dip and for each named part, explain the importance of including it in the construction of the dip. (10mks)  
    (c) Give two reasons why sows may have a tendency of feeding on piglets immediately after farrowing. (2mks)
27. (a) State six factors to consider when selecting materials for constructing a calf pen. (6mks)  
    (b) Explain how a two stroke cycle engine works. (6mks)  
    (c) Outline the procedure of honey harvesting (8mks)
28. (a) Describe fish farming under the following sub-headings.  
    (i) Siting of pond. (4mks)  
    (ii) Pond construction. (8mks)  
    (iii) Feeding fish. (2mks)  
    (b) State the advantages of farm mechanization. (6mks)

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**WESTLANDS GRAPHICS**

443/1

**AGRICULTURE**

Paper 1

July 2017

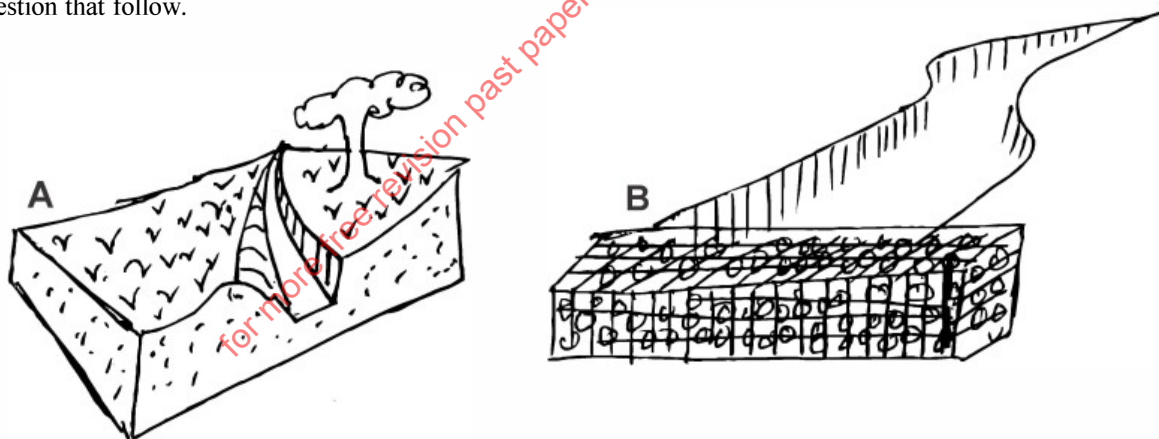
Time: 2 Hours

**SECTION A : (30 MARKS)**

1. State four aspects of wind that hinder agricultural production. (2 marks)
2. State four factors that are considered during selection of farm implements and tools for preparation of land before planting. (2 marks)
3. Give four reasons of draining water logged soils. (2 marks)
4. Give four reasons why green manure is not popular with Kenyan farmers. (2 marks)
5. Explain the meaning of the following terms in agricultural economics.
  - i) Gross domestic product (GDP) (1 mark)
  - ii) Gross national income (GNI) (1 mark)
6. State four disadvantages of land fragmentation as practiced in agriculture. (2 marks)
7. Outline four factors considered during the selection of site for a nursery bed. (2 marks)
8. State four problems associated with minimum tillage. (2 marks)
9. Give the meaning of the label 20:10:5 on a fertilizer bag. (1 mark)
10. State two government policies that aim at promoting domestic production. (2 marks)
11. Outline four undesirable structural features of a traditional grain storage store. (2 marks)
12. State two requirements of a successful tissue culturing in crop production. (2 marks)
13. Outline four factors that influence the digestibility of food eaten by a farm animal. (2 marks)
14. State two uses of short term credit in agriculture. (1 mark)
15. a) What is working capital ? (½ mark)  
 b) Name three examples of fixed capital in a dairy farm. (1½ marks)
16. a) What is Agro-forestry ? (½ mark)  
 b) Name three methods of harvesting trees on a farm practising Agro-forestry. (1½ marks)

**SECTION B : (20 MARKS)**

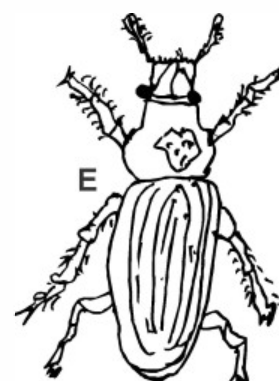
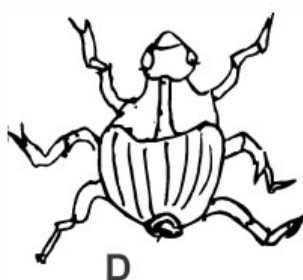
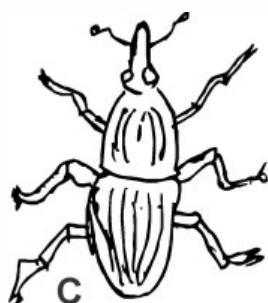
17. The illustrations below represented structures used in soil and water conservation. Study them carefully and answer the question that follow.



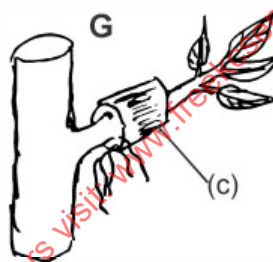
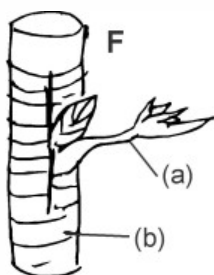
- i) Identify the structures labelled A and B. (1 mark)
- ii) Name the field condition where each structure is the most suitable. (1 mark)



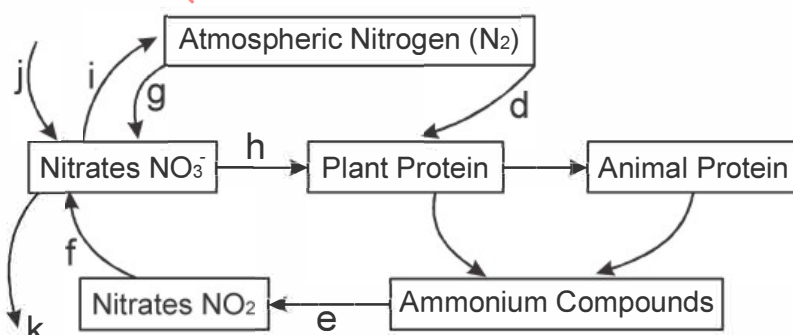
18. The diagrams below represent some pests. Study them carefully and answer the questions that follow.



- i) Identify the pest labelled C, D and E. (1½ marks)
  - ii) Give one reason why pest E is not controlled chemically. (½ mark)
  - iii) State two non-chemical methods of controlling pest C and D. (1 marks)
19. Study the illustrative diagrams below and answer the questions that follow.



- i) Identify the practice labelled F and G. (1 mark)
  - ii) Name two crops in each case where the practice labelled F and G are the most suitable method of propagation. (2 marks)
  - iii) State two possible causes of failure in each case for the practices labelled F and G. (2 marks)
20. i) What is varying rate of substitution in agricultural economics. (1 mark)
- ii) Mr. Mukulima was using 45kg of sorghum and 35kg of soya bean to prepare a feed ration, he decided to change to 30kg of sorghum and 50kg of soya bean. Calculate the marginal rate of substitution. (3 marks)
21. The illustration below represents a series of changes. Study it carefully and answer the questions that follow.



- i) Identify the process. (1 mark)  
 ii) Name the organism involved in the series represented by d, e, f and g. (2 marks)  
 iii) Identify the process represented by h. (½ mark)  
 iv) Identify the process represented by j, k and i. (1½ marks)

**SECTION C : (40 MARKS)**

22. a) Briefly explain the factors that determine spacing of maize during planting in the field. (10 marks)  
 b) Describe financial uses of farm records. (5 marks)  
 c) Explain the undesirable effects of soil erosion. (5 marks)
23. A farmer carried out the following transactions on his farm.

Crop Wheat  
 Yield 30 bags  
 Price / unit Ksh.19000  
 Sales of wheat 30 bags

Variable cost per ha in Kshs.	Ksh.	Cts
Land preparation	3000	00
Purchase of seeds	6000	00
Purchase of DAP fertilizer	3600	00
Purchase of CAN fertilizer	1800	00
Wages	1000	00
Purchase of jembes	2000	00
Purchase of slashers	1500	00
Miscellaneous expenses	450	00

- a) Using the information provided, calculate the gross margin. (12 marks)  
 b) Explain the factors considered when choosing an irrigation method in crop production. (4 marks)  
 c) Describe the role of Kenya meat commission. (4 marks)
24. a) Explain the marketing functions. (10 marks)  
 b) Describe briefly post harvest practices in maize. (5 marks)  
 c) Describe briefly the effects of mass wasting /solifluction. (5 marks)

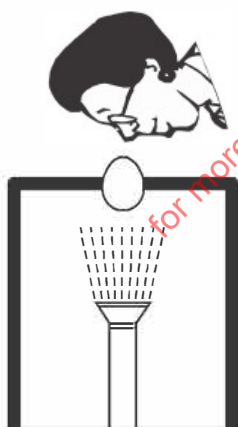
**WESTLANDS GRAPHICS**  
**443/2**  
**AGRICULTURE**  
**Paper 2**  
**July 2017**  
**Time: 2 Hours**

**SECTION A : (30 MARKS)**

1. State the functions of the following accessory organs in a male reproductive system. (1½ marks)
  - i) Seminal vesicles
  - ii) Prostate gland
  - iii) Epididymis
2. Name the breed of the rabbit which is white with one or more of the ears, paws or tail being black. (½ mark)
3. Name the larval forms of *Fasciola* spp that :
  - i) Enters the mud snail ..... (½ mark)
  - ii) Emerges from the mud snail ..... (½ mark)
4. a) Name the farm tool which is used for the following. (1 mark)
  - i) Cutting tongues and grooves on edges of timber.
  - ii) Opening the scrotum of male animals.
- b) What is the difference between a tinsman's snips and cold chisel ? (1 mark)
- c) State four problems that will be faced by a farmer who does not maintain his tools. (2 marks)
5. State four conditions considered in siting an apiary. (2 marks)
6. State four properties of a good vaccine. (2 marks)
7. Name the four stomach pouches in a ruminant animal starting from the first to the last one. (2 marks)
8. List four vices observed in birds under deep litter system. (2 marks)
9. State the main colour difference between Essex and Wessex saddle back breed of pigs. (2 marks)
10. List down four specific symptoms of anthrax in bovine. (2 marks)
11. State four disadvantages of natural mating in livestock production. (2 marks)
12. List down four roles played by proteins in livestock nutrition. (2 marks)
13. State four advantages of live fences. (Kei apple) (2 marks)
14. List down four short term service practices done on a tractor. (2 marks)
15. a) State four desirable characteristics of (*Bos Indicus*) over (*Bos taurus*) (2 marks)
- b) State two reasons of feeding young animals with colostrum. (1 mark)

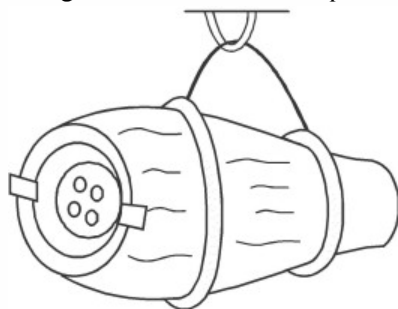
**SECTION B : (20 MARKS)**

16. The diagram below shows a practice done by a poultry farmer.



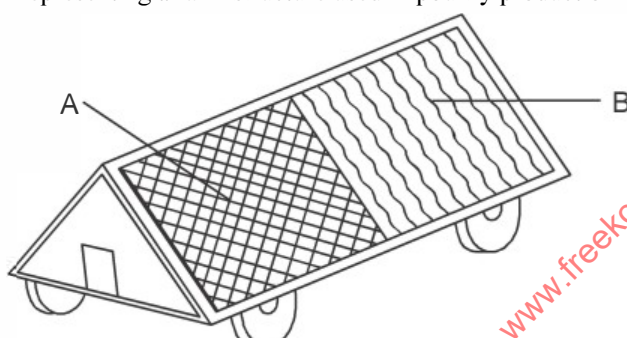
- a) i) Identify the practice. (½ mark)
- ii) List down three possible abnormalities that can be observed through the practice in a(i). (1½ marks)
- b) List down two symptoms of mastitis in a cow. (1 mark)

17. Below is a diagram representing a structure in livestock production.



- a) i) Identify the equipment. (1 mark)  
 ii) Why is it necessary to keep the equipment in a slanting position ? (1 mark)  
 b) i) State two undesirable features of the above structure. (2 marks)  
 ii) List down four environmental conditions that can cause swarming of bees from the structure in a(i) above. (2 marks)  
 c) Name other two types of the same structure in a(i) above. (2 marks)

18. Below is a diagram representing a farm structure used in poultry production.



- a) i) Identify the system represented by the above structure. (1 mark)  
 ii) List down four demerits of the above system. (2 marks)  
 iii) State the importance of the part labelled A and B (1 mark)
19. The illustration below represents a method of livestock identification. Study it carefully and answer the questions that follow.



- a) i) Identify the method ..... (½ mark)  
 ii) Using the space provided draw the animal number 146. (2½ marks)  
 b) Give four reasons why its necessary to carry out the above practice. (2 marks)

### SECTION C : (40 MARKS)

20. a) Discuss the operational differences between a disc plough and mouldboard plough. (10 marks)  
 b) Describe the effects of parasites in livestock production and marketing. (10 marks)
21. a) Describe the factors considered in selection of construction materials. (10 marks)  
 b) Describe the desirable characteristics which make tilapia popular with farmers. (5 marks)  
 c) Briefly explain the disadvantages of wind power as a source of energy. (5 marks)
22. a) Describe the procedure in artificial or bucket feeding in rearing of calves. (5 marks)  
 b) Describe the components of a mouldboard plough. (5 marks)  
 c) Describe the essentials of clean milk production. (5 marks)  
 d) Explain the procedure in establishment of foundation in farm buildings. (5 marks)

**GITUAMBA LAIKIPIA**  
**443/1**  
**AGRICULTURE**  
**PAPER 1**  
**TERM 2 2017**  
**TIME: 2 HOURS**

**SECTION A: (30 MARKS)**

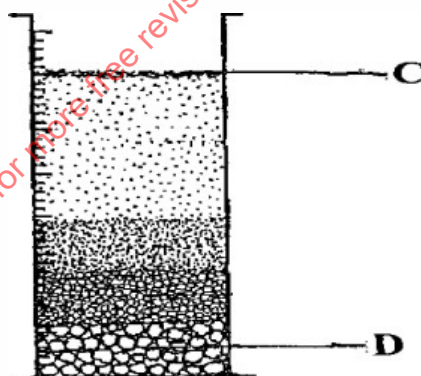
Answer **ALL** questions in this section in the spaces provided.

1. Name **three** forms of horticulture farming. (1½mks)
2. Name four types of records a maize farmer should keep (2mks)
3. List four reasons for primary cultivation. (2mks)
4. Outline four ways by which crop pests are classified. (2mks)
5. Name two propagation materials used in the establishment of pineapples. (1 mark)
6. State **TWO** ways in which inorganic mulch helps to conserve water in the soil (1mark)
7. State four ways by which plant nutrient may be lost from the soil. (2mks)
8. Mention four characteristics of nitrogenous fertilizers. (2mks)
9. List two methods of pruning crops. (1mk)
10. Name two field practices carried out to obtain optimum plant population in a crop field. (1mk)
11. State two non - chemical methods of controlling storage pests in a maize granary. (1mk)
12. (a) What causes late blight in tomatoes (1mark)
- (b) List **TWO** symptoms of late blight in tomatoes (1mark)
13. Give four government policies that influence agricultural production in Kenya. (2mks)
14. State **three** desirable characteristics of agroforestry trees a farmer would consider before planting in the farm. (1½mks)
15. Define the following terms as used in crop production. (3mks)
- (a) Capping .....
- (b) De – suckering.....
- (c) Changing the cycle.....
16. Give three factors that determine the competitive ability of weeds. (1 ½ mks)
17. State three benefits of having a land title deed to a farmer. (1 ½ mrks)
18. What are the reasons for inoculating legume seeds before planting? (1 mark)

**SECTION B: (20 MARKS)**

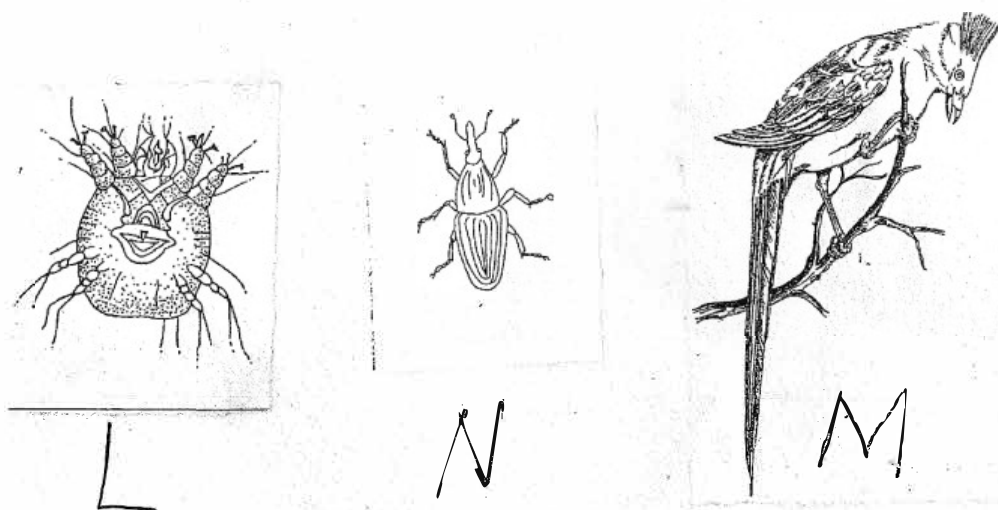
Answer all the questions in this section in the spaces provided.

19. The diagram below illustrates an experiment using garden soil. Study it carefully and answer the question that follow.

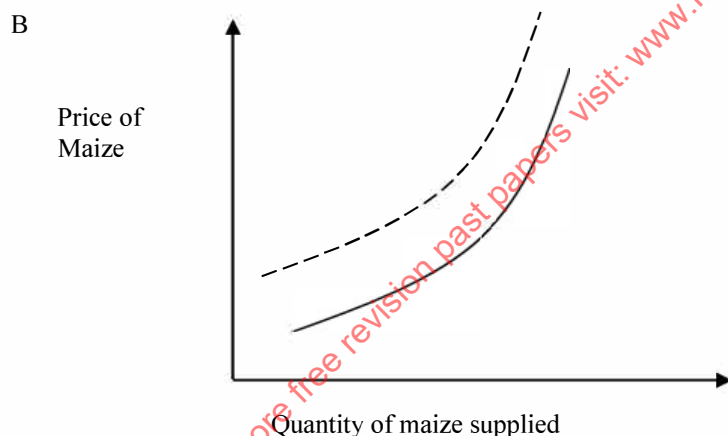


- (a) What was the aim of the experiment? (1mrk)
- (b) Name the parts labeled C and D. (2mrks)
- (c) Name the property of soil being investigated. (1mrk)

20. The diagrams below illustrate both field and storage pests.



- (a) Identify the pests in the illustration: (1½mks)  
 (b) State ways in which pests L and M cause damage to crops. (1mk)  
 (c) State three control measures for the pest N. (1½mks)  
 (d) Outline two damages caused by nematodes on crops. (1mk)
21. The diagram below illustrates the law of supply in agricultural marketing. Study it and answer the questions that follow.



