

KANGEMA/MATHIOYA FORM FOUR JOINT EVALUATION

Kenya Certificate of Secondary Education

AGRICULTURE

Paper - 443/1

July / August 2016**SECTION A (30 marks)**Answer ALL questions in this section on the spaces provided.

1. a) Give two disadvantages of intensive system of farming. (1 mark)
- b) List two methods of farming. (1 mark)
2. Name any two methods that can be used to detect nutrient deficiency in crops. (1 mark)
3. Name four methods used in harvesting trees in agroforestry. (2 marks)
4. Outline two ways used to control overheating in the process of silage making. (1 mark)
5. Name four types of financial books a farmer should keep. (2 marks)
6. State two ways in which a farmer would benefit by having a title deed. (1 mark)
7. State four factors that may lead to a farmer using high seed rate for a given crop. (2 marks)
8. Outline four factors considered when designing a crop rotation programme. (2 marks)
9. Outline four reasons why kale seedlings should be raised in a nursery bed before transplanting. (2 marks)
10. List any four kinds of information a farmer should enter in the health records of livestock. (2 marks)
11. Distinguish between settlement and resettlement. (2 marks)
12. State **four** characteristics of nitrogenous fertilizers. (2 marks)
13. List four methods that can be used to reclaim water-logged land. (2 marks)
14. List four different categories of vegetables. (2 marks)
15. Give four advantages of using certified seeds in crop propagation. (2 marks)
16. Name three different types of layering. (1½ marks)
17. State three characteristics of good green-manuring crop. (1½ marks)

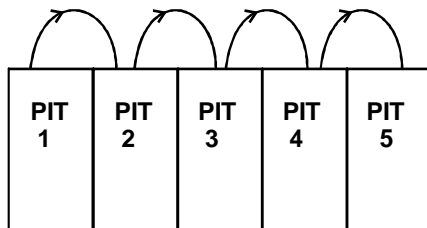
SECTION B (20 marks)

18. The diagram below shows a method of bringing tea into bearing. Study it carefully and use it to answer the questions that follow.

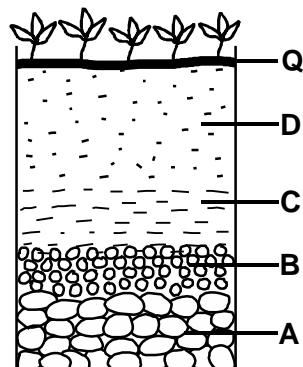


- a) Identify the method shown in the diagram above. (1 mark)
- b) Why is it necessary to prune a young tea plant as illustrated in the diagram above? (1 mark)
- c) Outline the procedure followed when using the pruning method shown above. (3 marks)

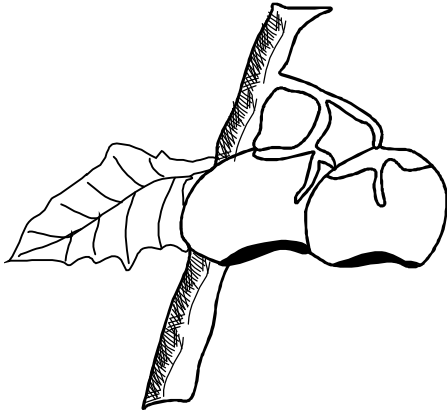
19. The following diagram shows a method of compost manure preparation.



- a) Identify the method. (1 mark)
 - b) Give two factors that should be considered when siting the compost pit. (2 marks)
 - c) Maize requires 120kg/ha of phosphorous pentoxide (P_2O_5). How much of the compound fertilizer 20 : 20 : 10 would be applied to 0.4 hectares of land to achieve this rate. (2 marks)
20. Study the diagram below and answer the questions that follow.



- a) Identify the above structure. (1 mark)
 b) Name the parts labelled A,B, C and D (2 marks)
 c) Give the name of the layer labelled Q. (1 mark)
 d) State are characteristic of layer D. (1 mark)
21. The diagram below shows a physiological condition in tomatoes. Use it to answer the questions that follow.



- a) Identify the disease condition. (1 mark)
 b) Outline two causes of the condition named in (a) above. (2 marks)
 c) Give two ways of controlling the diseases. (2 marks)

SECTION C (40 marks)

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

22. a) Explain four farming practices that maintain good soil structure (4 marks)
 b) Explain four advantages of minimum tillage in crop production. (4 marks)
 c) Describe seven safety precautions that should be taken when using herbicides to control weeds. (7 marks)
 d) Outline five harmful effects of crop pests. (5 marks)
23. a) Complete the table below that shows a hypothetical relationship between fertilizer input and maize yields, the cost of production and returns from maize. The cost of fertilizer is Kshs 750 per 50kg bag and the price of maize is Kshs 1200/= per 90kg bag. (8 marks)

CAN FERTILIZER (50 kg)	YIELD OF MAIZE (90kg/bag)	TOTAL COST (TC) Kshs	MARGINAL COST MC Ksh	TOTAL REVENUE	MARGINAL REVENUE	NET REVENUE
1	35	750				
2	53	1,500	750	63,600	21,600	
3	68		750	81,600		79,350
4	70	3,000	750			
5	71	3,750	750			81,450
6	69	4,500	750		-2400	78,300
7	68	5,250	750			
8	66	6,000	750	79,200		

- b) i) Using the table above, what is the point of profit maximization. (1 mark)
 ii) Give a reason for your answer in b(i) above. (1 mark)
- c) Describe the raising of a maize crop grown for grain production under the following subheadings
 i) Ecological requirements. (2 marks)
 ii) Seedbed preparation. (2 marks)
 iii) Planting (4 marks)
 iv) Harvesting (2 marks)
24. a) Describe the establishment and management of pasture crop stand up to grazing time. (5 marks)
 b) Describe the cultural methods used in controlling crop diseases. (5 marks)
 c) Outline five ways in which a farmer would improve the productivity of farm labour. (5 marks)
 d) Describe the various agencies and institutions involved in marketing of agricultural produce. (5 marks)

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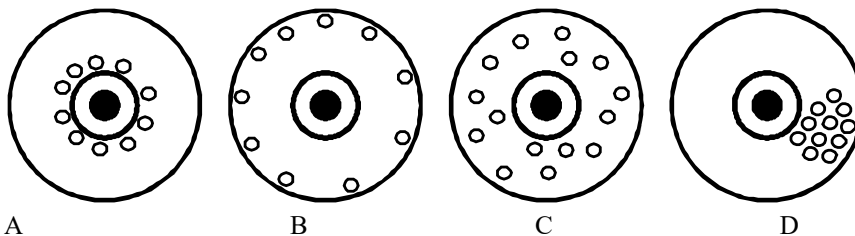
Paper - 443/1

July / August 2016**SECTION A (30 marks)**Answer ALL questions in this section on the spaces provided.

1. Give the normal composition of clean milk. (2½ marks)
2. State four harmful effects of ticks on livestock. (2 marks)
3. Differentiate between mothering ability and prolificacy in livestock breeding. (1 mark)
4. Why is it necessary to vaccinate livestock? (1 mark)
5. Give use of spookshave on the farm. (1 mark)
6. State four reasons why livestock should be weighed at weaning stage. (2 marks)
7. Give two uses of a footbath in a plunge dip. (1 mark)
8. List four exotic breeds of goats which are suitable for milk production. (2 marks)
9. List four livestock management practices that can be carried out in a crush. (2 marks)
10. State two chemical methods of dehorning calves. (1 mark)
11. a) State any two reasons why a farmer should use concrete floors for dairy sheds. (1 mark)
b) Give two reasons why the walls of a dairy shed should be white washed instead of being painted with oil paint. (1 mark)
12. State three reasons why harvesting honey at night should be discouraged. (1½ marks)
13. a) What is a notifiable disease? (1 mark)
b) Name two cattle disease controlled by use of one vaccine. (1 mark)
14. State any four requirements of a good brooder. (2 marks)
15. Outline four factors that determine the nutritional requirements of an animal. (2 marks)
16. What do you understand by the term 'psciculture'? (1 mark)
17. Name two forms of pastoralism. (1 mark)
18. Name a set of tools used for the following farm operations
a) Controlling bloat in cattle. (1 mark)
b) Restraining an animal during an agricultural show exhibition. (1 mark)
c) Name two dual purpose cattle breeds. (1 mark)

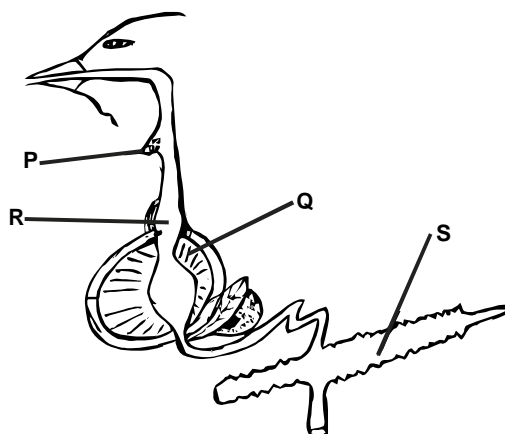
SECTION B (20marks)Answer ALL questions in this section

19. The following illustrations show the behaviour of chicks at different temperature in a brooder.



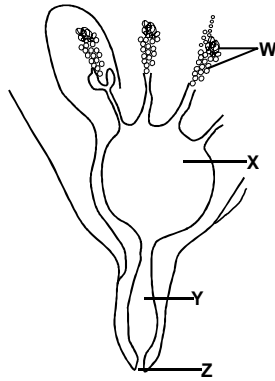
Explain the temperature condition in each of the four diagrams. (4 marks)

20. Describe the procedure followed when collecting semen using an artificial vagina. (5 marks)
21. Study the diagram below of the digestive system of a chicken.



- a) Identify the parts labelled P, Q, R and S. (2 marks)
- b) State four features in organ labelled Q that enable it to carry out its function efficiently. (4 marks)

22. The diagram below shows the structure of the udder of a cow.



- a) Label the parts labelled W, X, Y and Z. (2 marks)
 b) What is milk let-down (1 mark)
 c) Name two hormones that control milk let-down in a dairy cow. (1 mark)
 d) What is dry cow therapy? (1 mark)

SECTION C

Answer any two questions in this section.

23. a) What is a green house? (1 mark)
 b) Name four materials used in the construction of a greenhouse. (2 marks)
 c) Outline six components of a zero grazing unit. (6 marks)
 d) Outline five benefits of using biogas as a source of power on the farm. (5 marks)
 e) State three limitations of using hydroelectric power on the farm. (3 marks)
 f) State three methods of controlling roundworms (*Ascaris* sp) in livestock. (3 marks)
24. a) Identify the routine management practices carried out on livestock when raising young stock in dairy production. (8 marks)
 b) Explain the different methods used to stimulate milk letdown in a lactating cow when milking (6 marks)
 c) Explain three routine livestock feeding practices carried out when rearing livestock. (6 marks)
25. a) Discuss contagious abortion (brucellosis) under the following subheading. (1 mark)
 i) Animal species attacked (2 marks)
 ii) Mode transmission (3 marks)
 iii) Symptoms (2 marks)
 iv) Control measures (2 marks)
- b) Explain how the power transmitted from a tractor engine is made available for use on the farm under the following subheadings:
 i) Propeller shaft. (2 marks)
 ii) Power take off (PTO) shaft. (2 marks)
 iii) Hydraulic system. (2 marks)
- c) Explain six ways in which ticks can be controlled on a livestock farm. (6 marks)

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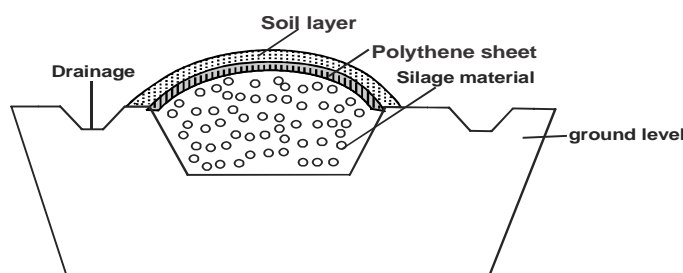
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AGRICULTURE**PAPER 1****SECTION A: (30 MARKS)****Answer all the questions in this section.**

1. State four characteristics of large scale farming system. (2 marks)
2. State four pieces of information contained in an invoice. (2 marks)
3. Name two types of credits available to farmers for agricultural use. (1 mark)
4. Differentiate between a balance sheet and a profit and loss account. (2 marks)
5. Give four benefits of rotational grazing. (2 marks)
6. State four factors that influence the extent of soil erosion in an area. (2 marks)
7. Give four functions of calcium in plants. (2 marks)
8. Give two disadvantages of landlordism and tenancy tenure system as practiced in Kenya. (2 marks)
9. Give two reasons for adding well rotten organic manure to a compost heap. (1 mark)
10. Mention two advantages of using polythene sleeves in the establishment of seedlings. (2 marks)
11. State two reasons why subsoiling is important as an operation of land preparation. (1 mark)
12. Give two reasons for proper drying of grains before storage. (1mark)
13. State two effects of siltation in dams. (1mark)
14. Give any three functions of pyrethrum board of Kenya. (1mark)
15. Outline three benefits of bolder planting in agroforestry. (1 ½ marks)
16. State four factors one should consider when designing a crop rotation programme. (2marks)
17. List three importance of tissue culture in crop propagation. (1 ½ marks)
18. State three reasons why a farmer should diversify his farm enterprises. (1 ½ marks)
19. Give four conditions of the land which make it necessary to carry out reclamation practices. (2 marks)

SECTION B: (20 MARKS)

20. Study the diagram of the silo below and answer the questions that follow



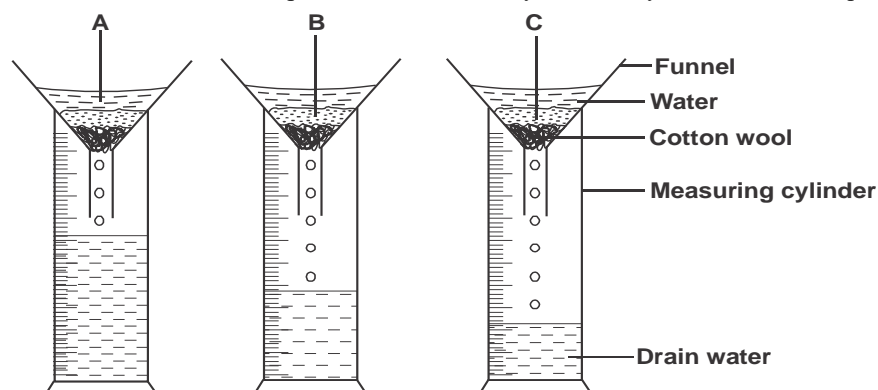
- (a) Identify the method of ensiling in the diagram above. (1mark)
- (b) State three precautions taken when ensiling to ensure high quality silage. (3marks)
- (c) Give two advantages of this method of forage conservation over other methods. (2marks)

21. Below are diagrams of common weeds found in the farm. Study them carefully and answer the questions that follow.

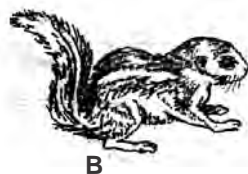


- (a) Identify the weeds. (3 mks)
- (b) Mention one harmful effect of each of the wood Q and R (1 mark)
- (c) Give a reason why weed S is referred as a parasitic weed. (1 mk)

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



- State the aim of the experiment. (1mk)
 - If the volume of water illustrated in them measuring cylinders was observed after one hour, identify the soil samples labelled A and B. (2 marks)
 - State two ways in which the soil structure of the soil sample labelled C above can be improved. (1 mark)
23. The diagrams below illustrates common pests in crop production. Study them carefully and answer the questions that follow. (1 mark)



- Identify the pest labeled A, B and C. (1 ½ mk)
- Classify the pests using scientific classification. (1 ½ mk)
- State any type of damage caused by the pest labelled A in maize. (1 mark)

SECTION C : (40 MARKS)

Answer any two questions from this section.

24. The table below shows the production of maize at various levels of NPK fertilizer application. Study it and answer the questions that follow.

Land (ha)	Variable input NPK (50kg bags)	Total product maize (90kg bags)	Marginal product maize 90kg bags	Average product maize 90kg bags
1	1	10	10	10
1	2	27	A	F
1	3	42	15	14
1	4	56	B	14
1	5	63	7	12.6
1	6	65	C	G
1	7	65	D	9.3
1	8	60	-5	7.5
1	9	52	E	H
1	10	42	-10	4.2

- Complete the above table A, B, C, D, E, F, G, H. (4marks)
 - Using the graph paper provided draw a graph of total product, marginal product and average product against variable input on the same axis and mark the zones of production. (7 marks)
 - With a reason identify the best zone of production. (2 marks)
 - Discuss the various ways in which farmers minimize risks in potato production. (7 marks)
25.
 - Describe the methods used in preparing materials in readiness for planting. (8 marks)
 - Explain the factors that may determine spacing of crop in the farm. (8 marks)
 - Explain briefly the factors that influence timely planting. (4 marks)
26.
 - List seven benefits of using organic matter for mulching. (7 marks)
 - Describe the field production of nappier grass under the following sub-headings
 - Planting (3 marks)
 - Fertilizer and manure (3 marks)
 - Utilization (3 marks)
 - Describe the procedure followed when transplanting tree seedlings from a bare root nursery bed. (4 marks)

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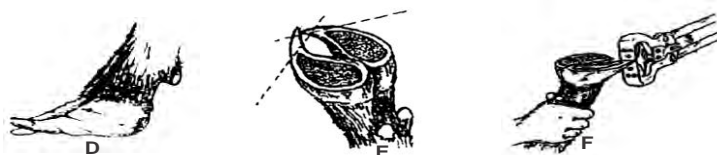
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AGRICULTURE**PAPER 2****Answer all the questions in this section in the spaces provided.**

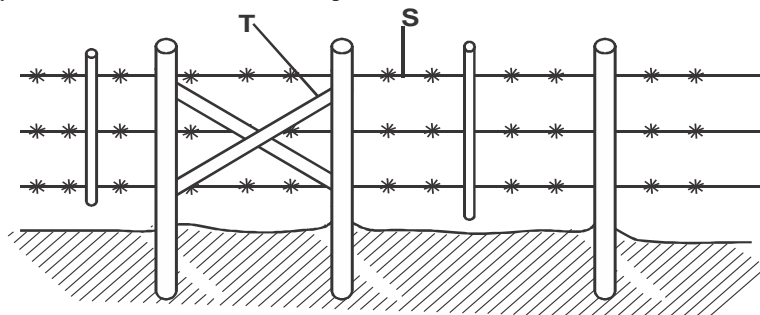
1. Give two notifiable diseases of cattle. (1 mark)
2. Give two functions of reticulum in the process of food digestion. (1 mark)
3. State the function of a carburetor in the fuel system. (1 mark)
4. Name the structure that is used to ensure that the honey comb and brood combs are found in different chambers in the hive. (1/2 mark)
5. Differentiate between inbreeding and outbreeding. (2 marks)
6. Give three methods of harnessing tractor power. (1/2 marks)
7. Give three reasons why ewes disown lambs. (1 1/2 marks)
8. Give four factors to consider when selecting goats for breeding. (2 marks)
9. State four conditions that can make a cow to withhold milk during milking. (2marks)
10. Give four predisposing factors of mastitis in cattle. (2 marks)
11. A dairy cow under zero grazing system weighs 700kg. Calculate how much dry matter it takes given that it takes 2.5kg for every 100kg live weight (show your working) (2 marks)
12. State two advantages of using wood in the construction of a farm building. (1mark)
13. Give two reasons why the walls of the dairy shed should be white washed instead of painting with oil paints. (1 mark)
14. Outline three reasons why claves should be fed on colostrums. (1 1/2 marks)
15. List two groups of vitamins as applies to livestock nutrition. (1 mark)
16. Give three importance of flushing in sheep management. (1/2 marks)
17. State three factors that dictate livestock distribution in Kenya. (1/4 marks)
18. Give three conditions under which a farmer prefers to use an ox-cart instead of a tractor drawn trailer. (1/2 marks)
19. List two tools used in closed castration. (1 mark)
20. State four qualities of good creep feed. (2 marks)
21. Name three mechanical methods of controlling ticks. (1 1/2 marks)

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

22. A farmer in Makueni County owns 16 million cows. In addition to feeding these animals with napier grass, the farmer prepares home mixed ratio in them. During this dry season, the farmer has decided to mix 600kg of the ratio using oats DCP 40% and simsim cake DCP 60% using the Pearsons square method.
 - i) Determine the quantities of each feed the farmer will need to make a ratio containing 20% DCP for the animals. (4 marks)
 - ii) State one factor affecting feed digestibility. (1 mark)
23. Below are illustrations of animal hooves and activity being done.

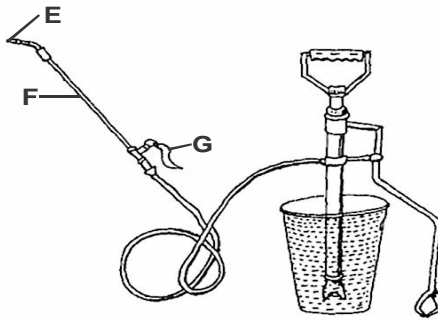


- i)
 - a) What activity is going on in diagram F. (1 mark)
 - b) Which of the above hooves is likely to predispose foot rot infection? (1 mark)
 - c) Name one appropriate tool for carrying out the above activity. (1 mark)
 - d) i) Other than protecting animals from foot rot give another one reason for carrying out the activity. (1 mark)
 - ii) give three reasons for seasoning timber before use. (3 marks)
24. Study the structure and answer the questions.



- (a) Name the structure above. (1 mark)
 (b) Name the parts labeled S & T (2 marks)

25. Below is a diagram of a farm equipment. Use it to answer the questions that follow.



- a) Identify the equipment. (1/2 mark)
 b) State the use of the equipment (1 mark)
 c) Name the parts labelled G, E and F (1marks)
 d) Identify two drawbacks in using this equipment compared to others that may be used for the same purpose. (2 marks)

SECTION C: (40 MARKS)

Answer any two questions from this section.