- (a) Give a reason for the shape of the curve labeled A. (2 mks)  
 (b) If the price of the maize remains constant, explain three factors that can cause the curve to shift to B from A. (3mks)
22. Mr. Murei wishes to know whether replacing 3 hectares of maize with potatoes the following season would be worthwhile. The fertilizer would be increased from sh. 4,000 per hectare to sh. 6,000 per hectare. He will also incur cost on maize seeds at sh. 1200 per hectare and potatoes seeds at sh. 3,000 per hectare. The produce from maize was totaling sh. 90,000 and for potatoes will be totaling sh. 120,000. Prepare a partial budget to justify Mr. Murei's wish. (5mks)



**SECTION C: (40 MARKS)**

Answer any **two** questions from this section in the spaces provided after question 29.

23. a) Describe establishment and management of a pasture crop stand up to grazing time. (10mks)  
b) Discuss harmful effects of weeds on crops. (8mks)  
c) Classify Herbicides according to formulation. (2mks)
24. a) Explain four factors that should be considered when selecting seeds for planting (8mks)  
b) State and explain four advantages of minimum tillage in crop production (8mks)  
c) List various methods of harvesting water in farm (4mks)
26. a) Describe five factors that influence the demand of agricultural products. (10mks)  
b) Outline the different methods of pasture conservation and utilization. (5mks)  
c) Give reasons for raising vegetable seedlings through a nursery. (5mks)

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**GITUAMBA LAIKIPIA**  
**443/2**  
**AGRICULTURE**  
**PAPER 2**  
**TERM 2 2017**  
**TIME: 2 HOURS**

**Answer ALL questions in this section.**

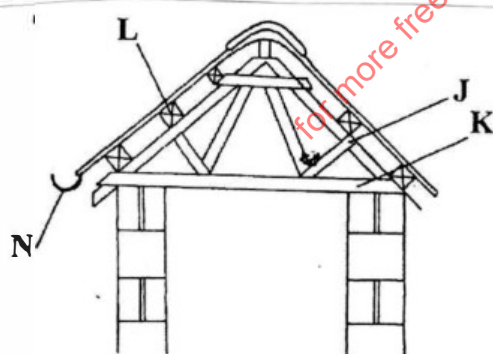
1. Differentiate between an Essex saddle back and Wessex saddle back. (1mk)
2. Give two methods for selecting animals for breeding. (1mk)
3. Give any two uses of litter materials in a poultry house. (1mrk)
4. State two reasons why walls of a dairy shed should be white washed instead of painting. (1 mark)
5. State two problems associated with tractor hire services that farmers encounter (1mark)
6. (a) State four characteristics of livestock roughage feedstuff. (2mks)  
 (b) Give four functions of proteins in an animal's body. (2mks)
7. Differentiate between pen mating and flock mating in poultry. (2mks)
8. Distinguish between digestible crude protein (DCP) and total digestible nutrients (DN) as used in livestock nutrition. (2mks)
9. a) State three disadvantages of natural incubation in poultry production (1½mks)  
 b) Why is it necessary to supplement domestic poultry diet with grit. (½mk)
10. State two ways in which a production ration may be utilized by cattle. (1mk)
11. State four maintenance practices carried out on a fish pond. (2mks)
12. State any two disadvantages that may arise from in breeding in livestock production (2mks)
13. State **four** conditions that can make a cow to withhold milk during milking. (2mks)
14. Outline three reasons why calves should be fed on colostrum (3mks)
15. What do you understand by the term raddling as used in sheep management. (1mrk)
16. Give four factors considered when siting a milking parlour. (2 marks)
17. Why are the elements calcium and phosphorus important in the diet of young livestock.

**SECTION B: (20 MARKS)**

**Answer ALL questions**

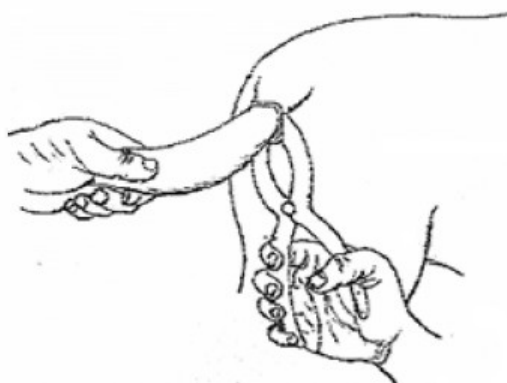
18. Below is an illustration of a farm implement. Study it carefully and answer the questions that follow.
  - (a) Identify the farm implement. (½ mk)
  - (b) Name the parts labeled L, M, O and P. (4mks)
  - (c) Give one function of the parts K, M, N and P. (4mks)
  - (d) Give the adjustment on the store implement to ensure deep ploughing with a wide slice. (1mk)

**Study the illustration of a farm structure below and answer the questions that follow:**



- a) Identify the parts labeled: (2mks)
- b) State **two** uses of part labeled L. (1mk)

c) The diagram below shows a rearing practice in livestock production.



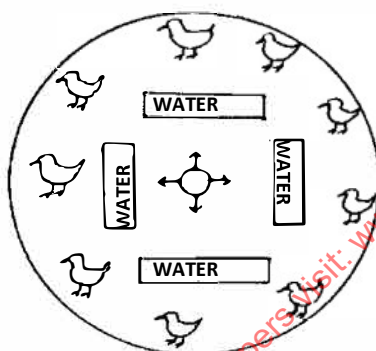
d) Name the method of routine practice shown in the diagram above.

(1mk)

e) Describe the procedure used to carry out the routine practice identified in (a) above.

(2mks)

21. Study the diagram below and answer the questions that follow.



a) Name the structure illustrated above.

(½ mk)

b) Why should structure be round and not rectangular or square shaped.

(1mk)

c) Describe the heat situation in the structure.

(1mk)

d) Give **one** reason to support your answer in (iii) above.

(1mk)

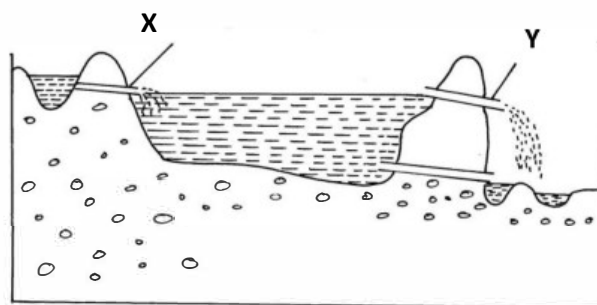
e) Why is saw dust not suitable for use as litter in the structure.

(1mk)

### SECTION C (40 marks)

Answer Any 2 questions in this section in the spaces provided.

22. Drawn below is a diagram of a fish pond.



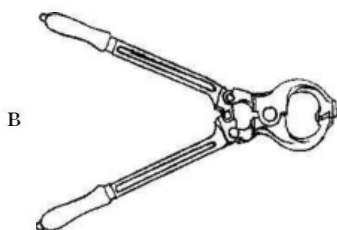
a) Name the parts labeled X and Y.

(2mks)

b) State **three** management practices carried out on a fish pond Y.

(3mks)

23.



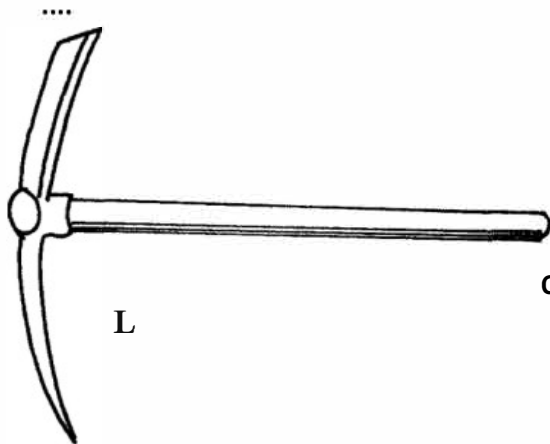
B



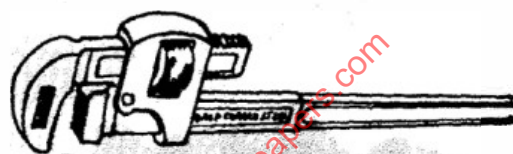
M.....



N.....



L



O.....

- 24.
- Identify the tools B, M, N, O
  - Give one** functional advantage of tool **M** over tool **N**
  - Describe ten maintenance practices carried out on a tractor
  - Discuss the management of layers in a deep litter system.

(2½mk)

**(1mk)**

(10mks)

(10mks)

**COMPLIANT PREPARATORY EXAMINATION**

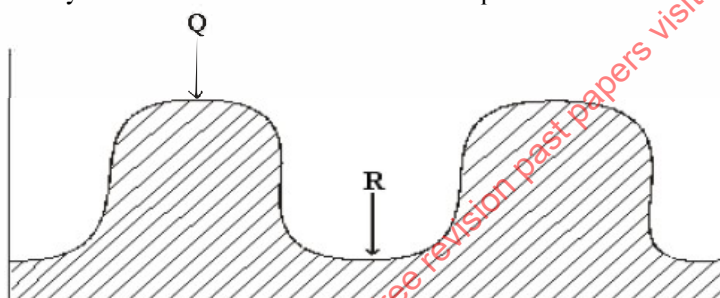
443/1

**AGRICULTURE****Paper 1****SECTION A: (30 MARKS)****Answer ALL questions in this section in the spaces provided.**

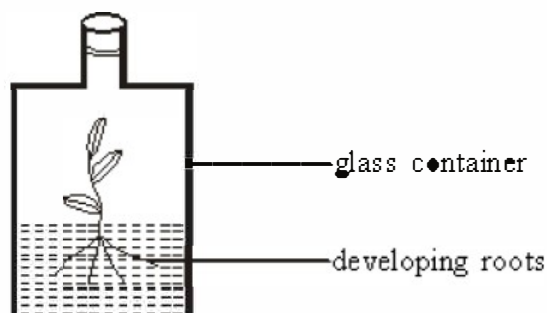
1. Give any **two** farming method used in agricultural production. (1mk)
2. List any **three** ecological factors that affect crop production in Kenya. (1½mks)
3. Name **two** examples of liming elements. (1mk)
4. State the difference between liquid capital and working capital in agriculture production. (1mk)
5. Give **four** factors that influence crop rotation. (2mks)
6. State **four** advantages of drip irrigation. (2mks)
7. State **three** deficiency symptoms of sulphur in crops. (1½mks)
8. State **two** reasons that make a farmer fail to get profit from his/her enterprise. (1mk)
9. Mention any **three** types of farm records that a farmer should keep. (1½mks)
10. Name **three** agricultural activities that can be used to increase light intensity in crops. (1½mks)
11. Give **two** factors that determine the quality of hay. (1mk)
12. Outline **four** items that a maize farmer can enter into his consumable inventory records. (2mks)
13. Differentiate between hybrid and composite as used in crop breeding. (2mks)
14. State **four** ways of preparing planting materials before planting. (2mks)
15. Mention **four** factors that influence the rate of soil erosion. (2mks)
16. List **four** insect pests that attack maize in the field. (2mks)
17. Identify **two** precautions to be taken when harvesting pyrethrum. (1mk)
18. Name **four** pieces of information that may be found in a delivery note. (2mks)
19. Distinguish between topping and re-seeding as used in pasture crops. (2mks)

**SECTION B: (20 MARKS)****Answer ALL questions in this section in the spaces provided.**

20. Study the illustration blow and answer the questions that follow.

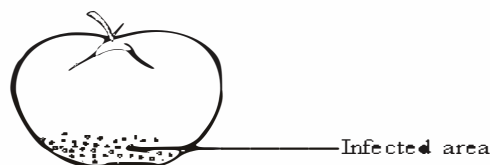


- a) Identify the operation. (1mk)
  - b) Name the parts **Q** and **R**. (1mk)
  - c) Name **one** crop that can be planted in part labelled **R**. (1mk)
  - d) What is the advantage of planting the crop named in (c) above in the part labelled **R**. (1mk)
  - e) Identify **one** hand tool that can be used to carry out the operation. (1mk)
21. The diagram below illustrates materials and a method of vegetative propagation. Study it and answer the questions that follow.



- a) Identify the method of crop propagation illustrated above. (1mk)
- b) Give **two** advantages associated with the method named in (a) above. (2mks)
- c) State **two** characteristics of certified seeds. (2mks)

22. Below is an illustration of a tomato fruit that is attacked by a certain disease. Study it carefully and answer the questions that follow.



- Name the disease. (1mk)
  - State **two** possible causes of the disease named in (a) above. (2mks)
  - Name **one** other tomato disease and its control measure. (2mks)
23. The diagram below illustrates some common weeds. Study it carefully and answer the questions that follow.



- Identify the weeds labelled; Y and Z. (2mks)
  - State **one** economic importance of weed Y and Z named in (a) above. (2mks)
  - Mention **one** factor that makes weed X effectively competitive. (1mk)
- SECTION C (40 MARKS)**
- Answer any two questions in the spaces provided in this booklet.**
- Briefly explain **six** advantages of farm yard manure (FYM) over straight fertilisers. (6mks)
    - Describe the procedure of soil sampling. (10mks)
    - Discuss any **two** methods of training crops. (4mks)
  - Explain any **eight** functions of agriculture marketing. (16mks)
    - Explain **four** disadvantages of communal land tenure system. (4mks)
  - The table below shows the production of maize at various levels of NPK fertilizer application. Study it carefully and answer the questions that follow.

Fixed factor land (1ha)	Variable inputs NPK in kg	Total product maize in 90kg bags	Marginal product maize in 90kg bags	Average product Maize in 90kg bags
1	50	10	0	10
1	100	27	a	f
1	150	42	15	14
1	200	56	b	14
1	250	63	7	12.6
1	300	65	c	g
1	350	65	d	9.3
1	400	60	-5	7.5
1	450	52	e	w
1	500	42	-10	4.2

- Complete the table above. (4mks)
- Using the graph paper provided, draw a curve of total product, marginal product and average product against variable input on the same axis. (7mks)
- Mark the zones of production in the graph. (3mks)
- Of zones marked in questions (iii) above, which one should the farmer operate in? (2mks)
- Explain **four** characteristics of trees/shrubs suitable for Agro-forestry. (4mks)



**COMPLIANT PREPARATORY**

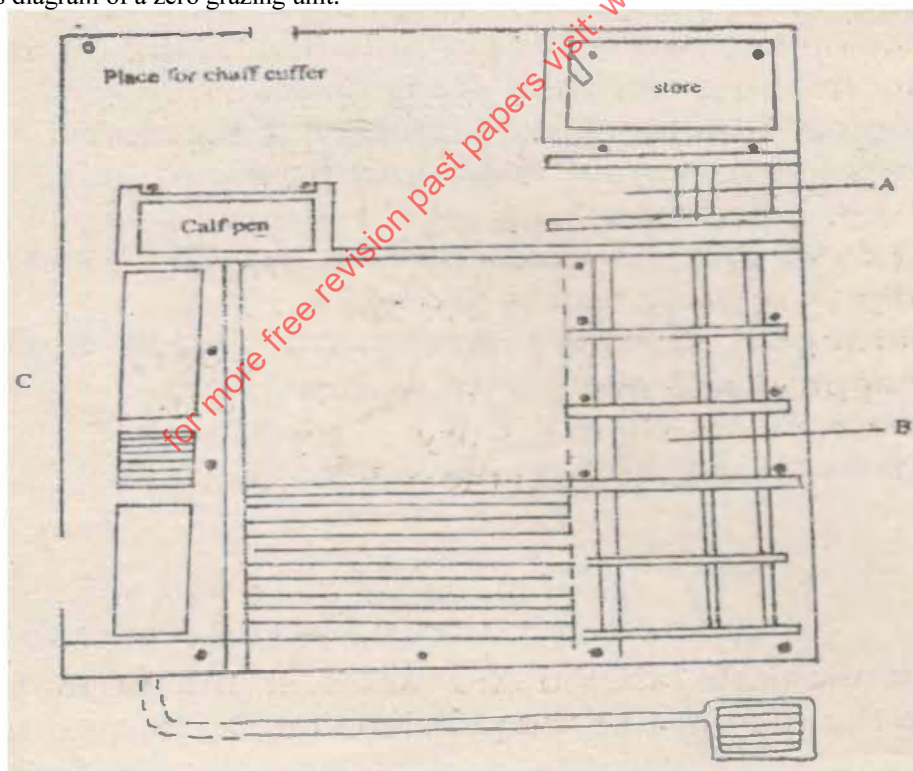
443/2

**AGRICULTURE****Paper 2****SECTION A: (30 MARKS)****Answer ALL questions in this section in the spaces provided.**

1. Name a breed of a pig which has the following characteristics: Black body with a white patch in the shoulders. 1mk
2. Distinguish between zoonotic disease and a notifiable disease. 2mks
3. State FOUR aims of livestock breeding. 2mks
4. State THREE factors considered when siting a poultry house. 1½mks
5. State TWO advantages of using wood in the construction of farm building. 1mk
6. List FOUR farm structures that are necessary for holding dairy animals. 4mks
7. Name TWO methods of harvesting fish from a fish pond. 1mk
8. Name FIVE maintenance practices of a moldboard plough. 2½mks
9. State TWO uses of a sickle in the farm. 1mk
10. Highlight SIX characteristics of a dairy calf you would look for during selection. 3mks
11. State FOUR management practices that are carried out on sheep during mating season. 2mks
12. a) What is the meaning of predisposing factor in livestock health? 1mk  
b) Name FIVE main causes of ill health in farm animals. 2½mks
13. State the role of caecum in ruminants. 1mk
14. Give FOUR demerits of live fence. 2mks
15. State TWO uses of creep area in a pig stay. 1mk
16. State FOUR reasons of spreading polythene sheet on a slab of farm building. 2mks

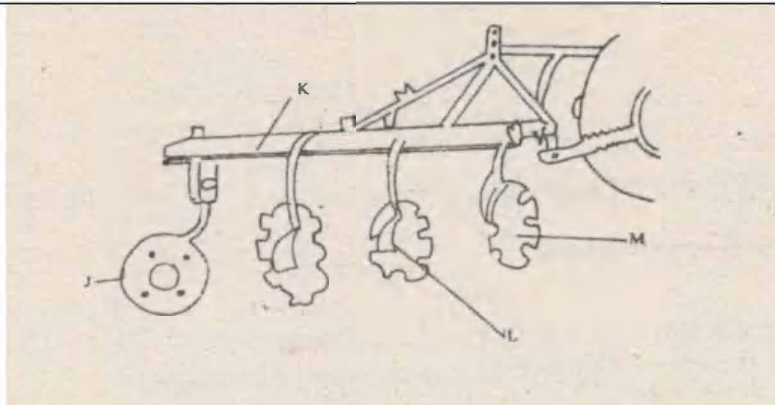
**SECTION B: 20MKS****Answer ALL questions in this section in the spaces provided.**

17. Below is diagram of a zero grazing unit.



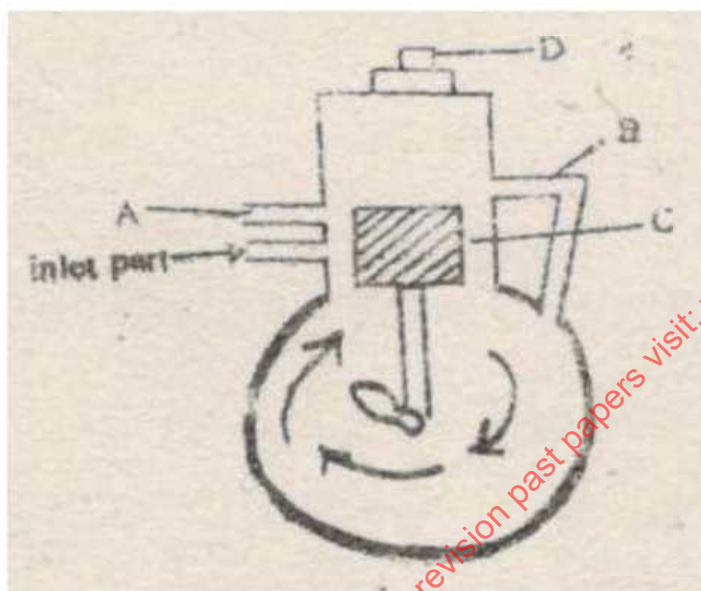
- a) Name the parts labeled A, B and C. 1½mks
- b) i) What is importance of part B? 2mks  
ii) Name the materials used to make the floor of part B. 1mk
- c) State THREE maintenance practices carried out on a zero grazing unit. 3mks

18. Below is a diagram of a farm implement.



- a) Identify the equipment.
  - b) Name the parts labeled K, J and L.
  - c) State the functions of the part labeled J and L.
  - d) State TWO adjustments that can be carried out to decrease the ploughing depth of the plough.
  - e) State the function the part labeled M.
19. Use the diagram below to answer questions below.