26. a) Give the differences between petrol and diesel engine.
 b) Outline five advantages of farm mechanization.
 c) Explain factors considered in selection of construction materials.
27. a) Discuss coccidiosis disease under the following headings :
 i) Causal organism (1 mark)
 ii) Livestock species attacked (2 marks)
 iii) Symptoms of attack (4 marks)
 iv) Control measures (3 marks)
 b) Describe the essentials of obtaining clean milk from a cow. (10 marks)
28. a) Describe the management of layers in deep litter system from the point of lay. (10 marks)
 b) Describe the lifecycle of a two host tick. (6 marks)
 c) Name four sources of power in the farm. (4 marks)

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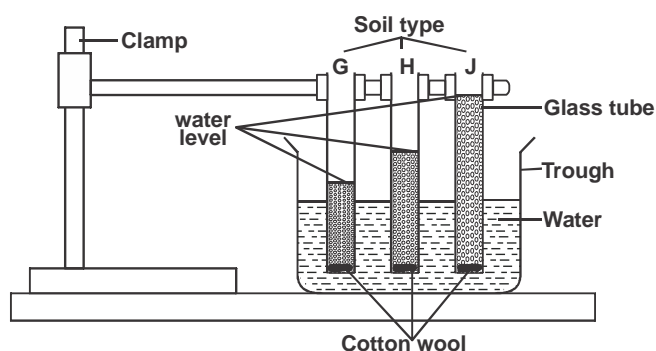
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AGRICULTURE**PAPER 1**

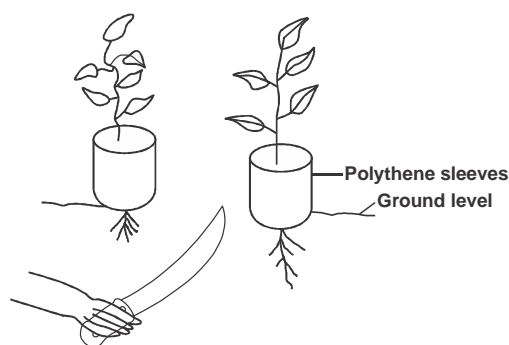
1. Give four reasons that make ranching to be regarded as a form of advanced pastoral nomadism (2 mks)
2. State four practices that can facilitate achievement of organic farming (2 mks)
3. List four factors that increase seed rate in crop production (2 mks)
4. Give the meaning of the following terms;
 - Nitrogen fixation into the soil (1 mk)
 - Phosphorous fixation in loss of soil fertility (1 mk)
5. Give four advantages of individual owner operator tenure system as practised in Kenya. (2 mks)
6. Give four features that should be considered when choosing water pipes for use on the farm (2mks)
7. List the four aspects of rainfall that affect agriculture (2 mks)
8. Give four reasons why a well drained soil is suitable for crop production (2 mks)
9. State two indicators of well rotten compost manure (1 mk)
10. Distinguish between contact herbicide and a systemic herbicide (1 mk)
11. Name four variable costs in the production of maize (2 mks)
12. What is meant by working capital (1 mk)
13. State four advantages of tractor hire services (2 mks)
14. Give four advantages of intensive fanning system. (2 mks)
15. Give four reasons for deep ploughing during primary cultivation (2 mks)
16. Give four characteristics of a good vegetable seedling for transplanting (2 mks)
17. State two benefits of Agroforestry to a maize crop (1 mk)

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

18. The diagram below shows an experiment set up using soil type G, H and J, and the observations made after 24 hours. Study the diagram and answer the questions that follow (1 mk)

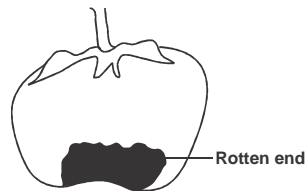


- i) State the aim of the experiment above (1mk)
 - ii) Name the three soil types G, H and J (1 ½ mk)
 - iii) What is the characteristic texture of soil types G and J (1 mk)
 - iv) State one way of improving the structure of soil type G (1 mk)
19. The diagram below illustrates a nursery practice carried out on tree seedlings before transplanting. Study it carefully then answer the questions below

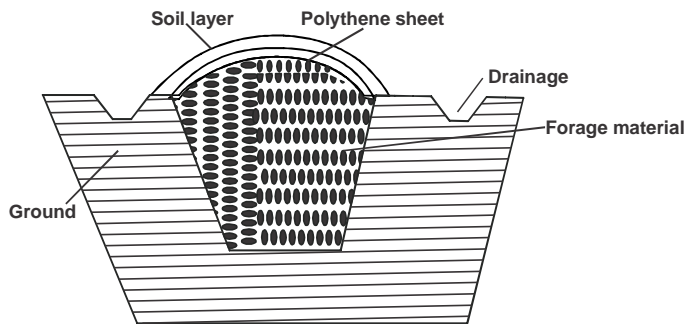


- a) Identify the practice being carried out on the diagram (1 mk)
- b) Give three reasons why the practice is encouraged when raising seedlings (3 mks)
- c) Give two reasons why the polythene sleeves are used in the nursery bed as shown in the diagram (2mks)

20. Study the illustration below of a tomato fruit as observed in field production.



- i) Identify the condition illustrated above. (1 mk)
 - ii) State two conditions that predispose a tomato plant to the conditions stated in (a) above (1 mk)
 - iii) Suggest four possible ways of controlling the condition stated in (a) above (2 mks)
 - iv) Name two categories of tomato varieties (1mk)
21. The diagram below shows a method of forage preservation



- a) Identify the structure above (1 mk)
- b) State the form in which the forage is preserved as illustrated above (1 mk)
- c) Give the role played by each of the following in the structure above
 - i) Polythene sheet (1 mk)
 - ii) Drainage (1 mk)
- d) Name two other methods of forage conservation (1 mk)

SECTION C (40 MARKS)

Answer any two questions in the spaces provided below.

22. a) Explain five morphological features of weeds that influence selectivity of herbicides (5 mks)
- b) State five factors that contribute to competitive ability of weeds (5 mks)
- c) Explain physical methods used in control of pests in crop production (10 mks)
23. a)
 - i) What is a partial budget (1/2 mk)
 - ii) Mr. Owino 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 0.3 ha of maize with potatoes the following season would be worthwhile. The fertilizer rate would have increased from 2 bags per hectare for maize to 2.5 bags per hectare for potatoes, an extra 40 days of casual labour 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 prices are Kshs 1200 per bag of maize and Kshs 300 per bag of potatoes, seed costs are Kshs 1350 per 10 kg of maize and Kshs 200 per 50 kg of potatoes. DAP fertilizer costs Kshs. 1400 per 50 kg bag. Labour is paid at Kshs 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 (7 mks)
 - iii) What advice would you give this farmer (1/2 mk)
- b) State different ways through which farmers may adjust to risks and uncertainties (5 mk)
- c) Explain seven biological and cultural measures used in control of soil erosion (7mks)
24. a) Describe the procedure of seed inoculation (5 mks)
- b) Discuss five negative effects of wind to crops (5 mks)
- c) Describe the production of Dry beans (Phaseolus vulgaris) under the following sub headings
 - i) Varieties (3 mks)
 - ii) Land preparation (3 mks)
 - iii) Harvesting (4 mks)

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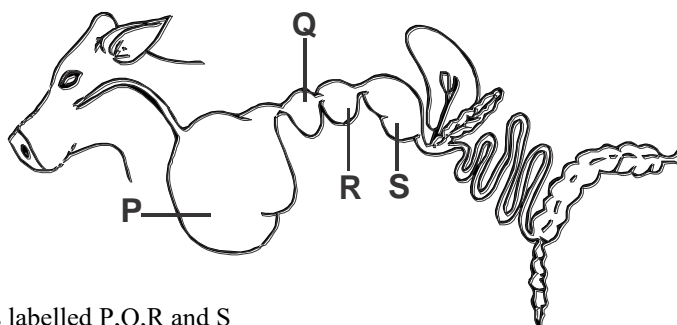
PAPER 2

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

1. Give the term used to describe the following livestock (2mks)
 - i) Mature Female Rabbit
 - ii) Mature Male Goat
 - iii) Castrated Male Bird
 - iv) Young one of fish
2. Give one reason why concrete floors are recommended for dairy shed (1/2 mk)
3. Give three reasons for flushing ewes before tugging is done (1/2 mk)
4. State two functions of feed additives (1 mk)
5. Define heterosis in livestock production (1/2 mk)
6. State four characteristics of clean and high quality milk (2 mks)
7. Give two reasons why young rams should be docked? (1 mk)
8. State four factors influencing the market quality of eggs demanded by consumers (2mks)
9. Anthrax and rinderpest are two notifiable diseases in livestock
 - i) Give the meaning of the term notifiable diseases (1/2 mk)
 - ii) How is anthrax contracted ? (1 mk)
 - iii) How is rinderpest controlled (2 mks)
10. Give four types of machinery that obtain power from power take off (P.T.O) shaft (2mks)
11. Name the deficiency disorder experienced by livestock when they lack the following mineral elements' (1 1/2 mks)
 - a) Copper
 - b) Zinc
 - c) Magnesium
12. State four ways of controlling tsetse flies (2 mks)
13. State four reasons for feeding bees (2 mks)
14. State the uses of the following tools
 - i) Stir up Pump
 - ii) Coping saw
 - iii) Claw hammer
 - iv) Shovel
15. State four factors that determines the type of fence a farmer is to put up on the farm (2 mks)
16. List three maintenance practices carried out in a fish pond (1 1/2 mks)
17. State two reasons for feeding a dairy cow with roughage (2 mks)
18. Name the method of castration used in castrating young male piglets (1 mk)

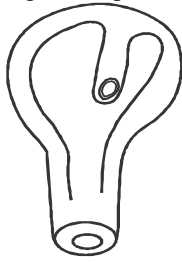
SECTION B: (20 MARKS)**Answer ALL questions in this section in the spaces provided.**

19. Study the diagram of the digestive system of a farm animal shown below and answer the questions that follow



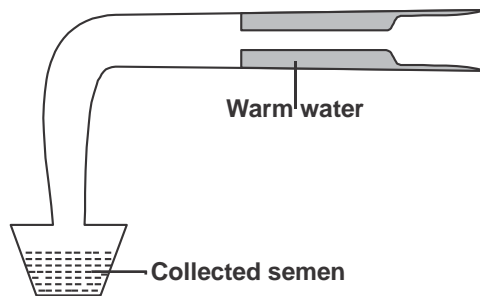
- a) Name the parts labelled P,Q,R and S (2 mks)
- b) State the function of the part labelled R (1 mk)
- c) Give two reasons why livestock with the above parts are able to digest cellulose in food material (1 mk)
- d) In which of the parts labelled P,Q,R,S would a nylon paper be found if fed on by an animal with the above digestive system (1 mk)

20. Examine the diagram of parasite in livestock illustrated below

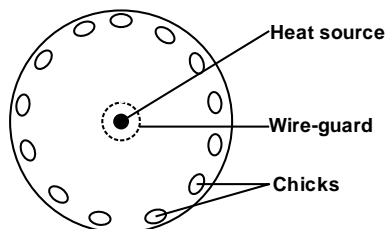


- Name the parasite above
- Give the intermediate host of the parasite (1/2 mk)
- Where is the parasite found in the body of the livestock (1 mk)
- Give three control measures of the parasite (3 mks)

21. The diagram below shows a livestock production equipment. Study it and answer the questions that follow



- Identify the equipment (1 mk)
 - What is the importance of warm water in the equipment (1 mk)
 - Describe the procedure followed when using the equipment in collecting semen (3 mks)
22. Below is an illustration of a brooder used in rearing chicks



- Why should the structure above be round in shape instead of rectangular/square shaped (1 mk)
- For how long should chicks stay in the above structure (1/2 mk)
- Give the temperature position inside the brooder above (1/2 mark)
 - Give a reason for your observation in c (i) above (1mk)
- List the heat sources that can be used (1mk)
 - Why should a wire guard be placed round the heat source (1mk)

SECTION C: 40 MARKS

Answer any TWO questions from this section

- Describe the principle of operation of a four stroke (four-cycle) petrol engine (10mks)
 - Explain the functions of water in livestock's body (5mks)
 - Discuss the predisposing factors of livestock diseases (5mks)
- Describe the lifecycle of roundworm (*Ascaris* sp) (10mks)
 - Describe the process of egg formation in poultry (10mks)
- Discuss parts of a spray race (10mks)
 - Explain limitations of animal drawn implement (5mks)
 - Discuss Newcastle disease under the following sub-headings
 - Causal agent (1/2 mk)
 - Symptoms of the disease (3mks)
 - Control measures (1 1/2 mk)

LONDIANI SUB – COUNTY JOINT EXAMINATIONS 2016**443/1****AGRICULTURE****PAPER 1****SECTION A (30MARKS)***Answer All the questions in the spaces provided.*

1. What is a micro catchment ? (½ mk)
2. Give any four methods of draining excess water in the farm (2mks)
3. Name two diseases of cabbages (1 mk)
4. Give four reasons for earthing up some crops. (2mks)
5. Give four reasons for pruning crops. (2mks)
6. Give four factors affecting the quality of farmyard manure. (2mks)
7. Give four factors that determine the quality of silage. (2mks)
8. Give four advantages of owning a title deed. (2mks)
9. How can a farmer increase light intensity in the field of crops. (2mks)
10. Outline four edaphic factors which influence agriculture. (2mks)
11. Give three advantages of timely land preparation. (1 ½ Mks)
12. Differentiate between thinning and pricking out. (1 mk)
13. Give two sources of sulphur element in soil. (1 mks)
14. State any four factors which may lead to change in demand of a given commodity. (2mks)
15. State any three details contained in a delivery note. (1 ½ mks)
16. Outline any four problems farmers face when marketing their products. (2mks)
17. Name three sites for agro forestry trees. (1 ½ Mks)
18. Give any two sources of credit to farmers (1 mk)
19. Give two reasons for testing soil in the farm. (1 mk)

SECTION B (20marks)*Answer All the questions in this section.*

- 20 Use the diagram below to answer the questions that follow.
 - a) Identify the above practice used in tomato production.
 - b) Give any four reasons for carrying out the above practice.
 - c) Name any other two methods of training crops in crop production. (1mk)
21. Below are photographs of some common weeds. Use them to answer the questions that follow.
 - a) Identify weeds labeled.
 - K (1 mk)
 - L (1 mk)
 - b) Give problems associated with the weeds above.
 - K (1 mk)
 - L (1 mk)
22. The diagrams below show different types of soil structures. Use them to answer questions that follow.
 - a) Identify soil structures.
 - K (1 mk)
 - L (1 mk)
 - b) In which position in the soil profile is structure K found. (1 mk)
 - c) Give reason why the above soil structure K is not good for crop production. (2mks)
23. Below is an illustration showing a method of layering. Use it to answer questions that follow.
 - a) Identify the method of layering above. (1 mk)
 - b) Give the procedure for carrying out the above practice. (3mks)
 - c) Name two other methods of layering. (2mks)

SECTION C (40 marks)*Answer any two questions.*

24. a. Explain the terms risks and uncertainties in farming (2 mks)
- b. State the various risks and uncertainties farmers face in farming (12 mks)
- c. Explain various ways in which farmers adjust to risks and uncertainties in farming (6mks)
25. a) Discuss production of maize under the following sub headings.
 - i) Land preparation. (5mks)
 - ii) Field practices. (7mks)
 - iii) Harvesting (3mks)
- b) State any five post harvest practices done on maize after harvesting. (5mks)
26. a) Describe the environmental conditions that may lead to low crop yields (8mks)
- b) Discuss the benefits a farmer is likely to get by using vegetative propagation in production of Oranges (10mks)
- c) Describe the procedure for harvesting coffee (2mks)

NTIMA COUNTY JOINT EXAMINATIONS 2016

443/1

AGRICULTURE

PAPER 1

SECTION 30 MARKS

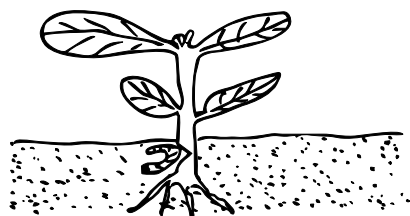
(ANSWER ALL QUESTIONS)

1. State two ways by which Agriculture contributes to Employment (1 mk)
2. Name two methods of farming considered outdated (1mk)
3. State three benefits of good soil structure in crop production (1 ½ mks)
4. State two effects of HIV/AIDS on Agricultural Production (1mk)
5. State the conditions under which the opportunity cost is zero in a farming enterprise (2mks)
6. Name two types of labour records (1mk)
7. State four ways of improving farm labour productivity (2 mks)
8. Name four types of financial documents. (2mks)
9. Distinguish between oversowing and undersowing as used in pasture establishment (1mk)
10. Give four government policies that influence agricultural production (2mks)
11. State two advantages of tenancy system in farming (1mk)
12. Explain two advantages of biological control of pests in crops (1mk)
13. Name two categories of tomato varieties grown in Kenya (1mk)
14. a) Define the term elasticity of demand as used in agricultural economics (2 mks)
- b) State four factors that affect elasticity of demand (2 mks)
15. Name the form of soil water that is available to crops (1 mk)
16. State three factors that have direct influence on soil formation (1 ½ mks)
17. List four characteristics of crops grown for green manure (2 mks)
18. List four advantages of timely harvesting of crops (2 mks)
19. State two advantages of intercropping (1 mk)
20. State two deficiency symptoms of potassium in crops (1 mk)

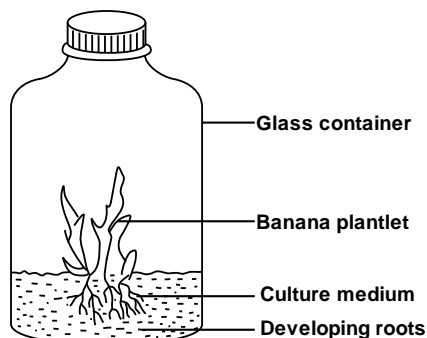
SECTION B (20 MKS)

Answer all the questions in this space provided

21. The diagram below shows a Kale seedling attacked by a pest

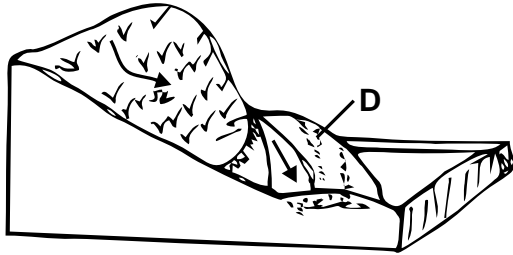


- (a) Identify the pest (1mk)
 - (b) What damage does the pest cause to the crops? (1 mk)
 - (c) State one method of controlling the pest (1mk)
 - (d) Name two insect pests other than the one identified in (a) above that attack kale in the field (2mks)
22. The diagram below shows a banana tissue culture. Study it and answer the questions that follow



- a) Name two ways of inducing the rooting of plantlets (2mks)
- b) Outline three steps followed in the development of tissue culture (3mks)
- c) State one advantage of propagating crops by use of tissue culture technique (1mk)

23. The diagram below illustrates a physical method that is used to control soil erosion. Study it carefully and answer the questions that follow



- Name the physical soil erosion control method illustrated by the diagram above (1 mk)
 - Name the part labelled D on the diagram (1mk)
 - State four places where water from the structure named in (a) above is discharged (2 mks)
24. A farmer has 16 hectares of land. About 6 ha are under permanent pasture. He plans to grow 6, ha of beans. In the previous seasons, he hired casual workers at the rate of 80 man days per hectare. The cost was Kshs. 30 per man day. This season he intends to hire a tractor to open the land at a cost of kshs. 600 per hectare. He thinks that using a tractor will increase bean production from 800 to 1200 kg/ha. Harvesting will cost Kshs. 6 per kg of bean & seeds and the price of beans will be Kshs.60/kg Draw up a partial budget to show whether the change would be worthwhile (5 mks)

SECTION C (40 MKS)

Answer any two questions in this section in the spaces provided

- Outline five activities that may be undertaken in minimum tillage (5 mks)
 - State the qualities of a good farm manager (5 mks)
 - Explain five ways in which farmers may overcome risks and uncertainties in a farming business (10 mks)
- Explain five ways through which soil loses fertility (5 mks)
 - Explain five factors that determine the quality of farm yard manure (5 mks)
 - Describe the field production of sorghum under the following sub-headings
 - Seedbed preparation (5mks)
 - Planting (5 mks)
- Describe the problems facing Agricultural co-operative societies in Kenya (10 mks)
 - Discuss the classification of pesticides according to their mode of action (10 mks)

NTIMA COUNTY JOINT EXAMINATIONS 2016

443/2

AGRICULTURE

PAPER 2

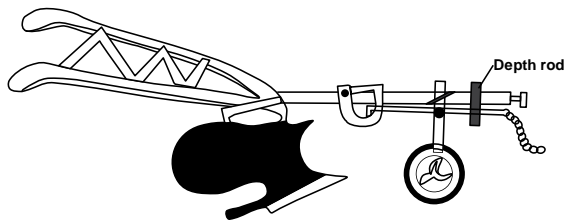
SECTION A (30 MARKS)

Answer ALL questions in this section in the spaces provided

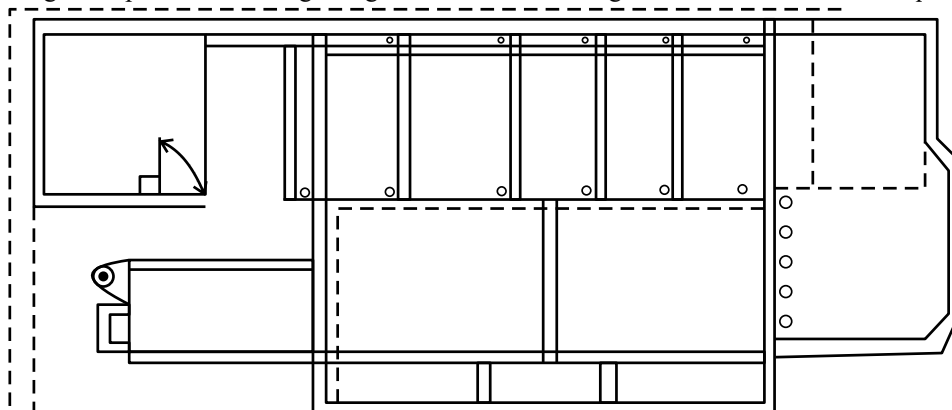
1. List four factors that may dispose an animal to a certain disease (2 mks)
2. Give four reasons why dehorning is done in livestock (2 mks)
3. Give the distinguishing colour for each of the following breeds of livestock
 - (a) Chinchilla (1 mk)
 - (b) Toggenburg goat (1 mk)
4. Differentiate between the following tools
 - (a) Bastard file and rasp file (2 mks)
 - (b) Copying saw and hacksaw (2 mks)
5. State four factors that would contribute to the depreciation of a farm equipment (2mks)
6. Name the intermediate host of liver fluke (1 mk)
7. State two methods of lambing management (2 mks)
8. State four parts on the chicken which are frequently attacked by fleas (2 mks)
9. What are the functions of a clutch in a tractor ? (2 mks)
10. Name two intensive rearing systems of poultry (1 mk)
11. Name two methods commonly used in identifying sheep (2 mks)
12. State two characteristics of the African wild bee which makes it better in bee keeping than the European bee type (2mks)
13. Give three reasons why harvesting honey at night is discouraged (3mks)
14. Name four components of power transmission system in a tractor (2mks)
15. Give two examples Gf feed additives in livestock nutrition (1mk)

SECTION C: (20 MARKS)

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



- (a) Identify the implement (1mk)
- (b) What is the function of the depth rod (1mk)
- (c) What are the disadvantages of using the implement (3mks)
17. i) Using the Pearson's square method compute a 2000 kg ration with 20% DCP from maize which contains 10% DCP and cotton seed cake containing 45% DCP Show your working (4mks)
- ii) A boar gained 70 kg of live weight after eating 280 kg of pig finisher meal over a period of time. Calculate the feed conversion ratio (2mks)
18. Study the ground plan of the zero grazing unit shown in the diagram below and answer the questions that follow.