1mk  
3mks  
2mks  
2mks  
1mk



- a) Name the parts labeled A, B and C in the tractor power transmission system. 1½mks
  - b) State the function of part labeled D. 1mk
20. The diagram below is an illustration showing head retracted in a chick. Study it carefully and answer the questions that follow



- a) Identify the deficiency symptom
- b) State TWO effects caused by the deficiency of the above element in female animals.
- c) Name any other three symptoms apart from the two above that is caused by same element in poultry.

1mk  
2mks  
3mks

**SECTION C 40MKS**

**Answer any two questions in the spaces provided in this booklet.**

21. a) Discuss the differences between tractor drawn implements and animal drawn implements. 10mks  
b) Describe factors considered when selecting construction materials on the farm. 10mks  
a. Describe the management of layers in a deep litter system from the point of lay. 20mks
23. a) Describe the management practices that should be carried out during rearing of a dairy calf from birth to weaning. 12mks  
b) State eight causes of long calving intervals. 8mks

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**NYERI CENTRAL**  
**443/1**  
**AGRICULTURE FORM FOUR**  
**PAPER 1**

**SECTION A (30MKS)**

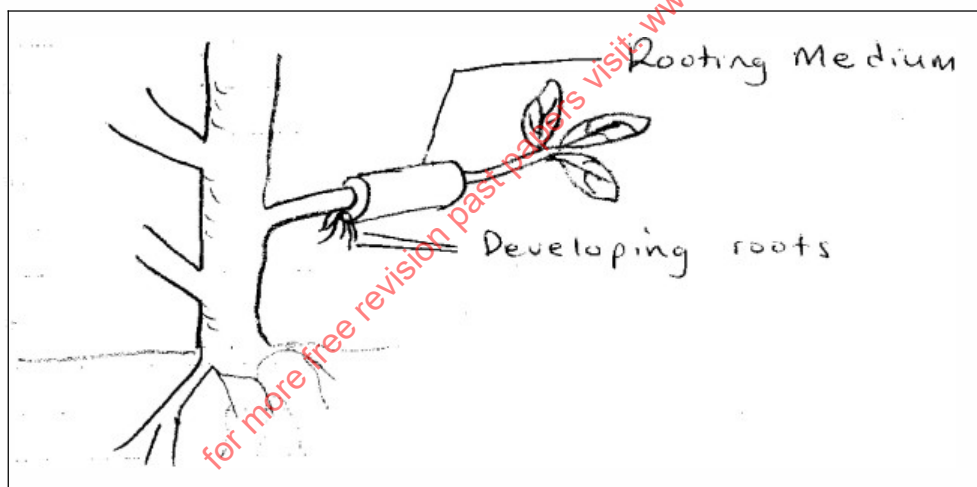
**Answer all questions from this section in the spaces provided.**

1. Give two reasons why farmers are advised to use certified seeds for planting. (1mk)
2. List four methods of drainage used in Kenya. (2mks)
3. Give three methods of practicing rotational grazing. (1½ mks)
4. State four ways of modifying soil PH. (2mks)
5. State four effects of mass wasting. (2mks)
6. List four cultural methods of pest control in crop production. (2mks)
7. Name four human factors that influence efficiency of agricultural production. (2mks)
8. State four ways through which one would acquire land. (2mks)
9. Give four benefits of correct plant population in annual crops (2mks)
10. State two advantages of propagating tea using cuttings. (1mk)
11. Give four reasons why we treat water for use in the farm. (2mks)
12. Differentiate between over sowing and under sowing as used in pasture establishment. (1mk)
13. Give three advantages of tissue culture. (1½mk)
14. State four ways of improving farm labour productivity. (2mks)
15. State four disadvantages of overhead irrigation. (2mks)
16. List four characteristics of clay soils. (2mks)
17. Mention four factors that influence spacing in a pure sorghum stand. (4mks)

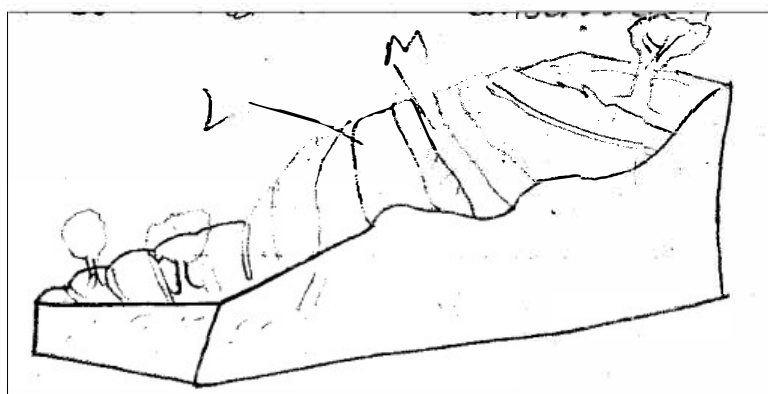
**SECTION B (20MKS)**

**Answer ALL in this section in the spaces provided.**

18. The following diagram shows a certain method of crop propagation



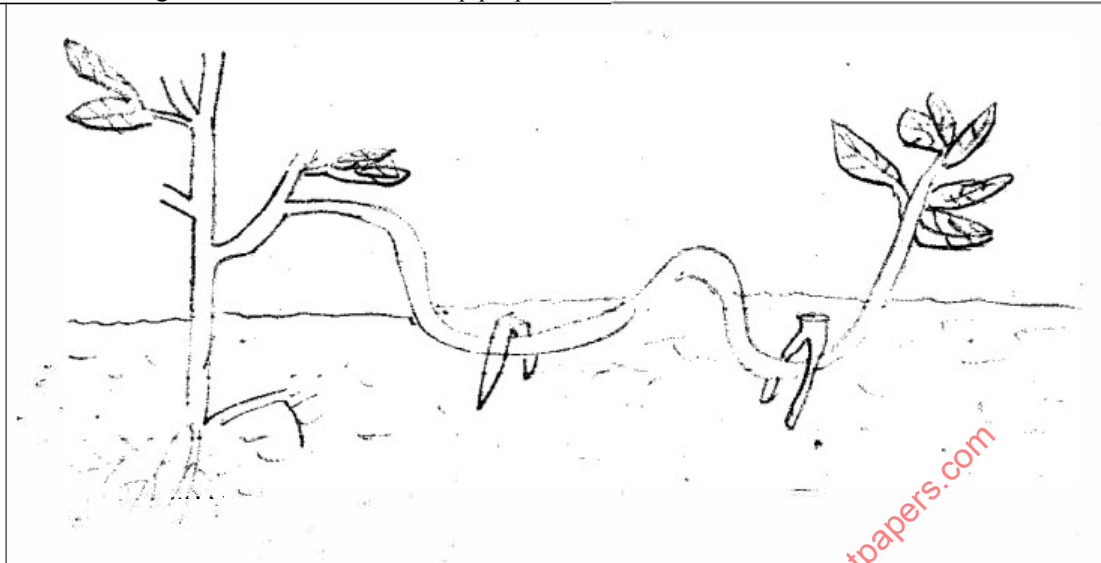
- a) Identify the method. (1mk)
  - b) State three ways of initiating faster root development when using the propagation method. (3mks)
  - c) Explain how the method is carried out. (2mks)
19. The figure below shows a certain structure which is used in soil and water conservation.



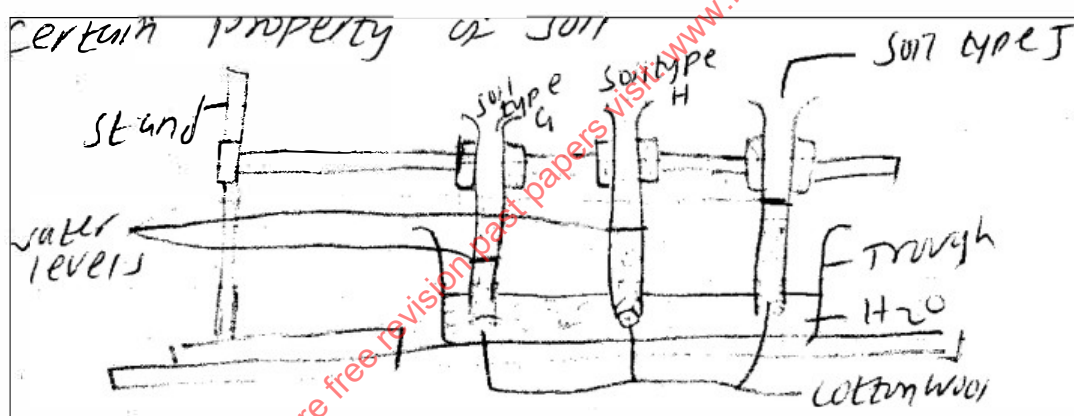
- a) Identify the structure. (½ mk)

- b) Name the parts labeled L and M and state the function of each part. (2mks)  
 c) How can the part labeled L be stabilized? (1/2mk)  
 d) State any two factors that would determine the width and depth of the part labeled M (1mk)  
 e) Describe the process of constructing the structure. (1mk)

20. The following diagram shows a method of crop propagation.



- a) Identify the method. (1mk)  
 b) State one advantage of the above method over other methods of crop propagation. (1mk)  
 c) State four factors which influence the rooting of cuttings in vegetative propagation. (2mks)
21. The diagram below shows an experiment set up using soil types G, H, and J to investigate a certain property of soil.



- a) Identify the property being investigated. (1mk)  
 b) Name the three soil types. (3mks)  
 c) What conclusion can be drawn from the above experiment? (1mk)

### SECTION C (40MKS)

Answer any two questions in the spaces provided after question 24

22. a) Explain eight cultural methods of soil and water conservation. (8mks)  
 b) State six disadvantages of communal land tenure system. (6mks)  
 c) Describe precautions that should be observed when harvesting cotton. (6mks)

23. The following table shows production of maize (in tonnes) using various levels of input

Units of variable input (man-days)	Total output of maize (tons)	Marginal product	Average product
0	0	0	0
1	6	-	-
2	18	-	-
3	33	15	11
4	40	-	10
5	45	-	-
6	48	3	8
7	48	-	-
8	40	-8	-

- a) Fill the spaces on marginal product and average product. (5mks)  
 b) Outline the three zones of a production function curve. (3mks)  
 c) Describe the process of chemical water treatment. (12mks)
24. a) Explain five ways through which soil loses fertility. (5mks)  
 b) Explain five factors that determine the quality of farm yard manure. (5mks)
25. Explain the field production of sorghum under the following sub – headings.  
 i) Seed bed preparation. (5mks)  
 ii) Planting. (5mks)

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**NYERI CENTRAL**  
**443/2**  
**AGRICULTURE FORM FOUR**  
**PAPER 2**

**SECTION A (30MKS)**

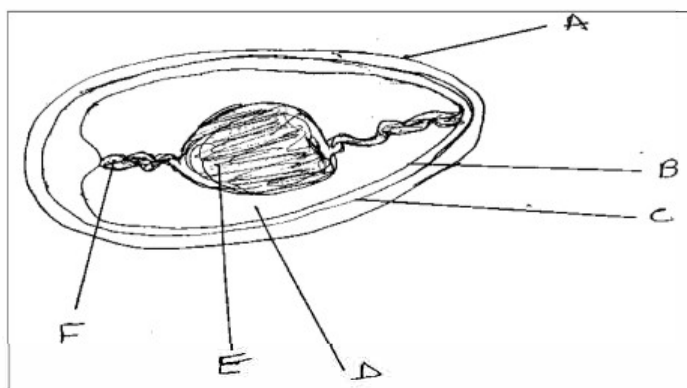
Answer all questions in the spaces provided in this sheet.

1. State three practices which should be carried out to ensure concrete of good quality is obtained after settling. (1½mks)
2. State four advantages of using concrete to construct a floor of a milking parlour. (2mks)
3. Justify use of carts rather than trailers in a farm. (2mks)
4. Name four tractor implements that are connected to the power take –off shaft.(P.T.O) (2mks)
5. Outline how a farmer can ensure efficient working by oxen. (2mks)
6. State there maintenance practices for a tractor battery. (1½mk)
7. Name the type of breed into which each of the following breeds of cattle are classified:- (2mks)
  - a) Aberdeen Angus \_\_\_\_\_
  - b) Guernsey \_\_\_\_\_
  - c) Sahiwal \_\_\_\_\_
  - d) Red poll \_\_\_\_\_
8. Name one livestock disease that is transmitted by each of the following parasites:- (1½mks)
  - a) Blue ticks
  - b) Brown ticks
  - c) tsetse flies
9. State four signs that indicate that a doe is about to kindle. (2mks)
10. Name the strokes in a four stroke cycle engine. (2mks)
11. State three advantages of the fold system in poultry rearing. (1½mks)
12. The following is a list of livestock diseases
  - Brucellosis
  - Trypanosomiasis
  - Anthrax
  - African swine fever
  - Black quarter.
 Which two diseases are:
  - a) Both bacterial and zoonotic (1mk)
  - b) Caused by virus (1mk)
13. Name the causal organism of the Gumboro disease. (½mk)
14. Sate three rearing practices that necessitate handling of piglets. (1½mk)
15. State four maintenance practices of water cooling system in a tractor. (2mks)
16. a) One of the recommended ratio of mixing ingredients for making concrete blocks is 1:3:4. Name the ingredients represented by the numbers 1, 3 and 4 in the mixture. (1½mks)
- b) If a stronger concrete blocks were to be made, name the ingredient that would be increased. (1/2mk)
- c) State two properties of concrete that makes it suitable for constructing farm buildings. (1mk)
17. Differentiate hand mating and pasture mating. (1mk)

**SECTION B (20MKS)**

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

18. A farmer wanted to prepare a ration for layers containing 18% DCP using maize germ containing 20% DCP and wheat bran 10% DCP. Using the pearson square method, calculate the amount of each feed needed to prepare 100kg of the ration. (5mks)
19. The diagram below is an illustration of an egg. Study it carefully and answer the questions that follow.

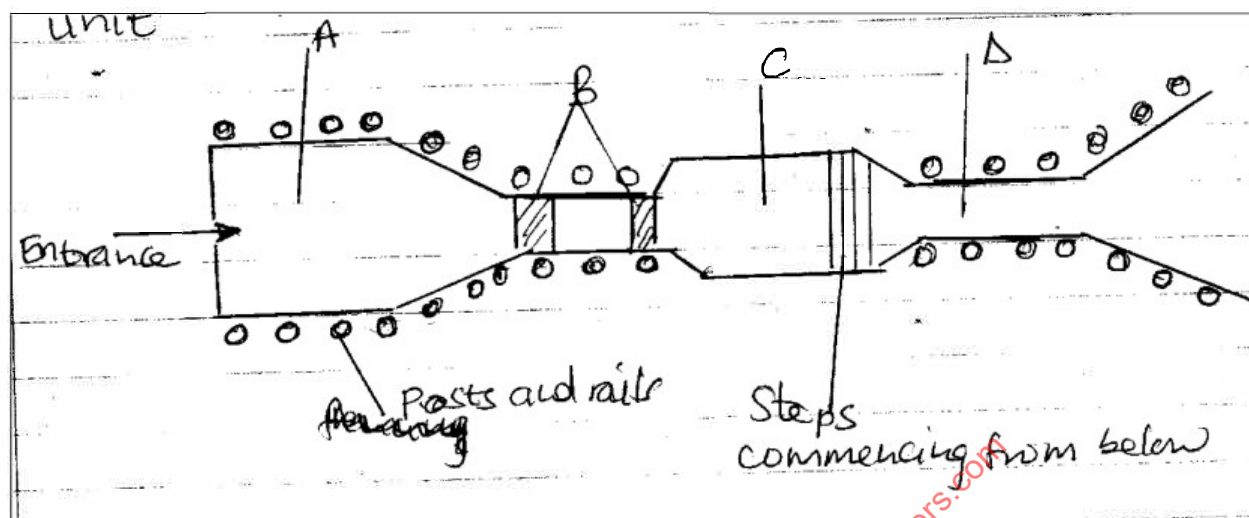


- a) Name the parts labeled B, C, D and F.

(4mks)

- b) State two qualities of the part marked A that should be considered when selecting eggs for incubation. (2mks)  
 c) What is the function of the part labeled E in a fertilized egg? (1mk)

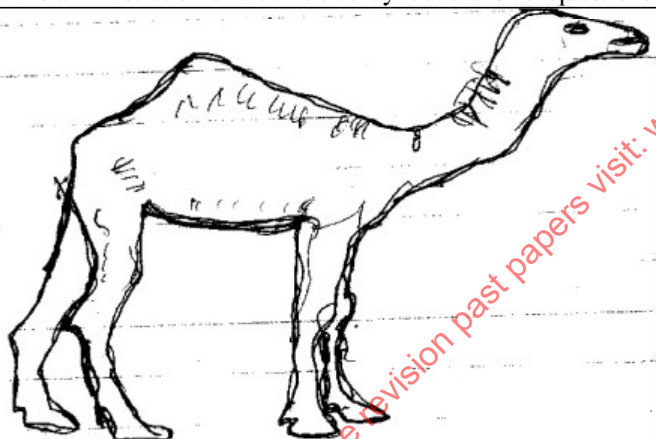
20. The diagram below represents a typical dipping unit.



Name the parts labeled A, B, C, and D.

(4mks)

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



- a) Identify the camel species illustrated above. (1mk)  
 b) Name two products that farmers obtain from the camel species illustrated above. (1mk)  
 c) Give two reasons why a camel species illustrated above is able to survive in its natural habitat. (2mks)

### SECTION C (40MKS)

Answer any two questions from this section in the spaces provided after question 24

22. a) State and explain five factors that are considered when selecting breeding stock in dairy cattle production. (10mks)  
 b) Outline four construction requirements of a rabbit hutch. (4mks)  
 c) Compare digestion in sheep and that in pigs. (6mks)
23. a) State eight functional differences between two stroke cycle engine and four stroke cycle engine. (8mks)  
 b) State six signs of parturition in cattle. (6mks)  
 c) Describe three breeding practices in sheep. (6mks)
24. a) Describe East Coast Fever under the following sub-headings:  
 i) livestock affected (1mk)  
 ii) vector and causal organism (2mks)  
 iii) signs of attack (5mks)  
 iv) control measures (2mks)  
 b) Describe management practices that ensure proper hygiene in a deep litter poultry house. (5mks)  
 c) Describe activities that take place during digestion process in the rumen. (5mks)

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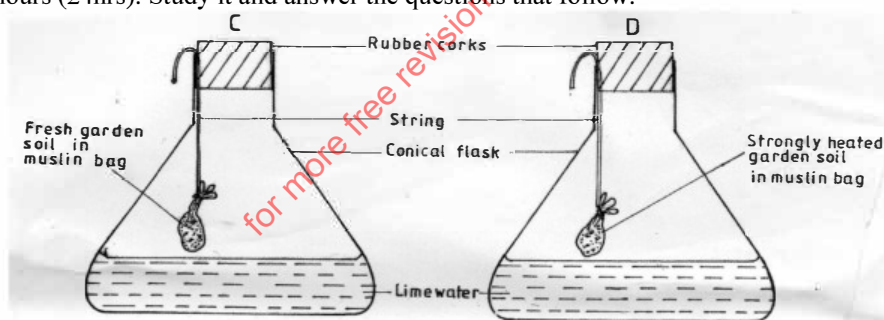
Paper 1

**SECTION A (30 Marks)***Answer all questions in this section in the spaces provided.*

- 1 a) What is a production function? (1mk)  
b) Name three types of production function. (1 ½ mks)
- 2 Give three disadvantages of shifting cultivation. (1 ½ mks)
- 3 Name two types of metal pipes used to convey water in the farm. (1mk)
- 4 State four factors that determine seed rates in the farm. (2mks)
- 5 List three methods of breaking seed dormancy. (1 ½ mks)
- 6 Give four ways of improving labour productivity in a dairy farm. (2mks)
- 7 State three reasons for treating water in the farm. (1 ½ mks)
- 8 a) Give four characteristics of crops grown for green manure. (2mks)  
b) State four factors that determine the quality of farm yard manure. (2mks)
- 9 List three forms in which water is available in the soil. (1 ½ mks)
- 10 State four effect of soil structure on crop production. (1 ½ mks)
- 11 State four most important aspects of rainfall that influence crop production. (2mks)
- 12 What is biological weed control? (1mk)
- 13 Give three reasons for mulching crops. (1 ½ mks)
- 14 State three disadvantages of Tractor Hire services to farmers. (1 ½ mks)
- 15 Outline three ways in which grass help conserve soil. (1 ½ mks)
- 16 State four disadvantages of communal land tenure system. (2mks)
- 17 Why is it advisable to apply a nitrogenous fertilizer to a crop of maize at Knee height or at the height of 30cm – 45cm. (½mk)
- 18 Give two signs of blight disease in a field of tomatoes. (1mk)
- 19 Name the storage organ used to propagate the following plants  
(i) Sisal (½ mk)  
(ii) Pyrethrum. (½ mk)

**SECTION B (20 Marks)***Answer all questions in this section in the spaces provided*

- 19 The diagram below show a set of an experiment to study an aspect of soil. The set up was left undisturbed for twenty four hours (24hrs). Study it and answer the questions that follow.

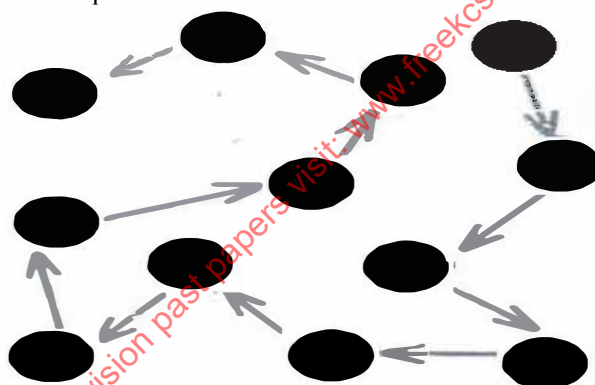


- (a) What was the aim of the experiment? (1mk)
- (b) State one observation that was made in each conical flasks labeled C and D. (1mk)
- (c) Give a reason for each of your answers in (b) above. (2mks)

20 Below is a diagram of a crop pest. Study it and answer questions that follow.



- (i) Identify the pest. (1mk)  
 (ii) Name two parts of crop damaged by the pest above. (1mk)  
 (iii) Give three methods of controlling the above pest. (3mks)
- 21 (a) A farmer has 9 acres of land in which 3 acres are under tea. 3 acres is fallow. He wants to establish cotton in the remaining 3 acres. Casual labour hiring would demand 40 man- days per acre at 100/= per man – day. Hiring a tractor would cost ksh. 1,800/= per acre. Use of a tractor would improve cotton yield from 600kgms to 750kgms. Seed cotton per acre worth ksh.40/= per kgm if well cultivated and timely planted. Harvesting costs kshs. 100/= per 100kgms seed cotton. Prepare a partial budget indicating whether the change is worthwhile or not. (5mks)
- 22 Study the illustration below and answer questions that follow.



- Identify the method of soil sampling illustrated above. (1mk)  
 (i) Describe the process of soil sampling. (5mks)

### SECTION C (40 Marks)

Answer any Two questions in this section in the spaces provided.

- 23 (a) State five pieces of information contained in a receipt. (5mks)  
 (b) Describe the process of transplanting a cabbage seedling. (5mks)  
 (c) State and explain five factors that influence supply of cabbages in a market. (10mks)
- 24 (a) Explain five factors that determine the spacing to be used in crops. (10mks)  
 (b) Describe seven the nursery practices carried out while seedlings are still growing. (7mks)  
 (c) Outline three precautions taken in harvesting tea. (3mks)
- 25 (a) Explain six ways in which farmers overcome risks and uncertainties in farming. (6mks)  
 (b) Discuss ten advantages of land consolidation to a farmer. (10 mks)  
 (c) Explain four advantages of grafting in oranges. (4mks)

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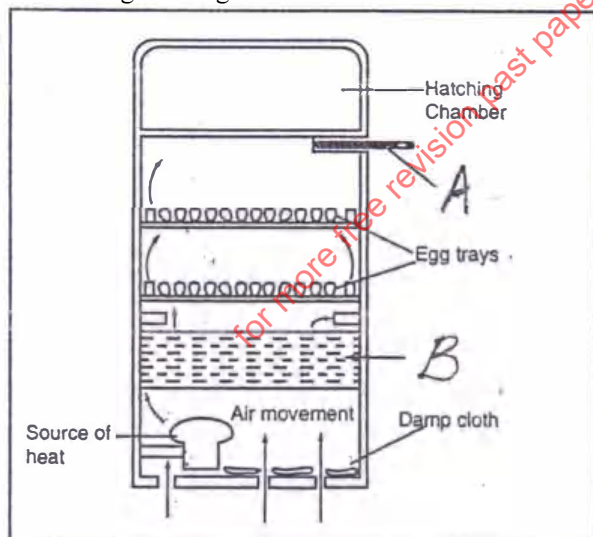
Paper 2

**SECTION A (30 MARKS)***Answer ALL questions in the spaces provided*

1. Give three qualities that make the merino breed popular. (1 ½ marks)
2. Name four breeds of rabbits. (2 marks)
3. State three reasons that a farmer would prefer to use an ox-cart instead of a tractor-drawn trailer. (2 marks)
4. State four factors that influence the quality of honey. (2 marks)
5. Outline four management practices that would ensure maximum harvest in a fish pond. (4 marks)
6. State six factors that may determine the quantity of silage eaten by dairy cows. (3 marks)
7. Name two predisposing factors to foot rot disease in sheep. (1 mark)
8. Give two reasons why walls of dairy sheds should be white washed instead of painting with water or oil paints. (1 mark)
9. Give two reasons why tsetsefly control is considered a land reclamation method. (1 mark)
10. (a) What is the immediate host for liver fluke. (½ mark)  
(b) What is the duration of oestrus cycle in a cow? (½ mark)  
(c) What term is used to refer to the condition during calving in which the hind legs come out first? (½ mark)
11. (a) Give two causes of soft shells in eggs. (1 mark)  
(b) How should the feeding of bees be supplemented during a dry season? (½ mark)
12. State four reasons for keeping livestock healthy. (2 marks)
13. Give four qualities of a good ..... (2 marks)
14. State four disadvantages of inbreeding in livestock. (2 marks)
15. Outline four benefits of steaming-up in livestock. (2 marks)
16. Name four reasons for castrating male calves. (2 marks)
17. Outline four uses of solar energy in a farm. (2 marks)

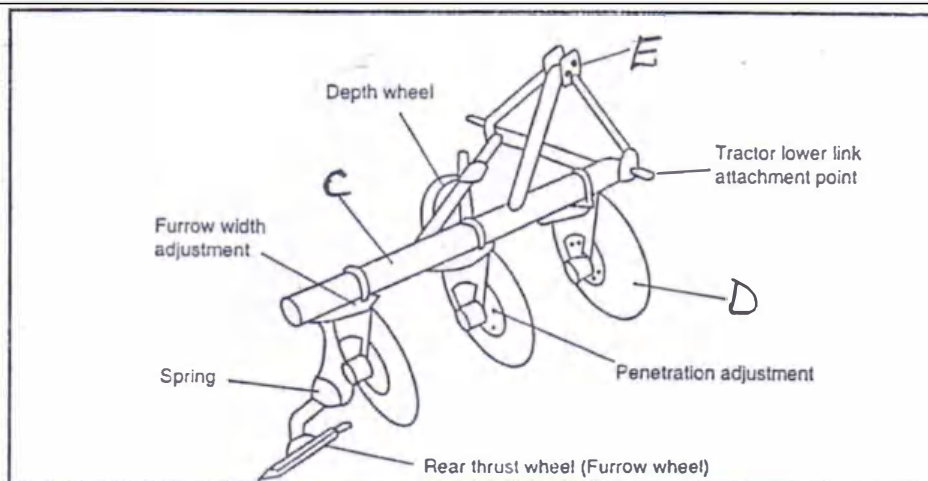
**SECTION B (20 MARKS)***Answer ALL questions in this section in the spaces provided*

18. The following is a diagram of an artificial incubator. Study it and answer questions that follow.



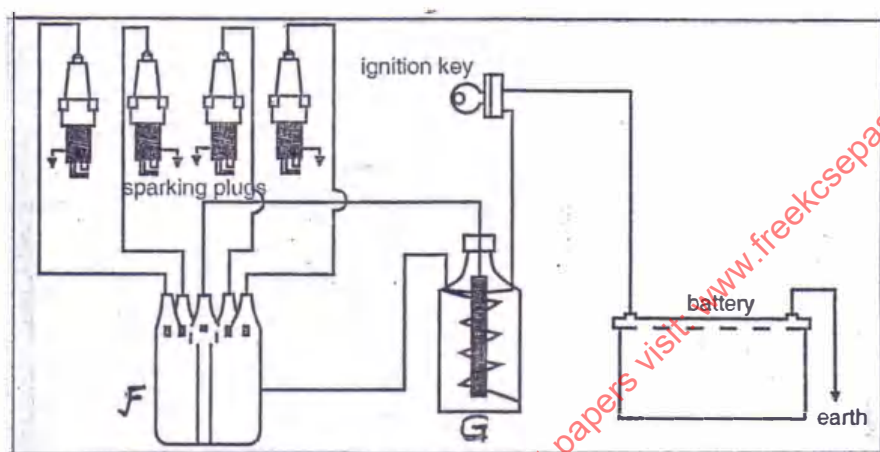
- (a) Identify the following parts shown by letters A and B. (2 marks)
  - (b) State three conditions that are necessary for a successful hatching. (3 marks)
19. Study the following farm implement and answer the questions below.





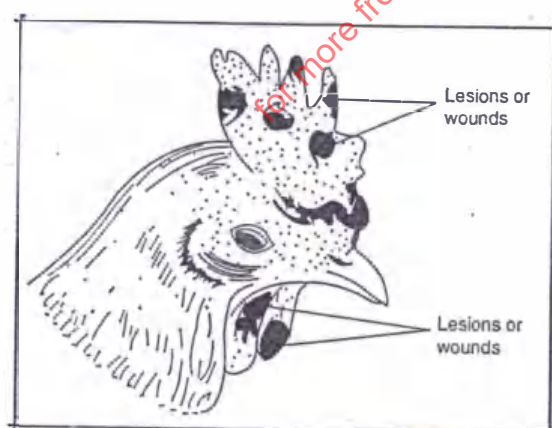
- (a) Identify the above implement. (½ mark)  
 (b) Identify the parts shown by letters C, D, E. (1 ½ marks)  
 (c) Give three reasons that make the implement better in land preparation. (3 marks)

20. The following diagram is a petrol engine of a tractor ignition system, study it and answer the questions that follow.



- (a) Identify the following parts F and G. (1 mark)  
 (b) What is the role of part G? (1 mark)  
 (c) State three maintenance that should be done to the tractor battery. (3 marks)

21. Study the following diagram and answer questions below.



- (a) Identify the above disease. (1 mark)  
 (b) What causes the above disease? (1 mark)  
 (c) Give two predisposing factors of the disease. (2 marks)  
 (d) Give one control measure of the disease. (1 mark)



**SECTION C (40 MARKS)**

*Answer any two questions from this section.*

22. (a) Explain eight functions you can carry out in a crush. (8 marks)  
(b) Describe six advantages of rotational grazing. (6 marks)  
(c) Describe six effects of parasites on livestock. (6 marks)
23. (a) Describe nine short term services that should be done to a farm tractor. (9 marks)  
(b) Explain five reasons for maintaining farm tools and equipment. (5 marks)  
(c) Explain six maintenance commonly done to farm tools and equipment. (6 marks)
24. (a) Describe ten uses of fences on a farm. (10 marks)  
(b) Explain five factors a farmer should consider in the construction of farm structures. (10 marks)

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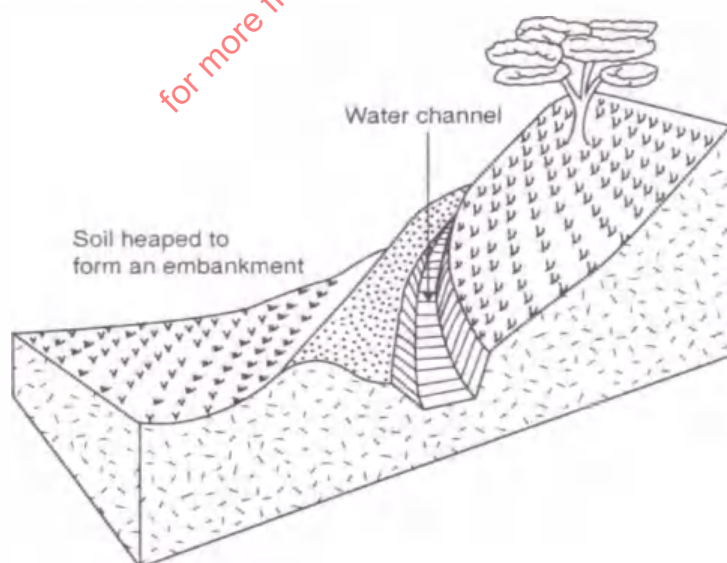
**MOKASA**  
**443/1**  
**AGRICULTURE**  
**Paper 1**

**SECTION A (30MARKS)**

1. List **four** branches of agriculture that deal with livestock production. (2mks)
2. Name the vegetative materials used to propagating the following crops. (2mks)
  - a) Pyrethrum- .....
  - b) Sweet potato- .....
  - c) Sisal – .....
  - d) Pineapple – .....
3. State **four** reasons for deep ploughing during land preparation. (2mks)
4. State **four** factors that determine the choice of irrigation method to be used in the farm. (2mks)
5. Give **four** practices that are carried out to achieve minimum tillage. (2mks)
6. List **four** methods of controlling pests. (2mks)
7. Mention **three** advantages of using polythene sleeves in the establishment of seedlings (1½ mks)
8. Give **four** advantages of mixing legumes with grasses in a forage stand. (2mks)
9. List **four** structural measures used in soil and water conservation. (2mks)
10. State **four** ways of conserving water on the farm. (2mks)
11. Give **three** practices a farmer should carry out to ensure uniform germination of seeds in a vegetable nursery bed. (1½ mks)
12. Give **three** disadvantages of landlordism and tenancy tenure system. (1½ mks)
13. Give **four** reasons why seed selection is important in crop production. (2mks)
14. State **three** effects of excessive application of nitrogenous fertilizers on a crop of tomatoes. (1½ mks)
15. Outline **four** steps followed in land adjudication. (2mks)
16. State **four** factors which should be considered before using chemical method of pest control in stored grains. (2mks)

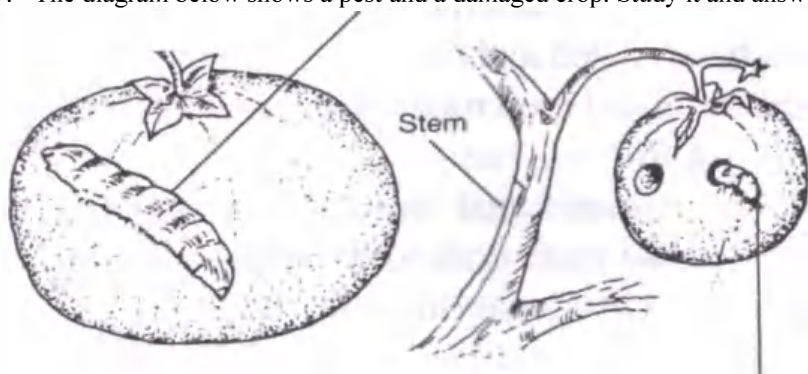
**SECTION B (20MARKS)**

17. a) A farmer was advised to apply 100kg of  $P_2O_5$  per hectare of maize at planting time. The available fertilizer in the market is diammonium phosphate (DAP) 18:46:0. How much of diammonium phosphate will he apply? (Show your working) (3mks)
- b) State the percentage of nitrogen and phosphorus pentoxide in the fertilizer. (2mks)
- Nitrogen- .....
- Phosphorus pentoxide- .....
18. Study the illustration showing a method of soil and water conservation measure and answer the questions that follow.



- a) Identify the type of structure illustrated above. (1mk)
- b) Describe the procedure of constructing the above structure. (4mks)

19. The diagram below shows a pest and a damaged crop. Study it and answers the questions that follow.



- a) Identify the crop pest illustrated above. (1mk)  
 b) Give **two** ways of controlling the pest illustrated. (2mks)
20. The diagram below shows a common weed. Study it and answer the questions that follow.



- a) Identify the weed illustrated above. (1mk)  
 b) Give a reason as to why it is difficult to control the weed illustrated above. (1mk)
21. The farm record below was extracted from a farmers book. Study it and answer the questions that follow.