- (a) Indicate the location of the following parts of a zero grazing unit using roman numbers on the diagram.
 - (i) Store
 - (ii) Calf pen
 - (iii) Walking area

- (iv) Food and water trough area (2mks)
 (b) What type of a calf pen is in the zero grazing (1 mk)
 (c) State two structural requirements of a calf pen (2mks)
 19. Study the table below and fill in the missing words (4mks)

	Description	Cattle	Pigs	Poultry	Sheep
(i)	Young from birth or hatching to weaning	(a)	(b)	Chick	Lamb
(ii)	Young female before first parturition /laying	(c)	Gilt	(d)	(e)
(iii)	Mature male for breeding	Bull	(f)	(g)	(h)

SECTION C (40 MARKS)

Answer any TWO questions in the spaces provided

20. a) Describe concisely the life cycle of a three-host tick (7mks)
 b) Discuss tick control methods (6mks)
 c) State four characteristics of effective acaricides (4mks)
 d) Give three methods of applying acaricides on livestock (3mks)
21. a) Describe hand milking of a dairy cow (10 mks)
 b) Explain the practices observed in clean milk production (8 mks)
 c) Name two milking equipments. (2 mks)
22. a) Describe the stocking of fish into a fish pond (3mks)
 b) Describe the feeding of fish in a fish pond (6 mks)
 c) Give five practices carried out on fish before preservation (5mks)
 d) State six management practices in fish rearing (6mks)

GEM SUB-COUNTY JOINT EVALUATION EXAMS 2016

443/1

AGRICULTURE**PAPER 1****SECTION A (30 marks)**Answer ALL questions in this section on the spaces provided.

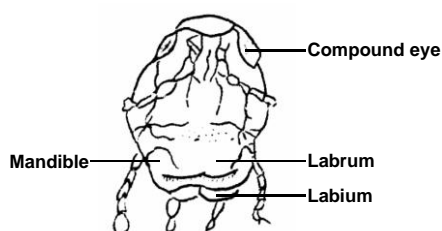
1. Distinguish between GDP and GNP (2 marks)
2. Name FOUR types of terraces. (2 marks)
3. List FOUR ways used in water harvesting. (2 marks)
4. Mention FOUR advantages of land consolidation. (2 marks)
5. State FOUR ways in which pesticides kill pests. (2 marks)
6. State FOUR deficiency symptoms of potassium in plants. (2 marks)
7. Mention FOUR practices that enhance minimum tillage. (2 marks)
8. Name FOUR practices that will increase light reaching a crop. (2 marks)
9. State TWO factors that determine the implement used in primary cultivation. (1 mark)
10. Name any FOUR records a wheat farmer should have on the farm. (2 marks)
11. List THREE methods of harvesting trees. (1½ marks)
12. Give four advantages of sprinkler irrigation. (2 marks)
13. Using the data provided in the table below, make an interpretation and advise the farmer on which crop to grow. (1 mark)

Type of crop	Gross margin (Kshs)
Cotton	19,700
Groundnuts	23,600

- ii) Give a reason for your answer above. (1 mark)
14. How are hardpans caused by cultivation? (2 marks)
15. List three branches of horticultural farming. (1½ marks)
16. Distinguish between topping and top-dressing. (2 marks)

SECTION B (20 marks)

17. Observe the diagram below and answer the questions that follow.



- a) Identify the mode of feeding exhibited by a pest having such features. (1 mark)
- b) Name any FOUR pests with the above feeding habits. (2 marks)
18. A farmer is to apply a fertilizer 20 : 30 : 10 on a vegetable plot measuring 5m by 8m at the rate of 200kg/ha.
 - a) Calculate the amount of fertilizer the farmer requires for the plot. (4 marks)
 - b) Name the type of fertilizer used in (a) above. (1 mark)
19. State five functions of Agricultural marketing. (5 marks)
20. The diagram below gives an illustration of a farm record. use it to answer the questions that follow.

Enterprise

Month

Name of cow	Days in month															
	1		2		3		4		5		6		7		8	
	Am	Pm	Am	Pm	Am	Pm	Am	Pm	Am	Pm	Am	Pm	Am	Pm	Am	Pm

- a) Name the type of farm record illustrated above. (1 mark)
- b) Give three reasons for keeping health records in livestock production. (3 marks)
- c) Give three pieces of information a dairy farm manager should collect for planning purposes. (3 marks)

SECTION C (40 marks)

Answer ANY TWO questions in this sections.

21. a) List eight common problems that might have led to collapse of many co-operative societies. (8 marks)
 b) Describe methods of improving labour productivity. (5 marks)
 c) Outline and SEVEN general post-harvesting practices carried out on crops. (7 marks)
22. a) Discuss TEN ways through which the soil loses fertility. (10 marks)
 b) Study the table below and answer the questions that follow.

Land (ha)	NPK fertilizer input (kg)	Total maize production (90 kg bags)	Marginal production (90 kg bags)
1	0	10	
1	40	17	
1	80	33	
1	120	52	
1	160	64	
1	200	70	
1	240	73	
1	280	75	
1	320	75	
1	360	68	

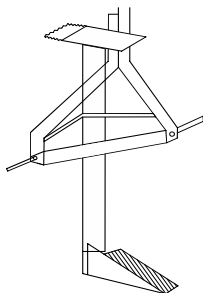
- i) Calculate the marginal product from the table. (5 marks)
 ii) What is variable input. (2 marks)
 iii) At what point of fertilizer input does the law of diminishing return start to operate. (1 mark)
 iv) State TWO risks and uncertainties in the farm. (2 marks)
23. a) Describe the production of tomatoes under the following sub-heading.
 i) Transplanting. (5 marks)
 b) Mention FIVE importance of organic matter in the soil. (5 marks)
 c) State TEN uses of water in the farm. (10 marks)

GEM SUB-COUNTY JOINT EVALUATION EXAMS 2016**443/2****AGRICULTURE****PAPER 2****SECTION A (30 marks)**Answer ALL questions in this section on the spaces provided.

1. State TWO distinguishing characteristics of an earlop Rabbit breed. (1 mark)
2. Name TWO dual-purpose breeds of goats (1 mark)
3. Highlight THREE factors that lower the quality of concrete. (1½ marks)
4. Give the use of copper (II) sulphate solution in footbath of a plunge dip. (½ mark)
5. State the difference between pen-mating and flock-mating in poultry. (1 mark)
6. State four maintenance practices carried out on a Jack plane. (2 marks)
7. Name the deficiency diseases caused by lack of each of the following nutrients in the body of an Animal. (1½ mark)
 - i) Iron.....
 - ii) Iodine.....
 - iii) Zinc.....
8. Highlight FIVE characteristics of livestock roughage feed stuff. (2½ marks)
9. Mention THREE methods of selection in livestock breeding. (1½ marks)
10. Give THREE disadvantages of embryo transfer. (1½ marks)
11. Outline FIVE factors that influence the quality of honey. (2½ marks)
12. Highlight FOUR maintenance practices carried out on cooling system of a tractor. (2 marks)
13. Name the most Appropriate tool used in each of the following operations.
 - a) Scrapping and smoothing Rough wood surfaces. (½ mark)
 - b) Cutting thin sheets of metal. (½ mark)
 - c) Cutting identical marks on ears of an animal. (½ mark)
14. State the difference between Gilt and a sow. (1 mark)
15. Name any FIVE notifiable diseases of cattle. (2½ marks)
16. State FOUR factors that are considered when formulating a livestock Ration. (2 marks)
17. State FOUR effects of protein deficiency in Animal. (2 marks)
18. State the function of the following main parts of a DIP (1½ marks)
 - i) Drainage race
 - ii) Roof
 - iii) Assemble yard
19. Give TWO reasons why Rabbit hutches should be raised above the ground level. (1 mark)

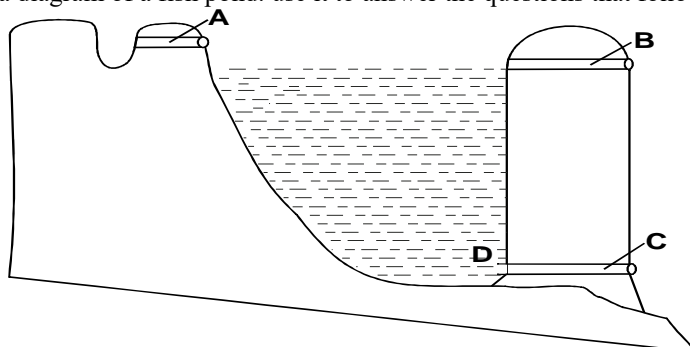
SECTION B (20 marks)Answer ALL questions in this section

20. A 500kg Pig Ration containing 25% crude protein was to be made from wheat bran 5% crude protein and cotton seed cake 30% crude protein. (4 marks)
Using Karl Pearsons Square method, calculate the amount of each feed stuff needed to prepare the Ration.
21. The diagram below shows an implement used in deep tillage operation after harvesting in a farm.

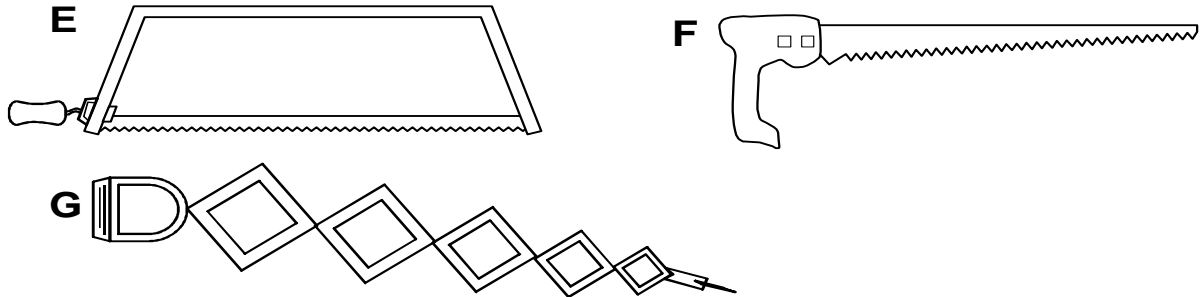


- a) Identify the implement. (1 mark)
- b) Give FOUR uses of the above farm implement. (2 marks)

22. Below is a diagram of a fish pond. use it to answer the questions that follow.



- a) i) Name the parts of the pond worked. (1½ marks)
 ii) Explain why part D is usually deeper than the rest of the pond. (½ mark)
 b) State FOUR maintenance practices carried out on the fish pond. (2 marks)
 c) Give TWO reasons for the use of lime in the fish pond. (2 marks)
23. Study the diagrams of workshop tools down below.