Name of person	Pay roll no.	Days				Days worked	Rate of pay (ksh)	Total pay (ksh)	Signature of workers
		1	2	3	4				
David	01					20	@100	2000/=	
Julie	02					25	@100	2500/=	

- a) Identify the type of labour record shown above. (1mk)  
 b) Give **two** importance of the farm record above. (2mks)  
 c) Give **two** reasons why it is important to take farm inventories. (2mks)

### SECTION C (40MARKS)

22. a) Explain the benefits of land consolidation. (6mks)  
 b) Briefly explain **six** factors influencing mass wasting. (6mks)  
 c) Explain **four** ways of improving labour productivity (8mks)
23. Explain how the following climatic factors affect crop production in Kenya.  
 i) Rainfall reliability (2mks)  
 ii) Low temperature (3mks)  
 iii) Light (2mks)  
 iv) Humidity (2mks)
- b) Explain the advantages of mulching crops. (6mks)  
 c) Describe how you would prepare a nursery bed for growing vegetable crops. (5mks)
24. a) Describe the production of dry beans under the following headings  
 i) Seed bed preparation (3mks)  
 ii) Planting (4mks)  
 iii) Harvesting (3mks)  
 b) Explain **five** factors affecting the quality of silage. (10mks)

**MOKASA**  
**443/2**  
**AGRICULTURE**  
**PAPER 2**

**SECTION A (30 Marks)**

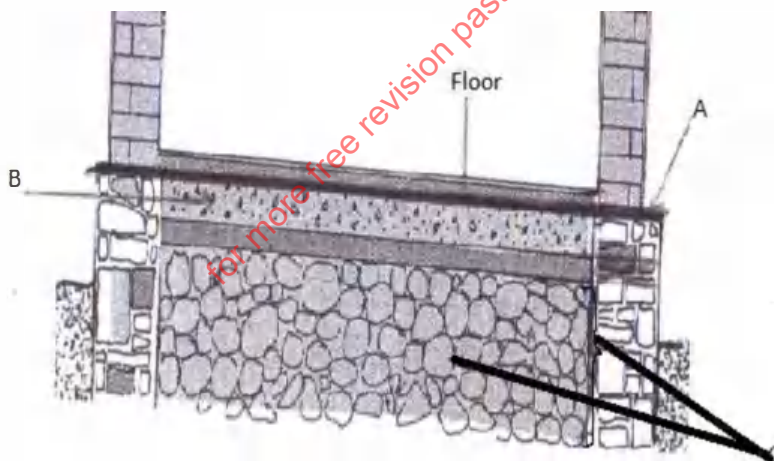
*Answer all questions in the spaces provided*

1. Name four common breeds of dairy goats. (2 marks)
2. Give four conditions that may reduce the quality of eggs for hatching. (2marks)
3. Give four characteristics of concentrate feeds. (2marks)
4. (a) what is line breeding? (½ mark)  
 (b) Give one advantage of line breeding. (½ mark)
5. State three ways in which infectious diseases can spread from one animal to another. (1 ½ marks)
6. Give three reasons why docking is carried out in rams. (1 ½ marks)
7. Give four reasons why a young calf must be fed on colostrum during its first few days. (2 marks)
8. (a) Name the bacteria that causes brucellosis in cows. (½ mark)  
 (b) Give two characteristic symptoms of brucellosis in cows. (1 mark)
9. State four signs of farrowing. (2 marks)
10. Give four symptoms of liver fluke infestation in livestock. (2 marks)
11. State four signs of broodiness in a hen. (2 marks)
12. Give the function of each of the following parts of the reproductive system of a cow.  
 (a) Ovaries. (½ mark)  
 (b) Oviduct (½ mark)  
 (c) Cervix (½ mark)
13. Give three methods commonly used to extract honey from combs. (1 ½ marks)
14. Give two advantages of a plunge dip over a spray race. (1mark)
15. Outline four factors considered when siting a apiary. (2 marks)
16. Give four control measures of calf scoring. (2 marks)
17. Name a pig breed that is large, white in colour, with a dished snout and erect ears. (½ mark)
18. Name four routine livestock rearing practices used to control parasites and diseases. (2 marks)

**SECTION B (20 Marks)**

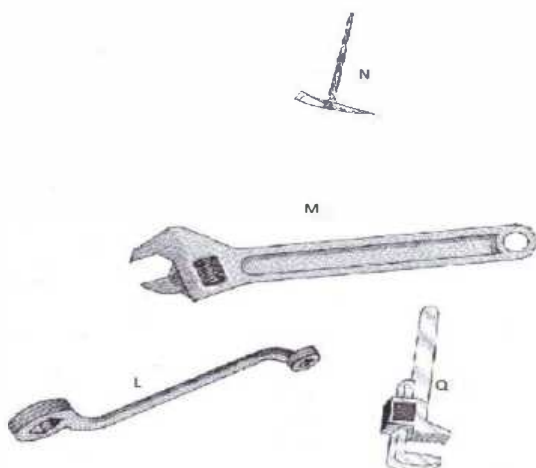
*Answer all questions in the spaces provided.*

- 19 The diagram below shows the foundation floor of a milking parlour.



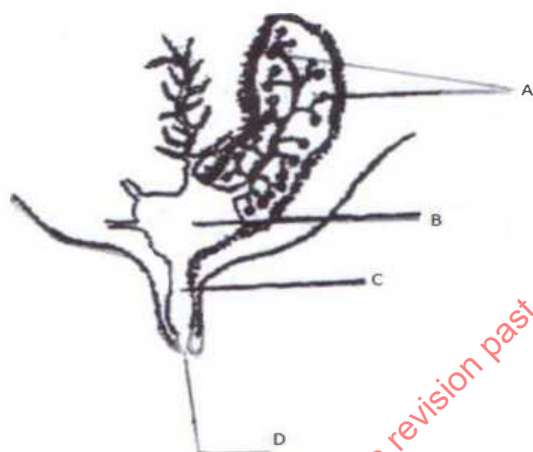
- (a) Name the part labeled **A** and **B** in the diagram above. (2 marks)
- (b) State the suitable material for the part labeled **B**. (1 mark)
- (c) State the purpose of the part labeled **A** illustrated above. (1 mark)

20 Below are illustrations of farm tools. Study them and answer questions that follow



- (a) Identify tools **N** and **Q** illustrated above. (1 mark)  
 (b) State one functional difference between **M** and **Q** (2 marks)  
 (c) Give one functional advantage of using tool **M** over **L**. (1 mark)

21 The illustration below is a structure in a cow. Study it and answer the questions that follow.



- (i) Label the part **A**, **B**, **C** and **D**. (2 marks)  
 (ii) List down two factors that may initiate milk letdown in a lactating cow. (2 marks)  
 (iii) Name one hormone that stimulate milk let down. (1 mark)
- 22 The diagram of a tick below and answer the questions that follow.



- (a) (i) Identify the tick. (½ mark)

- (ii) Name one cattle disease transmitted by the above species of the tick. (½ mark)
- (iii) Apart from transmission of diseases, give three effects of ticks on cattle. (3 marks)
- (b) (i) On the diagram of a cow below indicate by numbers **1 -4** the sites most preferred by ticks. (2 marks)



- (ii) Give four methods used to control ticks in cattle. (2 marks)

### **SECTION C (40 Marks)**

**Answer any *TWO* questions from this section in the spaces provided after each question.**

- 23 a) Describe the procedure of deworming a heifer using drenching gun. (5 marks)
- b) Describe five tools/equipment used in barbed wire fencing. (10 marks)
- c) Give five disadvantages of a spray race in control of ticks. (5 marks)
- 24 a) Describe Foot and Mouth disease under the following sub headings.
- Two livestock species attacked. (2 marks)
  - Causal organism. (1 mark)
  - Give four symptoms of attack. (4 marks)
  - State three control measures of the disease mentioned above. (3 marks)
- b) Describe the life cycle of three – host tick. (10 marks)
- 25 a) i) Explain advantages of water cooled engine compared to air cooled engine. (3 marks)
- ii) Explain the functions function of a gear box. (5 marks)
- b) Give five functions of water in livestock nutrition. (5 marks)
- c) Describe six parts of a zero grazing unit. (6 marks)

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KANGEMA MATHIOYA

**AGRICULTURE**

Paper 1

July 2017

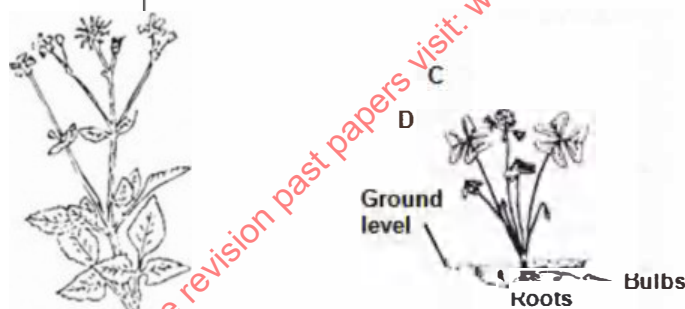
Time 2 hours

**SECTION A (30 marks)**Answer ALL questions in this section on the spaces provided.

1. State two characteristics of plantation farming. (1 mark)
2. State three ways by which plant nutrients may be lost from the soil. (1½ marks)
3. Give four reasons why most farmer do not use green manure in crop production. (2 marks)
4. State four practices which help in achieving minimum tillage. (2 marks)
5. State four ways of improving labour productivity. (2 marks)
6. Give two policies that the government has instituted inorder to regulate importation of agricultural goods. (1 mark)
7. Name four physical forces of soil formation. (2 marks)
8. Give three soil factors that influence soil productivity (3 marks)
9. State two ways of overcoming water logging in crop production. (1 mark)
10. Other than drainage, name two other methods of land reclamation in Kenya. (1 mark)
11. Give a reason why a nursery bed should not be more than one meter wide. (1 mark)
12. Give four examples of land reform programs in Kenya. (2 marks)
13. State the meaning of each of the following terms as used in agricultural marketing.
  - i) Monopolistic competition (1 mark)
  - ii) Oligopoly (1 mark)
  - iii) Monopsony (1 mark)
14. State two classes of herbicides based on formulation. (1 mark)
15. What is legislative method of pest control? (1 mark)
16. List four sites on which agroforestry trees can be established on a farm. (2 marks)
17. State four financial documents that should be kept on a farm (2 marks)
18. Give three disadvantages of using seed as planting material (1½ marks)

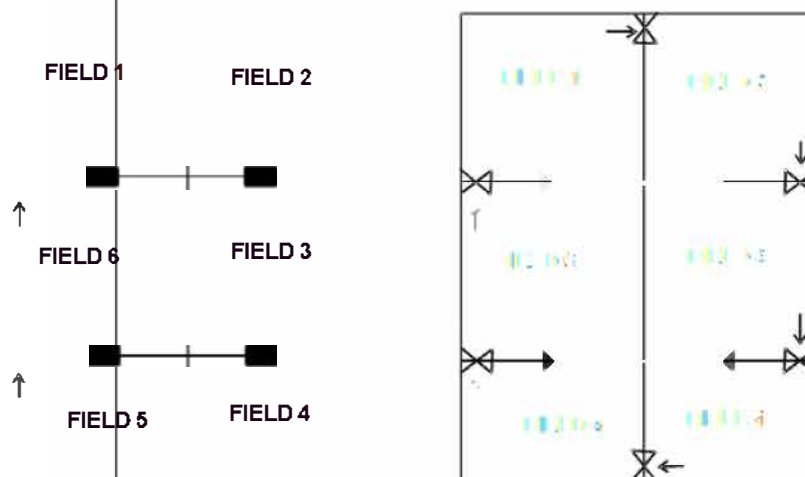
**SECTION B (20 marks)**

19. The diagram below illustrate common weeds in arable land. Study them and answer the questions that follow.



- a) Identify the weed labelled C and D. (2 marks)
- b) Classify the weed labelled D according to plant morphology. (1 mark)
- c) Give one reason why it would be difficult to control weed labelled D. (1 mark)

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



- a) Identify the grazing system illustrated above. (1 mark)
- b) State the advantages of the grazing system illustrated above. (2 marks)

c) Give one factor that determine the nutrient content of hay.

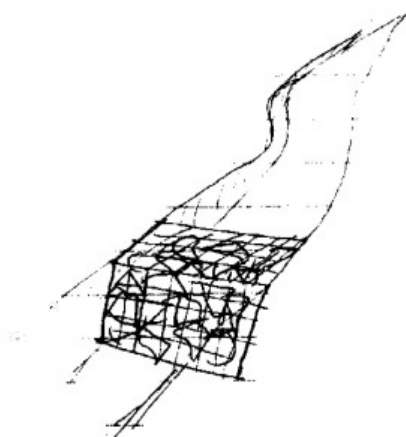
(1 mark)

21. 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.

(5 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 50,000

22. The illustration below shows a structure used for controlling soil erosion. Study it carefully and answer the questions that follow.



a) Identify the structure.

(1 mark)

b) Explain two ways in which the structure helps to control soil erosion.

(2 marks)

c) State four factors that may lead to the type of soil erosion shown above.

(4 marks)

SECTION C 40 marks)

**Answer two questions from this section. All questions carry equal marks.**

23. a) Explain five ways in which the Kenyan Government can improved maize production to ensure food security in the country. (10 marks)
- b) Describe how water is treated to remove soil impurities. (5 marks)
- c) Give a reason for each of the farm records kept in the farm (5 marks)
24. a) Describe production of cabbages under the following subheadings.
- i) Seedbed preparation (3 marks)
- ii) Transplanting (8 marks)
- c) Describe how stem cuttings for tea planting are prepared. (9 marks)

25. a) Explain five factors that influence seed rate in planting crops. (5 marks)
- b) Explain seven physical methods of pest control (7 marks)
- c) A bean farmer is cultivating five acres of land. The farmer tries to increase output by varying labour (by increasing the number of workers.) The change in total bean production in 90kg bags from varying labour (man-days) is shown in the table below. The marginal product is also shown in the table below.

Units of input (man-days)	Total products in (90kg bags)	Marginal production in (90kg bags)	Average product (90kg bags)
1	100	100	100
2	220	_____	110
3	360	140	_____
4	460	100	_____
5	530	_____	106
6	570	_____	95
7	595	25	_____
8	600	5	_____
9	594	_____	66
10	560	-34	56

- a) Complete the table above by filling in the blank spaces in the marginal product and the average product columns. (8 marks)

**KANGEMA MATHIOYA**  
**443/2**  
**AGRICULTURE**  
**Paper 2**  
**July/August 2017**  
**Time 2 hours**

**SECTION A (30 marks)**

**Answer ALL questions in this section on the spaces provided.**

1. Study the table below and fill in the missing words. (3 marks)

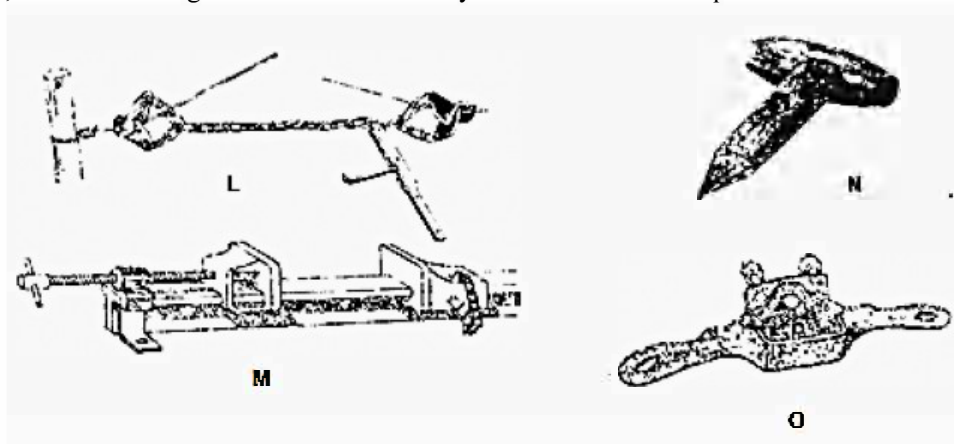
Description	Cattle	Pig	Poultry
Young from birth / hatching to weaning			Chick
Young female before first parturition		Gilt	
Mature male for breeding	Bull		

2. Name two viral diseases that affect each of the following livestock species. (1 mark)  
 a) Cattle (1 mark)  
 b) Poultry. (1 mark)
3. Name one intermediate host for each of the following livestock parasites. (1/2 mark)  
 a) Liverfluke (*fasciola* spp) (1/2 mark)  
 b) Tapeworm (*Taenia* spp) (2 marks)
4. Give four reasons for feeding a lamb on colostrum. (2 marks)
5. State four harmful effects of tsetse flies (*Glossinia* spp) in livestock. (2 marks)
6. Why is raddling essential in sheep management. (1 mark)
7. State four limitation of using hydroelectric power on the farm. (2 marks)
8. List four categories of livestock diseases. (2 marks)
9. List two appropriate handtools needed to finish off the handle of a fork jembe. (1 mark)
10. What is cropping in fish farming? (1 mark)
11. Give four reasons why camels are suited to living in arid areas. (2 marks)
12. Name two functions of the crop in the digestive system of chicken. (2 marks)
13. Mention six causes of stress to a flock of layers. (3 marks)
14. Name two livestock diseases that are caused by protozoa. (1 mark)
15. Give two ways in which proper nutrition help to control livestock diseases. (1 mark)
16. State four factors that would contribute to the depreciation of farm equipment. (2 marks)
17. Name the complementary tools for each of the tools named below. (2 marks)  
 i) Trochar  
 ii) Hand drill

**SECTION B (20 marks)**

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

18. A dairy farmer is required to prepare 100kg of dairy meal containing 20% digestible crude protein (DCP). Using Pearson's square method calculate the quantity of soya beans 40% DCP) and rice (16% DCP) the farmer would require for the dairy meal. (4 marks)
19. L, M, N and O are diagrams of farm tools. Study them and answer the questions that follow.

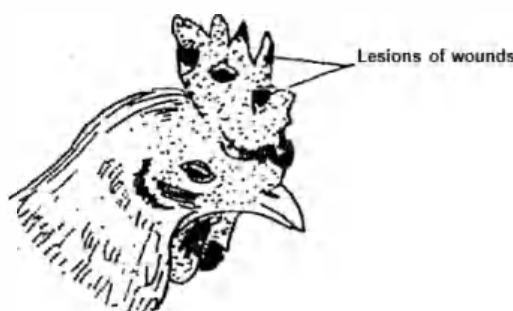


i) Identify the farm tools.L,M,N,O(2 marks)

ii) State the use of each tool.L,M,N,O

(2 marks)

20. The following diagram illustrate a symptoms of a diseases in poultry. Study it carefully and answer the questions that follows.



a) Identify the disease.

(1 mark)

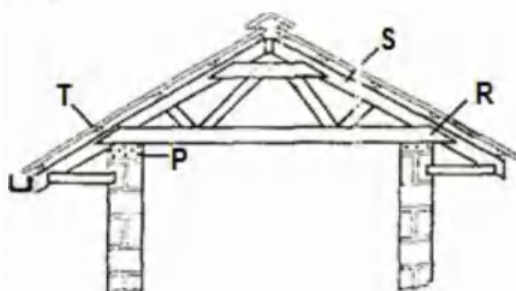
b) State the causal organism

(1 mark)

c) Apart from the lesions, state two other symptoms of the disease.

(2 marks)

21. The following diagram shows parts of a roof. Study it carefully and answer the questions that follow.



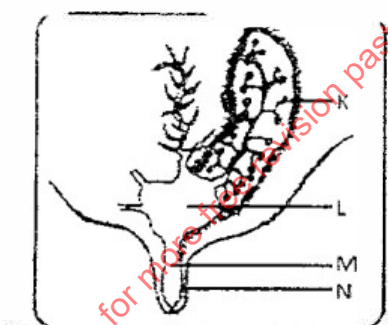
a) Name the parts labelled.P,T,R,S

(2 marks)

b) State the functions of P and R

(2 marks)

22. The diagram is a cross section of a cow's udder.



a) Name part labeled K,L,M,N

(2 marks)

b) State the functions of the hormones oxytocin and adrenaline in milk letdown in livestock.

(2 marks)

oxytocin

adrenaline

### **Section C (40 marks)**

#### **Answer any two questions in this section**

23. a) Name any five reasons for culling in livestock production.

(5 marks)

b) Describe Gumboro under the following subheading.

i) Animal affected.

(1 mark)

ii) Causal organisms.

(1 mark)

iii) Incubation period.

(1 mark)

iv) Symptoms of attack.

(5 marks)

iv) Control

(2 marks)

c) State the maintenance practices carried out on a water cooled tractor engine.

(5 marks)

24. a) Outline four function of vitamins in livestock nutrition .

(4 marks)

b) Explain six control measures of tapeworms in livestock.