- a) Identify the tools labelled E, F and G. (1½ marks)
 b) Give the use for tool G. (1 mark)
 c) State TWO reasons for using farm tools to perform various farm operations. (2 marks)
24. Describe the Life Cycle of a two host tick. (2½ marks)

SECTION C (40 marks)

Answer any TWO questions from this section

25. a) Explain FIVE differences between digestion system in Ruminants and non-ruminants. (10 marks)
 b) Describe the preparation and management of Natural Incubation. (8 marks)
 c) What is production Ration. (2 marks)
26. a) Discuss livestock rearing practices under the following sub-headings
 i) Identification practices. (5 marks)
 ii) Parasite and disease control. (6 marks)
 iii) Management of source during parturition / farrowing. (6 marks)
 b) Define the following terms used in livestock diseases.
 i) Zoonotic diseases. (1 mark)
 ii) Incubation (1 mark)
 iii) Recovery (1 mark)
27. a) Describe FIVE sources of Farm power. (10 marks)
 b) State FIVE methods that can be used to deworm cattle. (5 marks)
 c) Outline FIVE reasons that can make bees swarm away from a Hive. (5 marks)

WESTLANDS SUB-COUNTY JOINT EXAMINATION
443/1
AGRICULTURE
PAPER 1

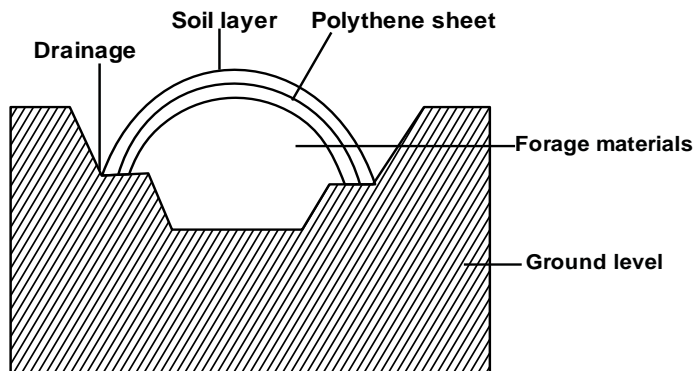
SECTION A 30 MARKS (ANSWER ALL QUESTIONS)

1. State three characteristics of shifting cultivation (1 ½ mks)
2. What do you understand by the term plantation farming (1 mk)
3. Give four benefits of good soil structure in crop production (2 mks)
4. State four reasons for sub-soiling in a maize field (2 mks)
5. What factors would a farmer consider when deciding on the type of irrigation to use in rice production (2 mks)
6. List any four ways in which soil is deprived of its fertility (2 mks)
7. A form four student noticed that her crops of maize had intervenial chlorosis.
What was the possible cause of the condition (½ mk)
8. Name three plant parts used for propagation of pineapples (1 ½ mks)
9. State five factors to consider when selecting a nursery site (2 ½ mks)
10. List five post-harvest practices carried out in tomatoes. (2 ½ mks)
11. Why is it not advisable to use manure in carrot production (½ mk)
12. Give four advantages of communal tenure system (2 mks)
13. Give two ways which check dams control soil erosion (1 mk)
14. State five disadvantages of weeds in crop production (2 ½ mks)
15. Name any three insect pests with biting and chewing mouth parts (1 ½ mks)
16. State four factors affecting the efficiency of pesticides (2 mks)
17. State the law of substitution as used in Agricultural economics (1 mk)
18. Differentiate between complementary products and supplementary products (2 mks)

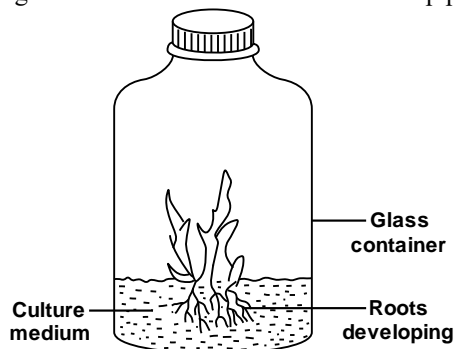
SECTION B (20 MARKS)

Answer all the questions in this section in the spaces provided

19. The diagram below shows a method of forage preservation

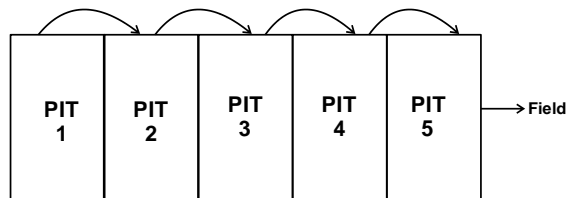


- i) Identify the structure illustrated above (1 mk)
 - ii) State the form in which forage is conserved as illustrated above (1 mk)
 - iii) Give the role of the following in the structure above (2 mks)
 - a) Polythene sheet
 - b) Drainage
20. The diagram below illustrates a method of crop propagation



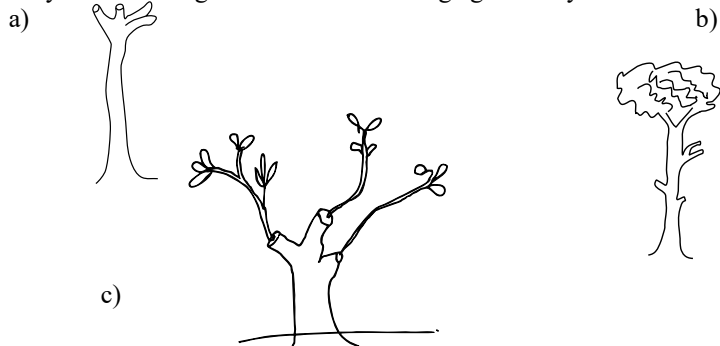
- a) Identify the method of propagation (1 mk)
- b) Name one crop propagated through the method (1 mk)
- c) State three importances of the method above (3 mks)

21. The following diagram shows a method of compost preparation



- a) Identify the method (1 mk)
 b) Give four factors that should be considered when siting the compost pit (2 mks)
 c) State two factors that determine time the manure would be ready for use in the field (2 mks)

22. Identify the following methods of harvesting agroforestry trees (3 mks)



- d) List three sites of agroforestry trees and shrubs (3 mks)

SECTION C

Choose only 2 questions

23. The following accounts information is from Martin's farm for the year ending 31st /12/2006

Opening valuation	6,000/=
Paid wages	5,000/=
Bought equipment worth	18,000/=
Bought pig feeds worth	4,000/=
Sold mature pigs worth	7,000/=
Bought drugs worth	3,2000/=
Closing valuation	4,000/=
Solid maize worth	8,000/=
Rice in store	45,000/=
A tractor	300,000/=
Granary	20,000/=
Sold piglets worth	4,000/=
Sold cattle worth	80,000/=

- a) using the information above, prepare a profit and loss account for Martin's farm (10 mks)
 b) From the calculations in (a) above state whether Mr. martin made a profit or loss (2 mks)
 c) Explain four ways in which farmers may adjust to uncertainties (4 mks)
 d) Discuss four agricultural support services available to the farms (4 mks)
24. a) Describe the methods used in preparing materials in readiness for planting (6 mks)
 b) Explain three factors that influence timely planting (6 mks)
 c) Describe the various management practices carried out in the nursery bed. (8 mks)
25. a) Why is addition of dead and decaying plant and animal remain to the soil important? (8 mks)
 b) Discuss beans under the following sub-headings.
 i) Varieties (2 mks)
 ii) Planting (3 mks)
 iii) Pest and disease control (5 mks)
 iv) Harvesting (2 mks)

WESTLANDS SUB-COUNTY JOINT EXAMINATION
443/2
AGRICULTURE
PAPER 2

SECTION A (30 MARKS)

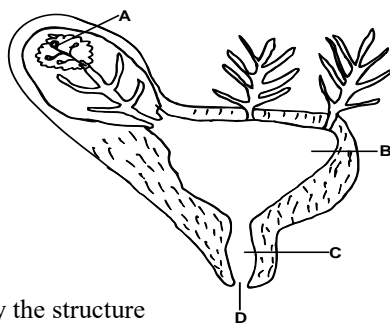
Answer ALL questions in this section in the spaces provided

1. a) Name a breed of dairy animal having the following characteristics; red coat with white markings on the legs, face, tail switch and girth (1mk)
- b) Name a breed of pig with the following characteristics; black coat with white feet, face and tail switch (1 mk)
- c) Name one sheep breed which is resistant to foot rot diseases. (1 mark)
2. Differentiate between a contagious and an infectious disease (1 mk)
3. Name the hormone that is concerned with milk synthesis (½ mk)
4. Name two qualities of concrete which make it suitable for the construction of farm buildings (1 mk)
5. A bull gained 100 kg of live weight after eating 400 kg of beef concentrates over a period of time. Calculate its feed conversion ratio (FCR) (1 mk)
6. Name two nutritional diseases. (2 mks)
7. Give two qualities of good wool (1 mk)
8. Give the name of the act of giving birth in the following animals (2 mks)
 - i) Rabbit
 - ii) Goat
9. State two methods of caponisation in cocks (1 mk)
10. Mention two ways in which the gizzard is adapted to its function (1 mk)
11. State four symptoms of anthrax infection in the carcass of a cow (2 mks)
12. Name three types of fresh warm water fish reared in Kenya (1½ mks)
13. State two characteristics of air cooled engines (1 mk)
14. Name two feed additives used in livestock production (1 mk)
15. State two functions of a clutch (1 mk)
16. Give four conditions that would encourage hens to eat eggs in poultry production (2 mks)
17. Name four structural requirements in a calf pen (2 mks)
18. State two reasons for washing the udder before milking (1 mk)
19. State four factors considered when selecting an implement for primary cultivation (2 mks)
20. State three characteristics of colostrum that make it suitable for new born livestock (1½ mks)
21. State four categories of farm tools and equipment. (2 mks)

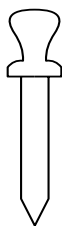
SECTION B: 20 MARKS

Answer all the questions in the spaces provided

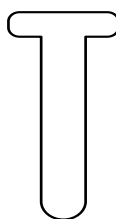
22. The illustration below is a structure in a cow. Study it and answer the questions that follow



- i) Identify the structure (1 mk)
 - ii) Label part A to D (2 mks)
 - iii) What is milk letdown? (2 mks)
 - iv) List down three factors that may initiate milk letdown in a lactating cow (3 mks)
23. The diagrams below show a set of equipment used in livestock management. Study them and answer the questions that follow



F

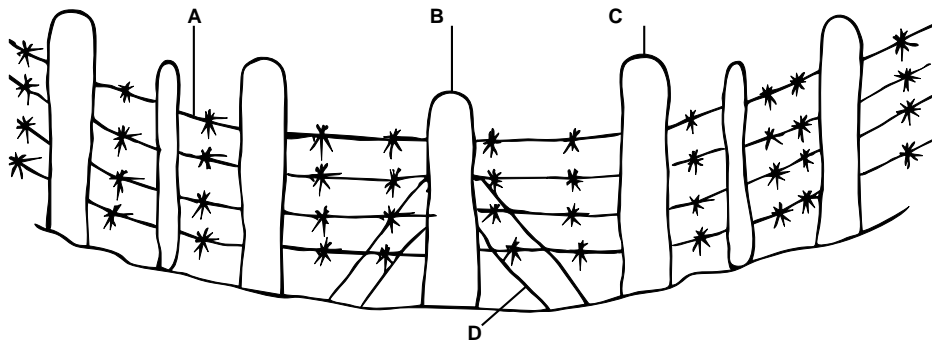


E

- a) Identify the equipment labelled E and F (2 mks)
- b) State the appropriate use of set of equipment illustrated above (1 mk)

c) Describe the appropriate procedure followed when using the equipment

24. The diagram below represents an important farm structure. Study it and answer the questions that follow.



i) Identify the farm structure

(1 mk)

ii) Label the parts

(2 mks)

iii) State two maintenance practices carried out in the structure above.