(6 marks)

- c) Outline factors considered when selecting livestock for breeding. (10 marks)
25. a) Outline five benefits of using biogas as a source of power on the farm. (5 marks)
- b) Give five advantages of using a subsoiler in seedbed preparation. (5 marks)
- c) Explain five factors that a farmer should consider when sitting a bee hive to prevent swarming of bees. (10 marks)

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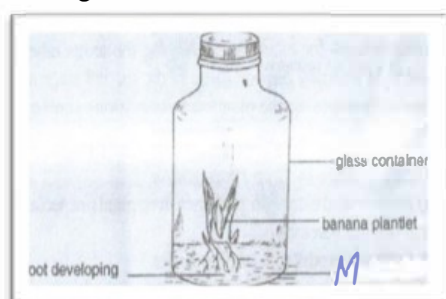


**MURANGA SOUTH A****443/1****AGRICULTURE****PAPER 1****FORM 4****JULY 2017****TIME: 2 HOURS****Kenya Certificate of Secondary Education****SECTION A (30 MKS)****Answer all questions in this section in the spaces provided.**

1. Define the following terms as used in Agriculture
  - i) Pomoculture (1mk)
  - ii) Mixed farming. (1mk)
2. List four climatic factors that influence crop distribution in Kenya. (2 mks)
3. State two processes by which farmyard manure lose nutrients when exposed to the open during preparation. (1 mk)
4. List two effects of strong winds in a cabbage nursery. (1mk)
5. How do the following factors affect seed rate. (2mks)
  - i) seed rate?
  - ii) Spacing?
6. Define the following terms as used in crop production. (2mks)
  - i) Gapping.
  - ii) Pruning
7. State any four non-chemical methods of controlling storage pests in a maize granary. (2mks)
8. Name the parts used as food in the following vegetables: (2mks)
  - i) Kales (2mks)
  - ii) Carrots
9. What is fertilizer grade?
10. State three ways through which nappier grass is utilized. (1 ½ mks)
11. State four benefits of individual owner-operator land tenure system. (2mks)
12. List four roles of trees in soil conservation. (2mks)
13. Give four basis of classifying pests. (2mks)
14. (a) What is a variable input? (1mk)
- (b) Give four variable inputs that a cabbage farmer needs. (2mks)
15. List four details that appear on a delivery note. (2mks)
16. (a) What is irrigation? (1mk)
- (b) State three conditions under which a farmer chooses to use irrigation. (1 ½ mks)

**SECTION B (20 MARKS)****Answer all questions in this section in the spaces provided.**

17. Mr. Mwangi wishes to know whether replacing 3 hectares of maize with Irish potatoes the following seasons would be worthwhile. The fertilizer cost would be increased from Ksh. 4,000 per hectare to Ksh. 6,000 per hectare. He also incurs cost of maize seeds at Ksh 1,200 per hectare. The cost of Irish potatoes seeds is Ksh. 3,000 per hectare. The income from maize was Ksh. 90,000 and for Irish potatoes will be Ksh. 120,000.
  - (a) Draw up a partial budget for Mr. Mwangi's farm. (4mks)
  - (b) With a reason, what advice can you give to Mr. Mwangi? (1mk)
18. diagram below illustrates on method of crop propagation in bananas. Study it and answer the questions that follow.



- (a) Identify the method of propagation illustrated. (1mk)
- (b) Name solution labeled M
- (c) State three advantages of using this method in crop propagation. (2mks)

19. The diagram below illustrates a parasitic weed. Study it and answer the questions that follow.



- (a) Identify the weed. (1mk)  
 (b) Name two crops that weed commonly attacks. (2mks)  
 (c) State the reason the weed is referred to as a parasitic weed. (1mk)  
 (d) State one cultural method of controlling the weed. (1mk)
20. The diagram below shows a structure used in water supply for farms. Study it and answer the questions that follow.



- (a) i) Identify the structure. (1mk)  
 ii) State the function of the structure. (1mk)  
 (b) Give three reasons for treating water being supplied to the farm. (3mks)

### **SECTION C (40 MARKS)**

**Answer any TWO questions from this section in the space provided after question 23.**

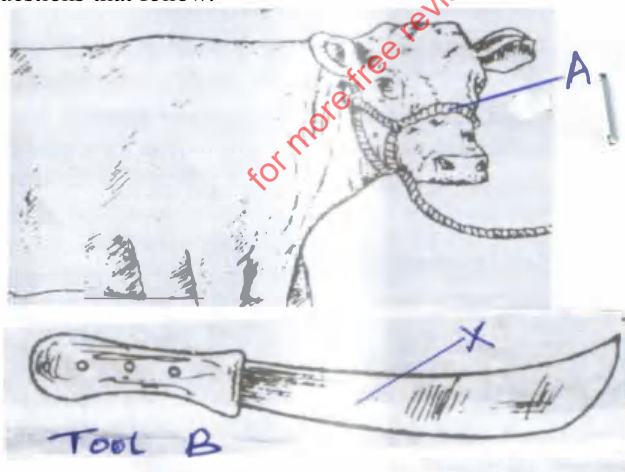
21. (a) Explain seven farming practices that encourage soil erosion. (7mks)  
 (b) Describe six benefits of maintaining proper farm accounts. (6mks)  
 (c) State seven roles of seedbed preparation. (7mks)
22. (a) Describe five benefits of soil testing. (5mks)  
 (b) i) Describe the procedure of harvesting cotton. (5mks)  
 ii) State four control measures of maize stalk borer. (4mks)  
 (c) State six characteristics of a fertile soil. (6mks)
23. (a) Explain ten cultural measures of controlling crop diseases. (10 mks)  
 (b) List four sources of capital to the Kenyan farmer. (4mks)  
 (c) i) Give two reasons for proper drying of maize grains before storage. (2mks)  
 ii) Explain four maintenance practices done to a maize store before storage. (4mks)

**MURANGA SOUTH A****443/2****AGRICULTURE.****PAPER 2****FORM 4****JULY 2017****TIME: 2 HOURS****Kenya Certificate of Secondary Education****SECTION A (30 MARKS)****Answer all questions in this section in the spaces provided.**

1. Name the part of the poultry digestive system in which cellulose is digested. (1mk)
2. State three factors that would determine the amount of concentrate fed to dairy cattle. (1 ½ mks)
3. Give two harmful effects of keds in sheep. (1mk)
4. Name four structures which would assist in the control of livestock parasites on a farm. (2mks)
5. Name the disease transmitted by tsetse fly in cattle. (1mk)
6. State two maintenance parasites carried out on a green house structure. (1mks)
7. Define the following terms as used in livestock breeding:-
  - a) Mothering ability. (1mk)
  - b) Prolifically. (1mk)
8. State two reasons that could lead to failure of a cow to conceive after service. (1mk)
9. Give three benefits of dehorning. (1 ½ mks)
10. State four benefits of aquaculture in Kenya. (2mks)
11. State four factors that influence milk composition. (2mks)
12. State four advantages of fold system of rearing poultry. (2mks)
13. Give four limitations of using solar power on the farm. (2mks)
14. State the function of each of the following tools:-
  - (a) Chaff cutter (1mk)
  - (b) Tinsman snip (1mk)
15. Give the appropriate term that refers to each of the following.
  - (a) Mature male goat. (1mk)
  - (b) Young one of a rabbit. (1mk)
  - (c) Mature castrated male cattle. (1mk)
16. Give four reasons for proper maintenance of a harrow. (2mks)
17. State four conditions that would encourage hens to eat eggs in poultry production. (2mks).

**SECTION B (20 MARKS)****Answer all questions in the spaces provided.**

18. The diagram below shows a livestock production equipment labeled A and a garden tool labeled B. Study and answer the questions that follow.

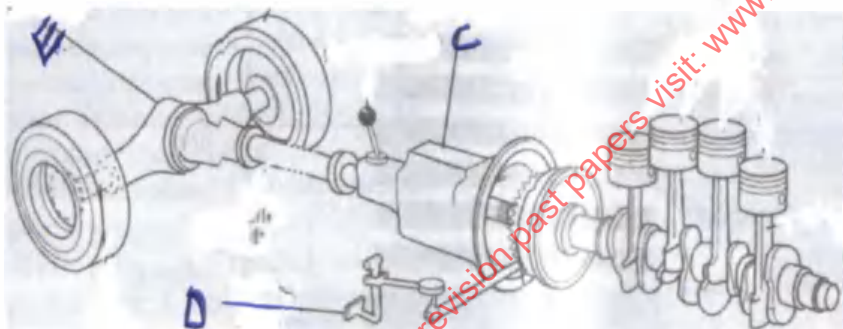


- (a) State the function of the equipment labeled A. (1mk)
- (b) Name two other equipments used to carry out the function stated in (a) above. (2mks)
- (c) Explain two maintenance practices done on the part labeled X in tool B. (2mks)

19. Below is a diagram of a farm structure. Study it and answer the questions that follow.



- (a) Identify the farm structure. (1mk)
- (b) State two benefits of the type of floor in the structure illustrated above. (2mks)
- (c) Give two factors considered when sitting the structure. (2mks)
20. In the preparation of feed, a sow with piglets is to be fed with 2.5kg of sow and weaner meal and an extra 0.25kg per piglet per day. The sow has 10 piglets.
- (a) (i) Calculate the total amount of the feed the sow is given in a day. (2mks)
- (ii) Name the type of ration that the 0.25kg of the feed per piglet per day represents. (1mk)
- (b) Explain how the following factors influence digestibility.
- (i) Form in which feed is offered to animals. (1mk)
- (ii) Ratio of energy to protein in feed. (1mk)
21. Below is an illustration of tractor system. Study it and answer the questions that follow.



- (a) Name the system of a tractor illustrated above. (1mk)
- (b) Identify the parts labeled C and D. (2mks)
- C \_\_\_\_\_
- D \_\_\_\_\_
- (c) State two roles of the part labeled E. (2mks)

### SECTION C (40 MARKS)

Answer any two questions from this section in the space provided after question 24.

22. (a) Describe the uses of any ten tools/equipments used when establishing a barbed wire fence. (10 mks)
- (b) Give five ways of improving productivity of draught animals. (5mks)
- (c) Describe five symptoms of tapeworm attack on livestock. (5mks)
23. (a) Describe anthrax disease under the following sub-headings:-
- (i) Cause (1mk)
- (ii) Transmission (2mks)
- (iii) Signs observed in carcass resulting from death by anthrax. (4mks)
- (iv) Control measures. (3mks)
- (b) Describe five physical features of an ideal dairy cattle. (5mks)
- (c) State five management practices done in an incubator. (5mks)
24. (a) State six advantages of the battery cage system of rearing layers. (6mks)
- (b) Describe five practices done immediately after furrowing. (5mks)
- (c) (i) Define the term health as used in livestock production. (1mk)
- (ii) Explain eight livestock disease general control measures

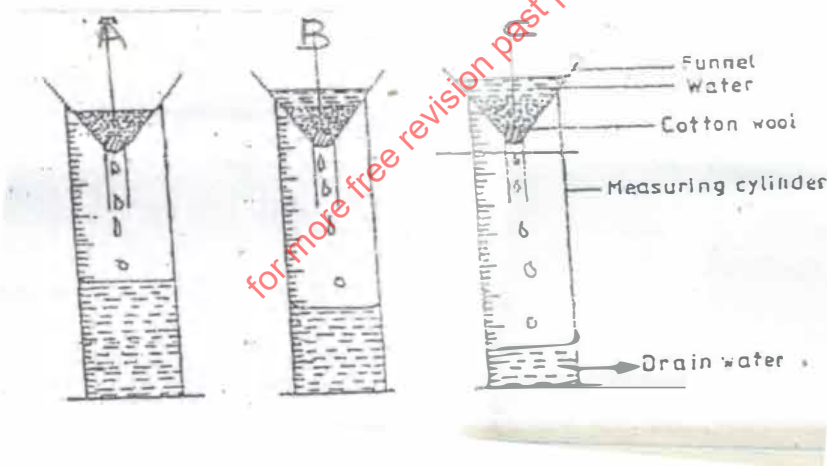
**MURANGA SOUTH B****443/1****AGRICULTURE****PAPER 1****FORM 4****JULY 2017 TIME: 2 HOURS****Kenya Certificate of Secondary Education****INSTRUCTIONS:-****SECTION A (30 MARKS)**

Answer ALL questions in the spaces provided

1. Give two factors which characterize small scale farming. (1mk)
2. Give two reasons why farmers are encouraged to practice organic farming. (1mk)
3. List three methods of treating water for use on the farm. (1 ½ mks)
4. State four ways in which burning of vegetation may lead to loss of soil fertility. (2mks)
5. Outline two ways of controlling damping off disease on vegetable seedlings in a nursery. (1mk)
6. State four features that should be considered when choosing water pipes for use on the farm. (2mks)
7. Explain the relationship between scarcity and choice as used in agricultural economics. (2mks)
8. Give three reasons for early seedbed preparation. (1 ½ mks)
9. State two advantages of earthing up in crop production. (1mk)
10. State four advantages of row planting in crop production. (2mks)
11. State four advantages of row planting in crop production. (2mks)
12. (a) State two mechanical methods of breaking seed dormancy. (1mk)
- (b) Give the reason for breaking seed dormancy. (1mk)
13. State four reasons for pruning fruit crops. (2mks)
14. State four factors that contribute to the competitive ability of weeds. (2mks)
15. State four factors that should be considered when classifying crop pests. (2mks)
16. State four ways in which land reform can be implemented in Kenya. (2mks)
17. (a) What is profit maximization in agricultural economics. (1mk)
- (b) State four benefits of budgeting to a farm manager. (2mks)

**SECTION B (20 MARKS)****Answer all questions in this section in the spaces provided.**

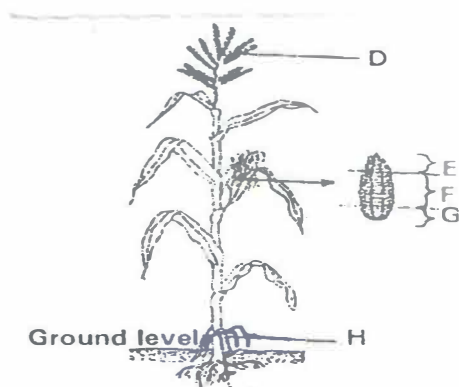
18. The diagram below illustrates an experiment on soil. Study it carefully and answer the questions that follow.



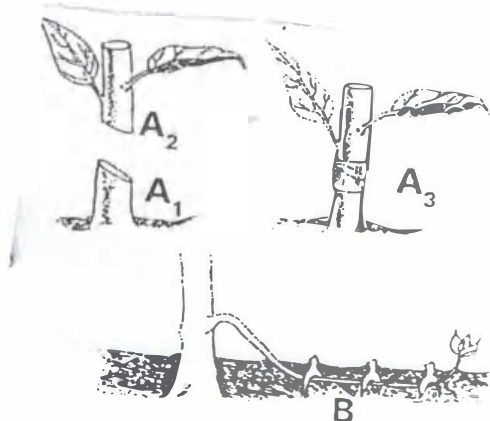
- (a) State the aim of the experiment. (1mk)
- (b) If the volume of water illustrated in the measuring cylinders was observed after one hour, identify the soil samples labeled A and B. (2mks)
- (c) State two ways in which the soil structure of the soil sample labeled C above can be improved. (2mks)
19. (a) Distinguish between a complete compound fertilizer and an incomplete compound fertilizer. (1mk)
- (b) A farmer applied 200kg of CAN (20 % N ) per hectare on his five hectares maize crop. Calculate the amount of nitrogen the farmer applied to his crop. (Show your working) (4mks)



20. The diagram below illustrates a cereal crop plant and its produce. Study the diagram carefully and answer the questions that follow.



- (a) Name one disease that attacks the part of the plant labeled D in the diagram. (1mk)  
 (b) From which section of the produce labeled E, F and G seeds for planting be obtained. (1mk)  
 (c) Give one reason for the answer given in (b) above. (1mk)  
 (d) State two functions of the part labeled H in the diagram. (2mks)
21. The diagrams labeled A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub> and B below illustrate materials and methods of vegetative propagation. Study them and answer the questions that follow.



Method  
A

- a) Name the parts labeled A<sub>1</sub> and A<sub>2</sub>. (2mks)  
 b) Name the methods of propagation illustrated in diagrams A<sub>3</sub> and B. (2mks)  
 c) Give a crop that propagated using method A above. (1mk)

### SECTION C (40 MARKS)

Answer any two questions in this section in the spaces provided after question 24.

22. a) Outline farming activities which may encourage soil erosion. (8mks)  
 b) Explain four ways in which:-  
 i) Health (eg HIV and AIDS) limits agricultural production. (4mks)  
 ii) Government policy improves agricultural production. (4mks)  
 iii) Low level of education and technology influences agriculture. (4mks)
23. a) Describe the production of cabbages under the following sub-headings.  
 i) Selection of site for the nursery bed. (4mks)  
 ii) Management practices carried out when the seedlings are in the nursery. (5mks)  
 iii) Transplanting. (6mks)  
 b) Explain seven advantages of practicing crop rotation. (5mks)
24. a) Give four factors that determine the nutrient content of hay. (4mks)  
 b) Explain ten roles of a farm manager in agricultural production. (10 mks)  
 c) Describe the harvesting of tea. (6mks)



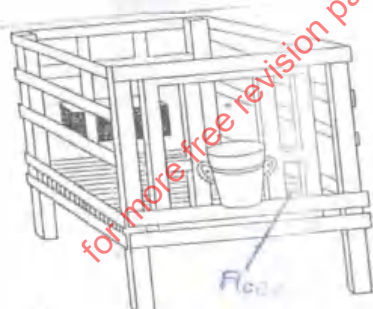
**MURANGA SOUTH B****443/2****AGRICULTURE****PAPER 2****FORM 4****JULY 2017****TIME: 2 HOURS****Kenya Certificate of Secondary Education****SECTION A (30 MARKS)**

Answer ALL questions in the spaces provided

1. Give four reasons why camels are suited to living in arid areas. (2mks)
2. Name four tools that are used when laying concrete blocks during construction of a wall. (2mks)
3. Differentiate between mothering ability and prolificacy in livestock breeding. (1mk)
4. Give four disadvantages of inbreeding in livestock production. (2mks)
5. a) Give four ways in which disease causing organisms can gain access into a newly born calf. (2mks)
- b) State the cause of milk fever in dairy cows. (1mk)
6. State four observations on the behavior of chicks which would indicate that the temperature is too high. (2mks)
7. a) State three adjustments that should be carried out on a tractor mounted mould board plough in preparation of ploughing. (1 ½ mks)
- b) State four maintenance practices for a disc plough. (2mks)
8. State two conditions that may inhibit milk let down during milking. (1mk)
9. State four conditions that may encourage hens to eat eggs in poultry production. (2mks)
10. Give four signs which indicate that a sow is about to farrow. (2mks)
11. Name two bloodless methods of castrating in lambs. (1mk)
12. Give four reasons for steaming up in dairy cattle management. (2mks)
13. List four categories of livestock diseases. (2mks)
14. Give three effects of external parasites that are harmful to livestock. (1 ½ mks)
15. State four characteristics of roughage livestock feeds. (2mks)
16. Give one purpose of proper ventilation in a rabbit hutch. (1mk)

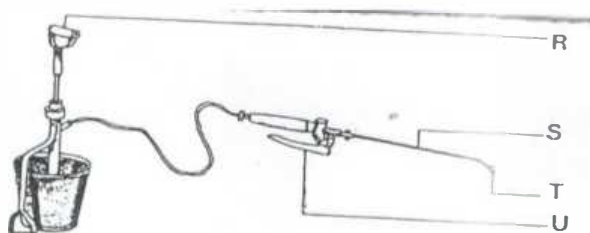
**SECTION B(20 MARKS)**Answer all questions in this section in the spaces provided.

17. a) Define the term digestible crude protein (DCP). (1mk)
- b) A farmer wanted to prepare a 200kg of calf rearing ration containing 20% DCP. Using the Pearson square method, calculate the amount of maize containing 10% DCP and sunflower containing 35% DCP the farmer would need to prepare the ration. (Show your working) (4mks)
18. The diagram below represents a calf pen. Study it and answer the questions that follow.



- (a) i) Identify the type of floor. (½ mk)
- ii) How high should the floor be raised above the ground level. (½ mk)
- (b) i) Give one reason of having the floor of the calf pen raised. (1mk)
- ii) State three factors that should be considered in siting the calf pen. (3mks)

19. The diagram below shows farm equipment. Study it and answer the questions that follow.



- (a) Identify the equipment. (1mk)

- (b) Name the parts labeled R,S,T and U. (2mks)  
 (c) Give two main reasons for maintaining farm tools and equipment. (2mks)  
 20. The diagram below illustrates a hoof of a sheep. Study it carefully and answer the questions that follow.



- (a) Name the routine management practice that should be carried out on the hoof illustrated above. (1mk)  
 (b) State two reasons for carrying out the management practice in (a) above. (2mks)  
 (c) Name two tools that can be used in carrying out the management practice in (a) above. (2mks)

### **SECTION C (40 MARKS)**

**Answer any two questions in this section in the spaces provided after question 23.**

21. a) State and explain five factors that a farmer should consider when siting a beehive to prevent swarming of bees. (10 mks)  
 b) Outline five disadvantages of artificial insemination in cattle management. (5mks)  
 c) i) What are the advantages of farm mechanization. (2mks)  
 ii) Explain the difference between a two stroke and a four stroke cycle engine. (3mks)  
 22. a) Describe the management of one day old chicks in a brooder until they are eight weeks. (12 mks)  
 b) Mention four main causes of stress in a flock. (4mks)  
 c) Give four harmful effects of liver flukes in sheep rearing. (4mks)  
 23. a) Discuss pneumonia in calves under the following sub-headings:-  
 i) Predisposing factors (3mks)  
 ii) Symptoms (3mks)  
 iii) Control measures (3mks)  
 b) Explain seven factors that affect milk composition in dairy farming. (7mks)  
 c) State four factors that should be considered when selecting dairy goats for breeding. (4mks)

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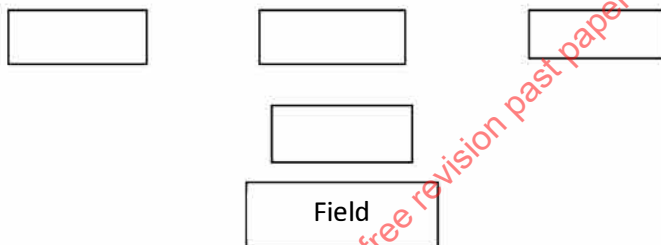
**MURUKA – KANDARA  
AGRICULTURE  
PAPER 1**

**SECTION A: (30 MARKS) ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED**

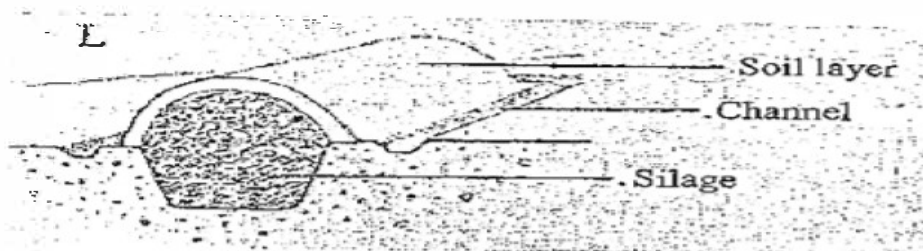
1. State two advantages of intensive farming system. (1 mk)
2. Outline four effects of excess application of nitrogenous fertilizers on tomatoes. (2 mks)
3. List four ways which are used to control stalk borers in maize. (2 mks)
4. Give four factors that influence the quantity of water used in the farm. (2 mks)
5. State four characteristics of trees and shrubs suitable for agro forestry. (2 mks)
6. Name three examples of leguminous fodder crops (1 ½ mks)
7. Give four methods of layering in crop production. (2 mks)
8. State four principles that govern the running of co-operatives in Kenya. (2 mks)
9. Give four disadvantages of landlordism and tenancy system of land tenure. (2 mks)
10. List two types of labour record kept on the farm. (1 mk)
11. Give reasons as to why the following practices are carried out in preparation of planting materials.
  - (i) Seed dressing (½ mk)
  - (ii) Seed inoculation (½ mk)
  - (iii) Chitting (½ mk)
12. State four factors influencing supply of beans in a local market. (2 mks)
13. State four ways in which biological agents influence soil formation. (2 mks)
14. Besides providing water to the plants. State two other uses of flood water to rice field. (1 mk)
15. Outline four reasons for pruning fruit crops (2 mks)
16. State four importance of breaking hard pan in land preparation. (2 mks)
17. How are the following conditions prevented in carrot production? (2 mks)
  - (i) Forking
  - (ii) Greening of root tuber

**SECTION B: (20 MARKS) ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED**

18. The illustration below shows a layout of a method of making compost manure. Study it carefully and answer the questions that follow.

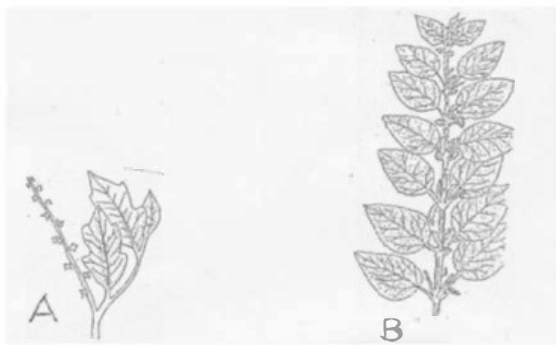


- (a) Identify the method above (1 mk)  
(b) Using letters X, Y and Z arrows complete the diagram above (4 mks)
19. Observe the structure labeled L and answer the questions that follow.



- Name the structure labelled L
- State the importance of the channel around the structure L (1 mk)
- Outline two reasons for conserving forage (2 mks)
- Name two main silage losses that occur during ensiling (1 mk)

20. Below are diagrams of weed. Study them and answer the questions that follow.



- (a) Identify weed A and B (2 mks)
- (b) Explain why it's difficult to control the above weeds (1 mk)
- (c) Mention two benefits of weed B to the farmer. (2 mks)
21. The following transactions were extracted from Mr. Ouko's financial books for the month of February 2014.
- |         |   |                                 |
|---------|---|---------------------------------|
| 1/2/14  | : | Bought a mower Sh. 5,000        |
| 2/2/14  | : | Bought animal feed Sh. 10,000   |
| 2/2/14  | : | Sold 2 calves Sh. 4,000         |
| 19/2/14 | : | Paid interest on loan Sh. 1,000 |
| 21/2/14 | : | Sold eggs Sh. 2,000             |
- Prepare a cash book for Mr. Ouko's farm. (5 mks)
- SECTION C: (40 MARKS)**
- ANSWER ANY TWO QUESTIONS IN THIS SECTION**
22. (a) Describe five agricultural support services available to farmers. (10 marks)
- (b) Explain five structural methods of soil erosion control. (10 marks)
23. (a) Describe ten management practices carried out on a nursery to ensure proper seedling development. (10 mks)
- (b) Outline six benefits of practicing minimum tillage (6 mks)
- (c) State four precautionary measures that should be observed while harvesting pyrethrum (4 mks)
24. (a) State five effects of wind which discourage crop production (5 mks)
- (b) Explain cultural method to control crop diseases (8 mks)
- (c) What is a partial budget? (1 mk)
- (d) Mr. Onyango has 4 hectares of arable land, 1.5 hectare of which is under wheat, 0.5 hectare under maize, 0.3 hectare under fodder crops and the rest is under either improved grass ley or natural grass. He wishes to know whether replacing 0.3ha of maize with potatoes the following season would be worthwhile. The fertilizer rate would have increased from 2 bags per hectare would be necessary as a result of the change. Average yields of maize and potatoes are 56 and 90 bags per hectare respectively. The price are KSh. 1200 per bag of maize KSh. 300 per bag of potatoes. Seeds costs atr KSh. 1350 per 10kg of maize and KSh. 200 per 50kg of potatoes. DAP fertilizer costs KSh. 1400 per 50kg bag. Labour is paid at KSh. 150 per man day. He would require 10 bags of potatoes seed and 1 bag of maize seed to cover 0.3 of a hectare. Draw up a partial budget and indicate the effect of the change. (5 mks)
- (e) What advise would you give this farmer? (1 mk)

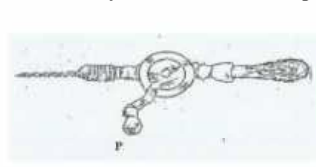
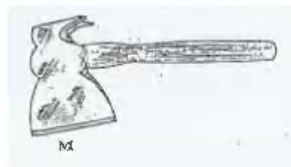
**MURUKA – KANDARA**  
**AGRICULTURE**  
**PAPER 2**

**SECTION A: (30 MARKS) ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED**

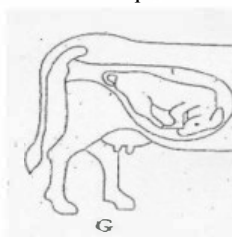
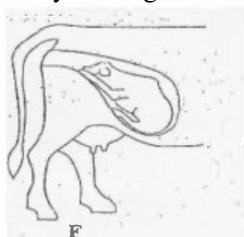
1. Give two reasons why docking is an important practice in sheep management. (1 mk)
2. (a) Name the camel breed that is adapted to cooler regions and has wooly body covering (½ mk)  
 (b) Give one reason why Friesian's milk is more whitish while Jersey milk is yellowish. (½ mk)
3. Give any two uses of litter materials in a poultry house (1 mk)
4. Give four advantages of using stones as construction materials (2 mks)
5. Outline three methods of stocking a bee hive (1 ½ mks)
6. List four ways in which vaccines are administered to an animal (2 mks)
7. Give four predisposing factors to livestock diseases (2 mks)
8. Give four functions of proteins in the body of an animal (2 mks)
9. Name the tool used together with each of the following tools (1 mk)
10. Differentiate between flushing and steaming up in livestock management (2 mks)
11. State two roles of drones in a bee colony (2 mks)
12. Give two structural requirements of a calf pen (1 mk)
13. Give two reasons for teeth clipping in piglets (1 mk)
14. Give four circumstances in which animal power is preferable to tractor power (2 mks)
15. What do you understand by the term raddling as used in sheep management (1 mk)
16. Name one intermediate host in life cycle of a liverfluke (1 mk)
17. Give any three maintenance practices in a green house (1 ½ mks)
18. Give two faults of ignition system (1 mk)
19. Give four conditions that an animal structure should meet in order to help in controlling livestock diseases (2 mks)
20. Give six signs to show that a cow is on heat. (3 mks)

**SECTION B (20 MARKS) ANSWER ALL THE QUESTIONS IN THIS SECTION**

21. Below are illustrations of farm tools and equipment. Study them carefully and answer the questions that follow.

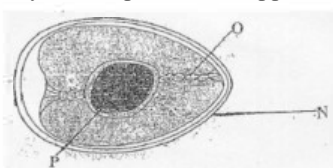


- (a) Identify the above tools M, N, P and R
  - (b) State one main use of each tool M and R (1 mk)
  - (c) Explain one maintenance practice carried out on tool P. (1 mk)
22. Study the diagrams below and use them to answer the questions that follow.



- (a) Which of the foetus is in the correct position of parturition? (1 mk)
- (b) Name the type of parturition for the foetus F and G (2 mks)

23. Study the diagram of an egg below and answer the questions that follow.



- (a) Name the parts labeled N, O and P (1 ½ mks)
- (b) State the functions of the parts P and N (2 mks)
- (c) Give any three qualities of eggs used for incubation (1 ½ mks)

24. A farmer intends to prepare a 200kg of chick ration containing 20% DCP. Using person's square method, calculate the amount of maize containing 10% DCP and sunflower containing 35% DCP the farmer would need to prepare the ration. (Show your workings) (5 mks)
25. (a) Name the method of identification shown below. (1 mk)



- (b) Name the tool used for carrying out the above practice (1 mk)
- (c) Name two other methods of identifying animals (1 mk)

### **SECTION C (40 MARKS)**

#### **ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

26. (a) Discuss milk fever disease under the following heading
- (i) Animal affected (2 mks)
  - (ii) Symptoms (5 mks)
  - (iii) Control measure (3 mks)
- (b) (i) Describe the life of liver fluke (7 mks)
- (ii) State three control measures of liver fluke (3 mks)
27. (a) State the maintenance services carried out in a tractor (10 mks)
- (b) State and explain five factors considered when siting farm structures. (10 mks)
28. (a) Explain the management of broilers in deep litter system. (12 mks)
- (b) State and explain eight materials and equipment used during milking.

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**IMMENTI CENTRAL**  
**443/1**  
**AGRICULTURE**  
**PAPER 1**  
**FORM FOUR**  
**TIME : 2HRS**

**SECTION A (30 MARKS)**

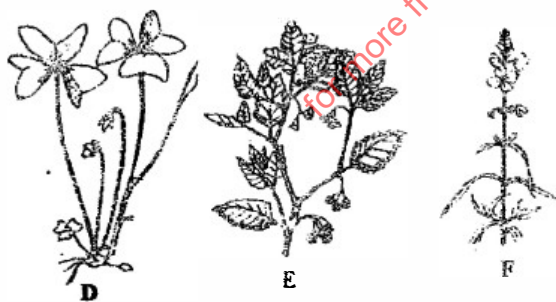
Answer **ALL** the questions in this section in the spaces provided.

1. Give two reasons for constructing a shade over a nursery. (1mk)
2. Give four reasons for planting crops at the correct spacing. (2mks)
3. a) what would be the effect of polythene materials in a compost manure. (½ mk)
- b) State two roles of good soil aeration in crop growth (1mk)
4. State two factors that would determine the number of operations to be carried out on a seedbed before planting. (1mk)
5. Differentiate between land fragmentation and land subdivision. (2mks)
6. List four morphological features of plants that influence the selectivity of herbicides. (2mks)
7. State four ways of controlling bean anthracnose disease. (2mks)
8. List two examples of working capital in crop production. (1mk)
9. Differentiate between pomoculture and olericulture. (1mk)
10. a) give a reason for storing water for 36hours during water treatment. (½ mk)
- b) List two methods of treating water for use on the farm. (1mk)
11. State four advantages of adding organic matter to sandy soil. (2mks)
12. Give two conditions in agricultural production under which opportunity cost is zero. (1mk)
13. Why is the use of the following items essential during the harvesting of tea?
  - a) Plucking stick (1mk)
  - b) Woven baskets. (1mk)
14. Give two ways of increasing water infiltration in the soil. (1mk)
15. State four factors to consider when grading tomatoes for fresh markets. (2mks)
16. Give two reasons that make seed dressing necessary in pasture establishment. (1mk)
17. Give two reasons why farmers keep farm accounts. (1mk)
18. State two activities carried out by young farmers clubs of Kenya. (1mk)
19. State two features of trees ideal for agroforestry. (1mk)
20. State two factors that determine the amount of fertilizer to be top-dressed to a crop in the field. (1mk)
21. define the following terms.
  - i. economic injury level. (1mk)
  - ii. integrated pest management. (1mk)

**SECTION B (20MKS)**

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

22. a) study the illustrations D, D and F below of weeds and answer the questions that follow.



- i. Identify the specimens labeled D and E. (2mks)
- ii. Name one field crop that weeds F is parasitic to. (1mk)
- iii. State two measures for controlling specimen F. (2mks)

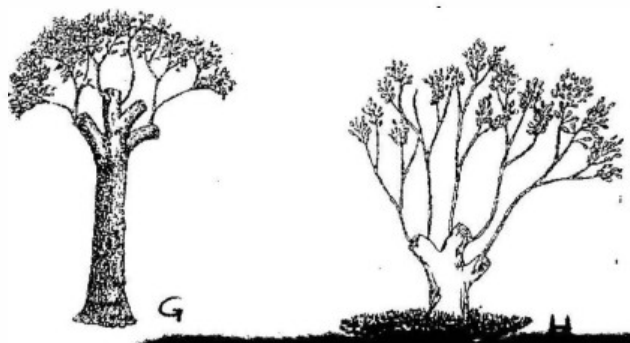
- b) Study the diagram illustrated below and answers the questions that follow.



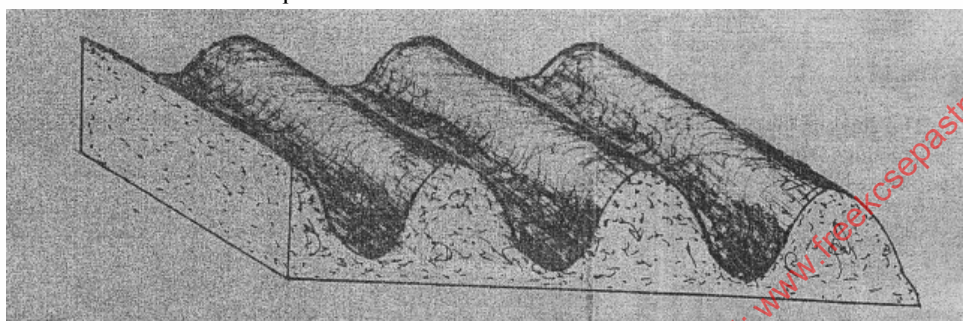
- i. Identify the pest. (1mk)

- ii. State the nature of damage caused by the pest to the crop. (1mk)  
 iii. State the control measures of the pest. (3mks)

23. a) The diagram below illustrated techniques of tree harvesting.



- i. Identify the method illustrated in the diagram G and H. (2mks)  
 ii. How does technique H differ from technique G. (1mk)  
 iii. State two objectives of carrying out the tree harvesting shown in technique G. (2mks)  
 b) The diagram below illustrated a final seedbed after a tertiary operation done during land preparation. Study it carefully and answer the questions that follow.



- i. Name the tertiary operation carried out on the seedbed. (1mk)  
 ii. Describe how the tertiary operation named in(i) above is carried out. (2mks)  
 iii. Give two advantages of planting crops on the final seedbed illustrated above. (2mks)

### SECTION C(40MKS)

Answer **ANY TWO** questions from this section

24. a) Explain five roles of agriculture in the economy of Kenya. (10mks)  
 b) Describe measures which should be taken to minimize water pollution on a farm. (10mks)  
 25. a) Describe production of napier grass under the following subheadings.  
 i. Planting (5mks)  
 ii. Management of napier grass. (4mks)  
 b) Explain six advantages of mulching in crop production. (6mks)  
 c) Outline five activities that may be undertaken in organic farming. (5mks)  
 26. a) describe ten safety precautions that should be taken when using herbicides to control weeds. (10mks)  
 b) Explain the principles that govern the running of cooperatives in Kenya. (5mks)  
 c) Explain the reasons for establishing settlement schemes in Kenya soon after independence. (5mks)

**IMENTI CENTRAL**  
**443/2**  
**AGRICULTURE**  
**PAPER 2**  
**FORM FOUR**  
**TIME : 2HRS**

**SECTION A(30MARKS)**

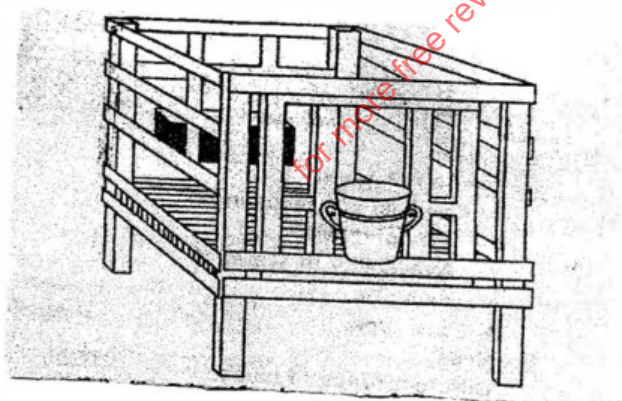
**Answer all questions in this section in the spaces provided.**

1. State three methods of selection in livestock. (1 ½marks )
2. Mention two areas in a fence that may require struggling. (1mark)
3. a) Define the term quarantine as used in livestock production. (1mark)
- b) Give two examples of cattle diseases where quarantine can be imposed. (1mark)
4. List four qualities of clean milk. (2marks)
5. Distinguish between the following practices as used in livestock production. Cropping and harvesting in fish farming. (2marks)
6. List two ways through which bees regulate temperatures in a beehive. (1mark)
7. Name the breed of sheep with a lambing percentage of above 125% and whose fleece may be inferior due to black fibres. (1/2 marks)
8. Name four disease predisposing factors outside an animal's body. (2marks)
9. Name two breeds of dairy cattle that originated from the channel islands. (1mark)
10. Give four maintenance practices carried out on the water cooling system of a tractor. (2marks)
11. State four types of tools used in smoothening wood. (2marks)
12. Name one intermediate host for each of the following livestock parasites.
  - a) Liver fluke(Fasciola Spp) (1/2marks)
  - b) Tapeworm (Taenia Spp) (1/2marks)
13. State two factors that could lead to failure to conceive in sows after service. (1mark)
14. Highlight two function of calcium in poultry digestive system. (1marks)
15. Highlight four requirements of a brooder. (2marks)
16. Name the two methods of attaching farm implements to the tractor. (1mark)
17. Give four ways in which diseases causing organisms can gain access into a newly born calf. (2marks)
18. List four factors that lower the quality of concrete. (2marks)
19. State four economic importance of tsetseflies. (2marks)
20. State two functions of vitamin A in livestock. (1mark)

**SECTION B(20MARKS)**

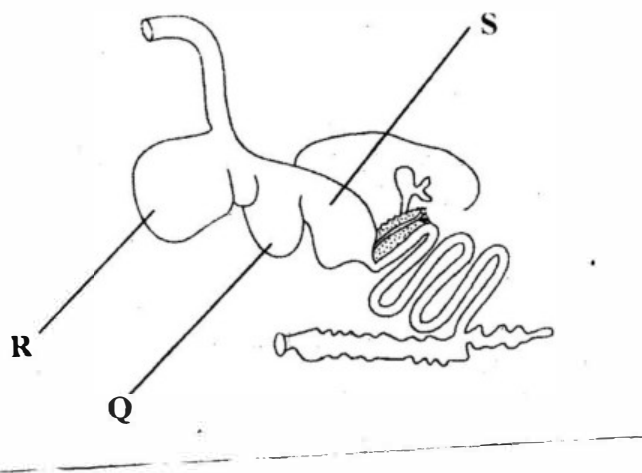
**Answer all the questions in this section in the spaces provided.**

21. The diagram below represents a calf pen. Study it and answer the questions that follow.

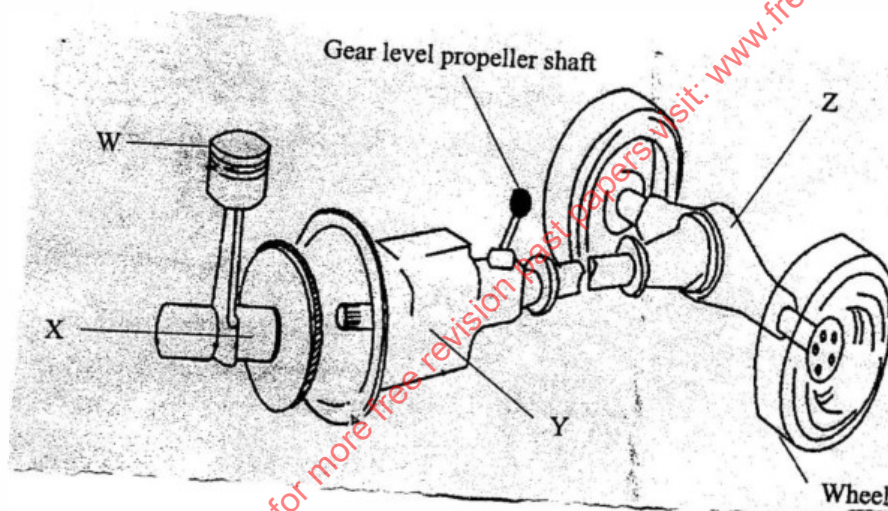


- i) Identify the type of floor. (1mark)
- ii) How high should the floor be raised above the ground level. (1mark)
- iii) Give one reason of having the floor of the calf pen raised. (1mark)
- iv) State two factors that should be considered in siting the calf pen. (2marks)

b) Study the diagram of a digestive system shown below.



- i) State the use of the part labelled Q (1mark)
  - ii) Give the adaptation of part R to digestive of roughages. (1mark)
  - iii) Name the part labelled S (1mark)
  - iv) A poultry farmer has maize meal containing 8%DCP and soya beans containing 43% DCP The farmer wanted to make 1000kg of a food. Using pearson's square method, calculate the amount which the two ingredients would have to be mixed to make the feedstuff containing 15% DCP (show your working ) (2marks)
22. a) The diagram below shows parts of the power transmission system of a tractor. Study it carefully and then answer the questions below.



- i) State the functions of the parts labelled W, X, Y and Z in the power transmission system of the tractor (4marks).
- ii) Name one way in which the power is transmitted from the engine. (1mark)

b) study the illustration below of an animal suffering from a disease soon after birth.



- |  |          |
|--|----------|
| i) Identify the disease illustrated above.             | (1mark)  |
| ii) State the cause of the above condition.            | (1mark)  |
| iii) Give three control measures to the above disease. | (3marks) |

#### SECTION C 40 MARKS

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

- |  |           |
|--|-----------|
| 23. a) Discuss the disease Anaplasmosis under the following sub-headings.                                    |           |
| i) Casual organisms and animal attacked.   | (2marks)  |
| ii) Mode of transmission.  | (1mark)   |
| iii) Symptoms  | (4marks)  |
| iv) Control  | (3marks)  |
| b) Explain the importance of keeping livestock healthy.  | (3marks)  |
| c) Explain five functions of water in nutrition.   | (5marks)  |
| 24. a) Explain five factors that a farmer should consider when siting a beehive to prevent swarming of bees. | (10marks) |
| b) Outline five benefits of using biogas as a source of power on the farm.                                   | (5marks)  |
| c) Give five advantages of using subsoiler in seedbed preparation.   | (5marks)  |
| 25. a) Describe the use of various hand tools required for the construction of a wooden rabbit hutch.        | (10marks) |
| b) Describe the procedure of shearing sheep.   | (5marks)  |
| c) Discuss maintenance practices of a tractor battery.   | (5marks)  |



**SUKEMO JOINT EXAM 2017**  
**AGRICULTURE**  
**443/1**  
**PAPER 1**

**SECTION A (20mks)**

1. Give **two** precautions taken to ensure good crop establishment during planting. (1mk)
2. **Name** the classes of weeds according to plant morphology. (1mks)
3. **Name two** areas of scientific study which show that Agriculture is a science (1mk)
4. **State any two** symptoms that can be observed in cereal crops that are deficient in nitrogen. (1mk)
5. **State two** factors that determine the scale of production. (1mk)
6. **Explain** the following terms as used in soil structure (1 ½)

  - i) Structure class
  - ii) Structure type
  - iii) Structure grade

7. **Give two** characteristics of a perfect market (1mks)
8. a) What is multi-storey cropping? (1mk)
- b) **State two** benefits of multi-storey cropping (2mks)
9. **Distinguish** between the two micro-catchments for water conservation. (1mk)

  - a) Negarims (1mk)
  - b) Semicircular bunds (1mk)

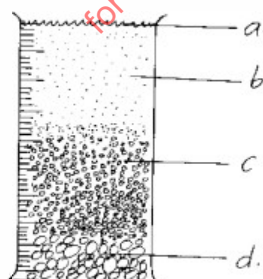
10. **Give 2** methods that can be used in carrying out topping in forage crops (1mk)
11. **State 3** problems farmers encounter when sourcing for Agricultural credit. (1 ½ mks)
12. **Give one** reason why phosphatic fertilizers benefit subsequent crop in Second and third year after application (1mk)
13. **State two** reasons why cassava should be grown as last crop in crop rotation programme. (1mk)
14. **Distinguish** the following terms as used in pasture management. (1mks)

  - a) Intensity of defoliation
  - b) Frequency of defoliation

15. Give **two** agricultural practices, which will lead to water pollution. (1mk)
16. **State two** problems associated with the use of manures by small-scale farmers. (1mk)
17. Given that maize is planted at a spacing of 75cm x 25cm. Calculate the plant population in a plot of land measuring ½ ha . (Show your working). (2mks)
18. Calculate the number of 50kg SA fertilizer bags that would be applied in one hectare of land that requires 60kg of Nitrogen per hectare. SA fertilizer contains 20% Nitrogen. (2mks)
19. **State TWO** importance of sub-soiling in land preparation . (1mks)
20. **Define** the term agricultural Economics as used in agriculture (1mk)
21. Apart from damage by birds, name two other serious pests which can attack sorghum in the field. (1mk)
22. **State four** importance of raising crops in nursery before transplanting. (2mks)
23. **Name two** conditions that may lead to subdivision of agricultural land. (1mark)

**SECTION B (30 mks)**

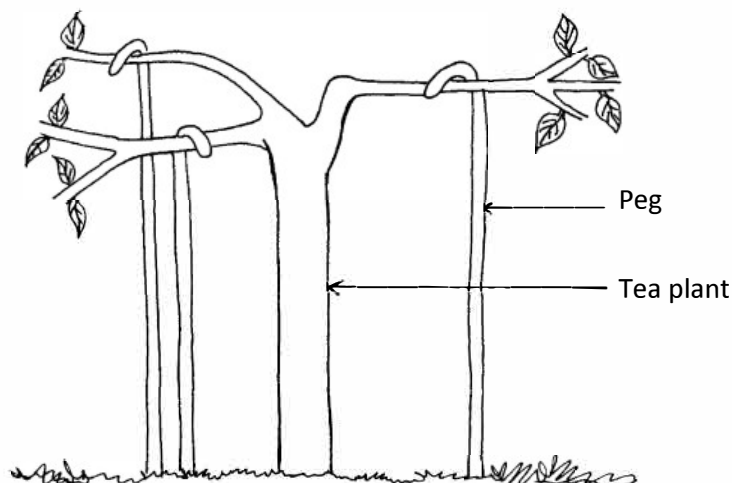
24. Form two student put some soil sample in a measuring cylinder, added some water and sodium carbonate and then covered the cylinder with the hand and shook the cylinder for about two minutes. He left the cylinder on the bench for one hour. The result was as shown below. (2mks)
- i). **Name** the layers marked a, b, c, and d.



- ii) What was the function of sodium carbonate in this experiment? (1mk)
- iii). What was the aim of this experiment ? (1mk)

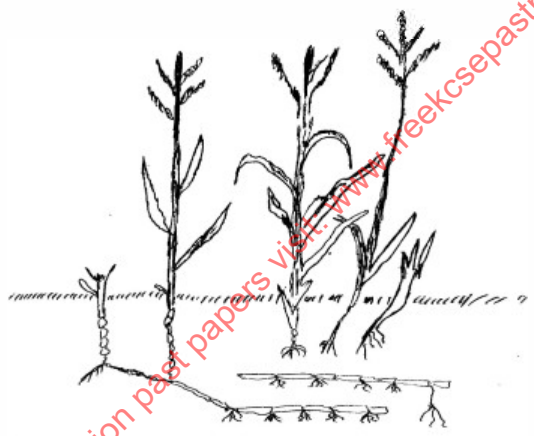


25. The diagram below shows a method of pruning in tea production. Use it to answer the questions that follow.



- (a) Identify the method shown in the diagram (1mk)  
 (b) Outline the procedure of carrying out the method on a tea bush (4mks)  
 (c) State two precautions that must be observed when plucking tea leaves (2mks)

26. The diagram below shows a weed study it carefully then answer the questions that follow.



- a) **Identify** the weed. (1mk)  
 b) **State 2** economic importance of the weed. (2mks)  
 c) **Why** is it difficult to control the weed? (1mk)
27. The diagrams below labelled A,B,C, and D illustrates some pest. Study the diagrams carefully and answer the questions that follow.



- (a) Identify the pests labelled A,B,C and D. (2mks)

- (b) Name the crop attacked by the pest A,B and D.  
 (c) Give one physical measures of each pests B and D.

(1 ½ mks)  
 (1mk)

### SECTION C (40mks)

28. Study the tables on demand and supply schedules of tomatoes in a town market.

Tomato supplied (in kg)	Price per kg (sh).
200	7.00
180	5.20
175	4.80
162	4.00
156	3.70
135	2..80
100	1.60
92	1.40
80	1.20
75	1.10

Tomatoes bought (In kg)	Price per kg (sh).
75	8.00
82	6.70
96	5.50
114	4.10
130	3.20
150	2.40
166	1.80
180	1.30
186	1.10
200	0.80

- a) On the same axis, draw the graphs of supply and demand of tomatoes in the market. 8mks  
 b) What is the equilibrium price? (1mk)  
 c) What would be the price if 150kg of tomatoes were supplied? (1mk)  
 d) If the price per kg was Kshs. 3.70, how many kilograms of tomatoes would be bought? (1mk)  
 e) Calculate the elasticity of supply when price changed from Kshs. 7.00 to Kshs. 4.00 per kg of tomatoes. (3mks)  
 f) Other than change in price, list other factors that will influence the supply of tomatoes in the market. 6mks.
29. a) Describe the biological control measures in soil and water conservation (10mks)  
 b) Discuss onions under the following sub-headings  
 i) Varieties (2mks)  
 ii) Ecological requirements (3mks)  
 iii) Field practices (3mks)  
 iv) Marketing (2mks)
30. a) Explain the importance of drainage as a land reclamation method. (6mks)  
 b) Explain the following financial documents and state the use of each.  
 i) Invoice (2mks)  
 ii) Ledger (2mks)  
 iii) Cash analysis (2mks)
- c) i) What is green manure? (2mks)  
 ii) Give characteristics of plants used as green manure (4mks)  
 iii) Explain why green manure is not commonly used. (2mks)

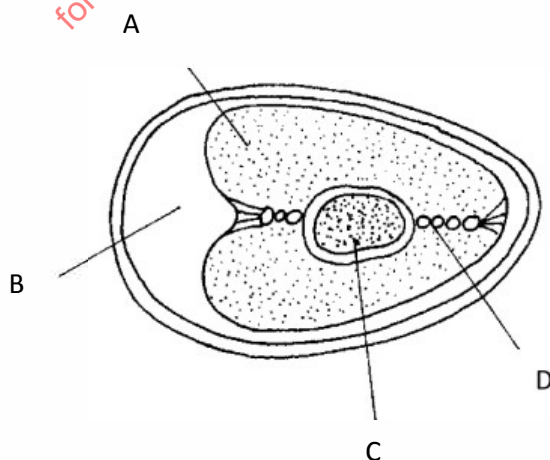
**SUKEMO JOINT EXAMINATION**  
**AGRICULTURE**  
**PAPER 2**  
**THEORY**  
**JULY/AUGUST 2017**  
**2HRS**

**Section A (30MKS)**

1. State the use of each of the following tools in bee production. 2mks
  - a) Swam net
  - b) Catcher box
2. State the class of each of the following feedstuffs. 2mks
  - i) Molasses
  - ii) Mac lick
3. Name the type of breeding system represented below 1mk  
Ayrshire sire x Boran Dam → F<sub>1</sub> heifer x Ashire sire
4. State ONE reason why Blackhead Persian sheep is suitable for drier areas. 1mk
5. Outline two characteristics of livestock that are used in mass selection (1mks)
6. State one negative effect of pulling teats as a method of milking in cows (1mk)
7. Give two conditions under which a farmer may prefer to use an ox-cart instead of a tractor drawn trailer? 1 mk
8. Give two causes of soft shell in eggs. 1mk
9. State any two disadvantages that may arise from inbreeding in livestock production. 1mk
10. Name two hormones that control milk letdown in cattle. 2mks
11. Name any four bacterial diseases affecting livestock. 2mks
12. Give the meaning of ratio 3:3:3 as commonly used in pig production. 1mk
13. State **TWO** ways in which digestion of food in pigs differs from that in ruminants. 1mk
14. Differentiate between a stir-up pump and a knapsack sprayer. 2mks
15. State **TWO** functions of additives in silage making. 1mk
16. Give TWO factors a farmer should consider when selecting garden tools for cultivation (1mk)
17. Differentiate between tactical and strategic treatment. 1mk
18. Name any four parts of a marking gauge (2mks)
19. Using the pearson square method, **compute** a 300kg ration with 24% DCP from wheat containing 14% DCP and cotton seed cake containing 64% DCP (*show your working*) (4 marks)
20. a) Give the meaning of the following terms as used in livestock breeds. (1 ½ mks)
  - i) Steer
  - ii) Capon
  - iii) Kindling
- b) Name the exotic beef breed of cattle with the following characteristics;
  - \* White / cream in colour
  - \* Heavily built
  - \* Originated from France( ½ mk)

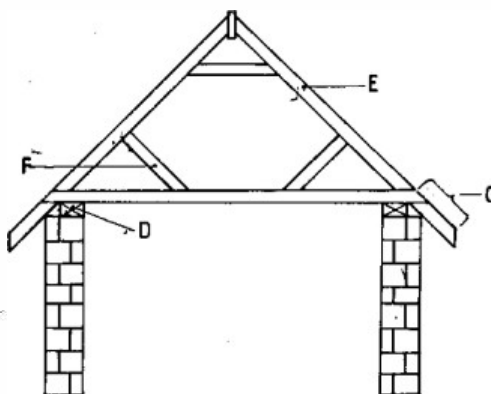
**SECTION B (20MARKS)**

21. Study the diagram of an egg below and answer the questions that follow.



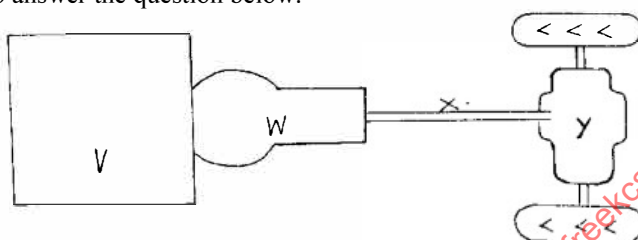
- a) Name the parts labeled A,B C and D. 4mks
- b) State the roles of parts labeled A and D during incubation. 2mks

22. Study the illustration of a farm structure below and answer the questions that follow.



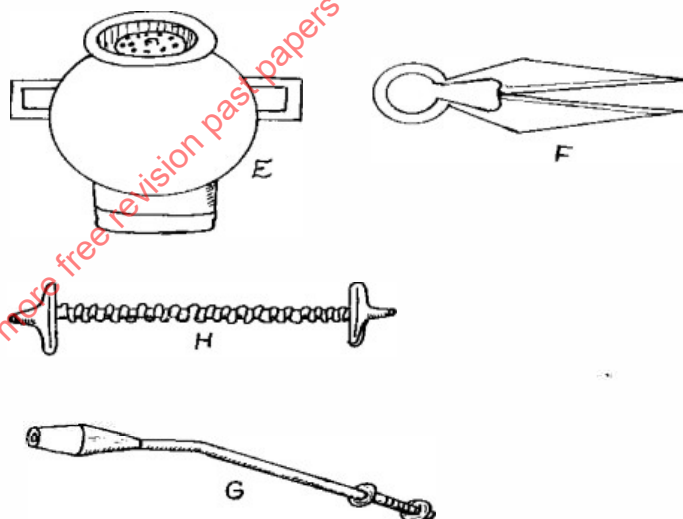
- Name the parts labelled C, D, E and F. 2mks
- State the functions of the parts labelled C, D, E and F. 2mks
- Name two chemical preservatives used to treat the wooden parts of the structure against insects and fungal damage. 1mk

23. Use the diagram to answer the question below:



- Name the parts labeled V, W, X, and Y in a tractor power transmission system. 2mks
- State two ways of improving the traction force in land wheel. 2mks

24.. Study the diagrams of livestock production tools below and answer questions that follow.



- Identify the tools E, F, G and H. (4mks)
- State two maintenance practice of the equipment E. (1mk)

### SECTION C

- State the management practices one should carry out to ensure effective dipping (10mks)
  - State the characteristics of an ideal beef cattle (10mks)
- Describe the signs of internal parasites attack in livestock (10mks)
  - Describe the life cycle of a liver fluke Fasciolaspp (10mks)
- Describe the management of layers in a deep litter system from the point of lay. 20mks