(2 mks)

SECTION C (40 MKS)

Answer ONLY TWO questions in this section

25. a) Describe seven signs of ill health

(14 mks)

b) State six signs of trypanosomiasis (Nagana) disease in livestock

(6 mks)

26. a) Describe how a four stroke cycle engine operates

(12 mks)

b) Describe the daily maintenance of a tractor

(8 mks)

27. a) Describe the general safety precautions a farmer should observe when using and handling farm tools.

(6 mks)

b) Outline the various causes of swarming in bees.

(8 mks)

c) Highlight six factors that influence the amount of concentrate given to a lactating animal.

(6 mks)

CENTRAL KENYA NATIONAL SCHOOLS MOCK JOINT EXAM 2016

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AGRICULTURE

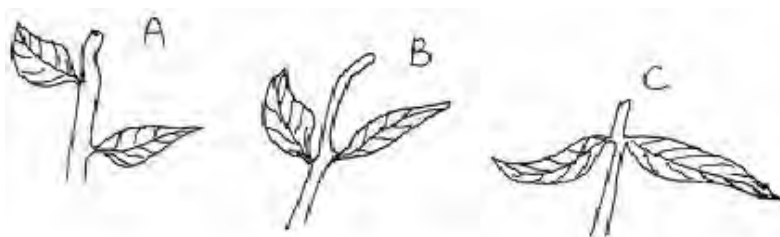
PAPER 1

SECTION A: (30 MARKS)**Answer all the questions in the spaces provided.**

1. State **two** conditions leading to small scale farming. (1 mark)
2. State **four** ways in which water is vital to the crops. (2 marks)
3. Outline **four** factors that influence the planning of a crop rotation programme. (2 marks)
4. List any **four** insect pests that attack maize in the field. (2 marks)
5. Give **four** qualities of shrubs and trees used for agroforestry. (2 marks)
6. Name **one** crop in each case, propagated using the vegetative parts below. (2 marks)
 - (i) Bulbils
 - (ii) Splits
 - (iii) Crowns
 - (iv) Setts
7. State **four** ways in which pesticides work to kill pests. (2 marks)
8. List **three** types of production functions. (1½ marks)
9. State **three** sources of soil acidity in crop production (1½ marks)
10. State **three** advantages associated with single stem pruning in coffee production. (1½ marks)
11. Give **four** reasons why drainage is an important method of land reclamation. (2 marks)
12. Differentiate between a cash book and a ledger. (1 mark)
13. Given that at a price of ksh. 100 per bag, 20 bags of maize are demanded but when the price changed to ksh. 80 per bag, 22 bags are demanded. Calculate the elasticity of demand. (show your working) (2 marks)
14. Give a reason why low pH is desirable in the process of silage making. (1 mark)
15. State **two** biological methods of weed control. (1 mark)
16. Give **three** significance of irrigating dry land. (1½ marks)
17. State **four** general symptoms of viral diseases in crops. (2 marks)
18. State **four** advantages of tissue culture in crop propagation. (2 marks)

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

19. The drawings below shows leaves of a certain weed with different morphological characteristics.



- (a) Which of the leaves represent a weed that is more susceptible to herbicides? (1 mark)
 - (b) Give a reason for your answer in (a) above. (1 mark)
 - (c) State any other **three** morphological characteristics that affect selectivity and effectiveness of herbicides. (3 marks)
20. The diagram below represents a bag of fertilizer observed in a shop. Study it and answer the questions that follow.



- (a) Classify the fertilizer according to the nutrient content. (1 mark)
- (b) What is the fertilizer ratio of the fertilizer? (1 mark)
- (c) A coffee farmer was supposed to apply 100 kg of P_2O_5 in his coffee farm. How much of the fertilizer 20 - 20 - 0 would he be required to buy? (4mks)

21. The illustration below shows a plant leaf infected by a disease. Study it and answer the questions that follow.



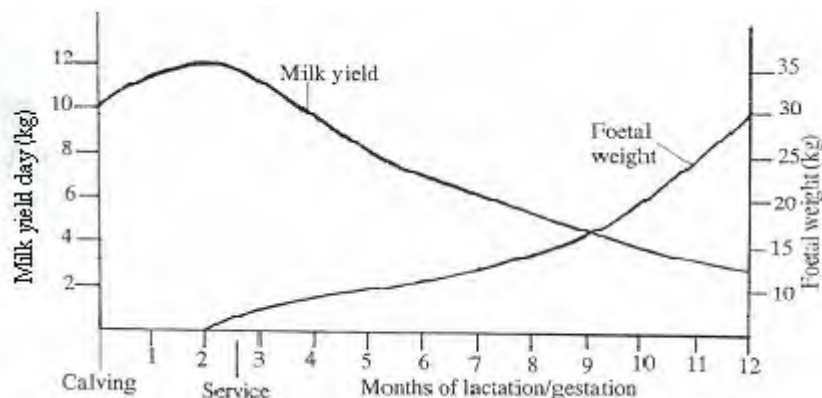
- (a) Identify the disease illustrated above. (1 mark)
 (b) Name **three** crops infected by the disease illustrated above. (3 marks)
 (c) Give the control measures of the disease illustrated above. (2 marks)
 (d) State **two** symptoms of the disease named in (a) above. (2 marks)

SECTION C (40 marks)

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

23. (a) Describe the establishment of a grass pasture from the time land ploughed using a mouldboard plough to the time the pasture is ready for grazing. (12 marks)
 (b) Briefly explain **four** practices carried out on seeds/seedlings to prepare them for planting. (4 marks)
 (c) Describe **four** practices that a farmer should carry out to ensure uniform germination of seeds. (4 marks)
24. (a) State **six** objectives of land reform in Kenya. (6 marks)
 (b) State and explain the qualities of mother plants considered when selecting vegetative propagation materials. (10 marks)
 (c) State the information contained in an invoice. (4 marks)
25. (a) Describe the environmental conditions that may lead to low crop yields. (8 marks)
 (b) State the factors that are likely to hinder access to enough clean water to most Kenyans. (7 marks)
 (c) Explain **five** factors considered in spacing of crops in the field. (5 marks)

19. The graph below shows the relationship in milk yield and foetal growth against time.



- (a) Name the stage between the month in respect of lactation and gestation.
- 2nd to 12th month (1 mark)
 - 10th to 12th month. (1 mark)
 - 1st to 10th month. (1 mark)
- (b) Give **two** practices carried out on the incalf cow within the period from 10th to the 12th month. (2 marks)
- (c) State **two** routine practices a farmer should avoid carrying out on the incalf cow between the 10th and 12th month. (2 marks)
- (d) From the graph find the birth weight of the calf. (1 mark)

SECTION C (40 MARKS)

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

20. (a) State **five** microbial activities that takes place in a rumen. (5 marks)
- (b) State and describe **ten** methods used to control livestock diseases. (15 marks)
21. (a) Outline the **main** differences between a petrol and a diesel engine. (10 marks)
- (b) Give **four** maintenance practices of a trailer . (4 marks)
- (c) Describe **six** factors that should be considered when siting a farm structure. (6 marks)
22. (a) Describe the lifecycle of a 3-host tick. (6 marks)
- (b) Explain the maintenance practice of a fish pond. (10 marks)
- (c) State **four** advantages of a disc plough. (4 marks)

MURANG'A SOUTH SUBCOUNTY MULTILATERAL FORM 4 EXAM - 2016

443/1

AGRICULTURE

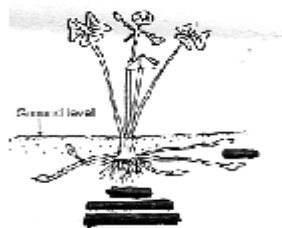
PAPER 1

1. Differentiate between
 - (i) Arable and mixed farming (1mk)
 - (ii) Apiculture and aquaculture (1mk)
2. Give **three** advantages of practising agroforestry (1½mk)
3. Name **three** biotic factors that affect agriculture negatively (1½mk)
4. State **two** farming activities that may cause water pollution in the farm (1mk)
5. Give **two** types of water pumps (1mk)
6. Give **two** reasons why staking as a field management practice should be carried out in some crops (1mk)
7. What does the term "close season" in crop production mean? (1mk)
8. Define the following terms as used in crop production (1mk)
 - (a) Roguing
 - (b) Gapping..... (1mk)
9. Give **two** advantages of planting cereal crops in rows instead of broadcasting (1mk)
10. Give a reason for carrying out each of the following practices in a tomato nursery (2mks)
 - (i) Pricking out
 - (ii) Hardening off
11. Give **four** qualities of a mother plant that should be considered when selecting vegetative materials for planting (2mks)
12. State any **four** non-chemical methods of controlling storage pests in a maize granary (2mks)
13. State **four** factors that effect the effectiveness of a pesticide (2mks)
14. Give **four** ways of controlling weeds in a field of maize (2mks)
15. Outline **four** merits of concession or company form of land tenure (2mks)
16. Define the term
 - (a) Opportunity cost (1mk)
 - (b) Organic farming (1mk)
17. (a) State **two** precautions that should be observed in harvesting cotton (1mk)
 - (b) List **two** methods of plucking tea (1mk)
18. State **four** benefits of budgeting to a farm manager (2mks)

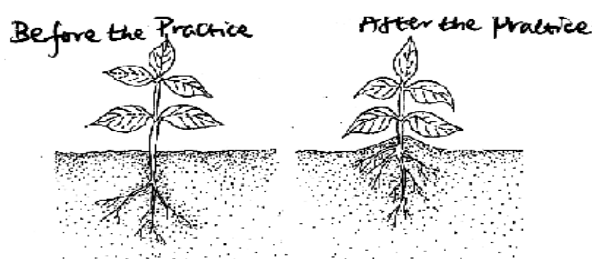
SECTION B (20 MKS)

Answer all questions in this section in the spaces provide

19. Below is a diagram of a weed. Study the diagram and answer the questions that follow



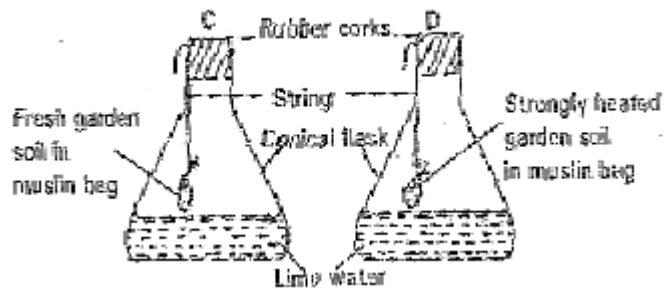
- a) Identify the weed illustrated above..... (1mk)
 - b) Explain why the weed illustrated above is difficult to control (1mk)
 - c) Name **two** mechanical ways of controlling the weed (2mks)
 - d) What is "Integrated weed management" (1mk)
20. The diagram below shows a practice carried out on various crops on the farm. Study them carefully and answer the questions that follow



- (a) Identify the farm practice represented by B (1mk)
- (b) State the importance of the above practice in the following crops (4mks)

- (i) Maize
 (ii) Irish Potatoes
 (ii) Tobacco.....
 (iv) Groundnuts

21. The diagram below shows a set up of an experiment to study an aspect of soil.. The set up was left undisturbed 5 hrs . Study it and answer the questions that follows:



- (a) What was the aim of the experiment (1mk)
 (b) State one observation that was made in each of the flasks labelled C and D (2mks)
 (c) Give a reason for each of your answer in (b) above (2mks)
22. The table below shows output of maize at various quantities of D.A.P fertilizer application per hectare. Study it and answer the questions that follows :-

Fixed Input (land)	Variable input (DAP in 30kg bag)	Total product maize in 90kg (bags)	Average product (maize in 90kg (bags)	Marginal product (maize in 90kg bags)
1	0	2	0	
1	1	5		
1	2	14		
1	3	21		

- (a) Fill in the blank spaces in the table above to show the average product (AP) and marginal product (MP) values
 (b) Give **two** variable costs that the farmer whose production is illustrated above incurred (2mks)

SECTION C (40marks)

Answer any two questions in this section in the spaces provided after Question 25

- 23 (a) Describe the production of beans under the following sub-heading
 (i) Common varieties in Kenya (2mks)
 (ii) Selection and preparation of planting materials (3mks)
 (iii) Planting (3mks)
 (iv) Weeding (2mks)
 (b) (i) Explain **five** advantages of crop rotation (5mks)
 (ii) Explain **five** factors that may influence spacing of crops (5mks)
- 24 (a) Describe the safety precautions taken when using pesticides on the farm (8mks)
 (b) Describe the process of silage making using a ground silo. (7mks)
 (c) Explain **five** principles that govern the running of co-operative societies (5mks)
- 25 (a) Describe the process involved in water treatment using the chemical treatment system (12mks)
 (b) Explain **eight** factors that encourage soil erosion (8mks)

MURANG'A SOUTH SUBCOUNTY MULTILATERAL FORM 4 EXAM - 2016

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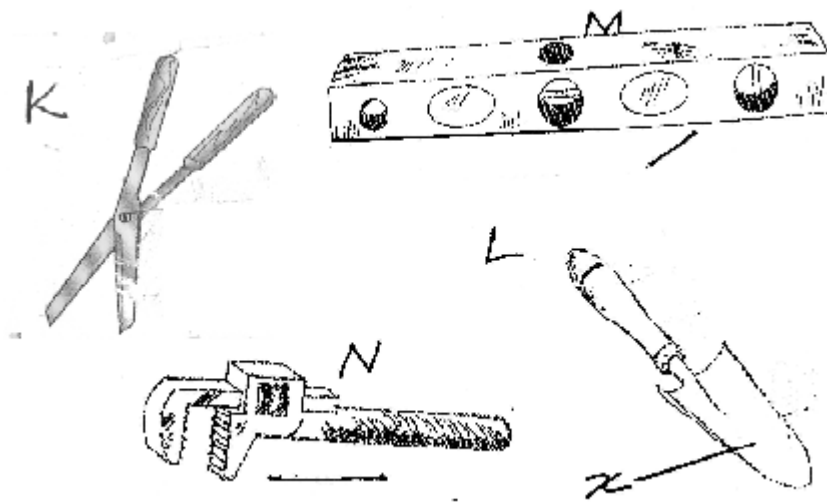
AGRICULTURE

PAPER 2

1. Give **four** reasons why a slasher should be maintained properly (2mks)
2. Name the following
 - (i) An exotic breed of dairy goat reared in Kenya that is brown in colour with two white stripe running from the eye to the nose (1mk)
 - (ii) A rabbit that is white with pink eyes (1mk)
 - (iii) Term given to a young female pig from weaning upto when it gives birth for the first time (1mk)
3. State **three** reasons why jersey breed of cattle is better suited for drier areas of Kenya than Friesian breed (1½mks)
4. Define the following terms as used in livestock health
 - (i) Zoonotic disease (1mk)
 - (ii) Predisposing factors (1mk)
5. Give **four** ways in which livestock diseases are spread amongst animals on a farm (2mks)
6. Name **two** types of roughage fed to livestock (1mk)
7. List **four** differences between ruminant and non-ruminant digestion (2mks)
8. State **four** reasons for livestock breeding (2mks)
9. How long is oestrus in cows ? (1mk)
10. State **three** benefits of steaming up in dairy goats (1½mks)
11. Give **two** conditions which would make it necessary to feed bees (2mks)
12. List **two** roles of ventilation in a calf pen (1mk)
13. State **three** disadvantages of thatch as a construction material (1½mks)
14. Give **three** ways by which implements are attached to the tractor (1½mks)
15. State **three** signs to be observed in a carcass of a cow that had died of anthrax . (1½mks)
16. Give **two** common vices that birds reared under deep litter system show (1mk)
17. Name the hormone that stimulates milk-let-down in cows (1mk)
18. What is dry cow therapy? (1mk)
19. List **three** possible effects of overheating of a tractor engine (1½mk)

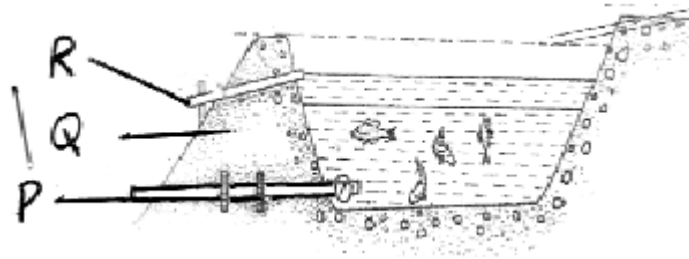
SECTION B (20 MKS)*Answer all questions in this section in the spaces provided*

20. A farmer wants to prepare 100kg of a livestock feed containing 16% Digestible Crude Protein (D.C.P.) Using the Pearson's square method , calculate the quantity of wheat (10% D.C.P) and sunflower seed cake (34 % D.C.P) the farmer requires to make the feed (4mks)
21. The diagrams below illustrates some farm tools. Study them and answer the questions that follows

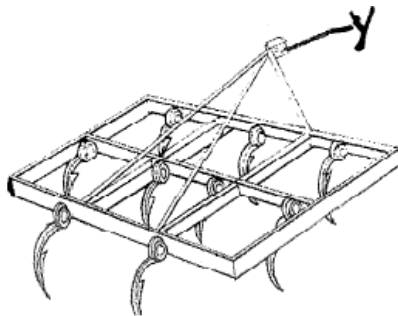


- (a) Identify the tools labeled K and M (2mks)
- (b) State the use of the tools labelled L and N (2mks)
- (c) Explain **one** maintenance practice carried out on the part labelled X in tool L (1mk)

22. The diagram below illustrates a cross-section of a fish pond. Study it and answer the questions that follows:-



- (a) Identify the parts labelled P and Q (2mks)
 (b). State the role of the part labelled R (1mk)
 (c) Explain **two** maintenance practices done on the part labelled Q (2mks)
23. Below is a diagram illustrating a farm implement, study it and answer the questions that follow



- (a) Identify the implement. (1mk)
 (b) State:
 (i) The role of the part of the implement labelled Y. (1mk)
 (ii) Two uses of the implement on the farm. (2mks)
 (c) List **two** maintenance practices done on the implement. (2mks)

SECTION C (40 MARKS)

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

24. (a) Describe **nine** Management practices that a farmer should carry out to improve milk production in a low yielding herd of dairy cattle. (9mks)
 (b) State **five** disadvantages of natural incubation in chicken rearing (5mks)
 (c) Describe **six** control measures for tapeworms (*Taenia* spp) in livestock . (6mks)
25. (a) Describe milk fever disorder in dairy cows under the following subheadings
 (i) Cause (1mk)
 (ii) Symptoms (7mks)
 (iii) Control measures (2mks)
 (b) State and explain **five** factors that a farmer should consider when siting a beehive (10mks)
- 26 (a) Describe the management of a sow ten days before farrowing (8mks)
 (b) State **six** advantages of the battery cage system of rearing layers (6mks)
 (c) Describe **six** limitations of animal - drawn implements compared to tractor-drawn implements (6mks)

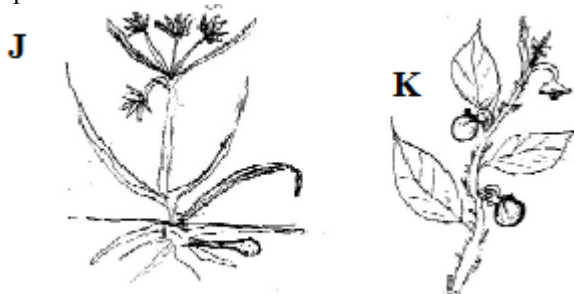
GATANGA SUB-COUNTY JOINT EXAMINATION
443/1
AGRICULTURE
PAPER 1

1. Name **four** conditions of land which may make it necessary to carry out reclamation practices. (2mks)
2. List **three** physical agents of weathering in soil formation procers. (1½mks)
3. State **four** factors that are considered when classfying crop pests (2mks)
4. Name **three** examples of leguminous fodder. (1½mks)
5. Give **two** examples for each of the following types of cost incurred in dairy production . (2mks)
 - (a) Variable cost
 - (b) Fixed cost
6. Give **three** factors to consider when choosing the type of labour to use in the farm. (1½mks)
7. State **four** functions of Agriculture Society of Kenya (A.S.K.). (2mks)
8. State **three** methods of harvesting trees in Agroforestry. (1½mks)
9. Name the part harvested for each of the following. (1½mks)
 - (a) Tomatoes.....
 - (b) Coffee.....
 - (c) Irish Potatoes
10. Name **four** records that should be kept by a pig farmer. (2mks)
11. Give **four** ways of harvesting water in the farm. (2mks)
12. Give **four** factors that influence the number of secondary cultivation in seedbed preparation. (2mks)
13. Differentiate between pomoculture and Olericulture. (1mk)
 - (a) Pomoculture
 - (b) Olericulture
14. State **four** characteristics of plants used as green manure. (2mks)
15. List **four** roles of calcium in plants . (2mks)
16. Give **two** ways of hardening off vegetables seedlings in a nursery bed. (1mk)
17. Mention **three** ways of crop protection as field management practice . (1½mks)
18. Define the term Economic injury level as used in pest control . (1mk)

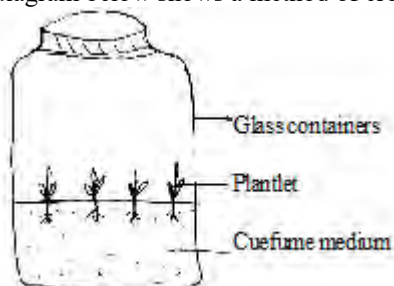
SECTION B (20 MKS)

Answer all questions in this section in the spaces provided

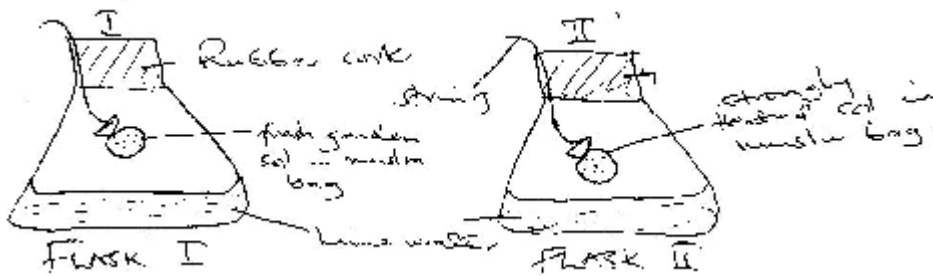
19. Below are crops weeds



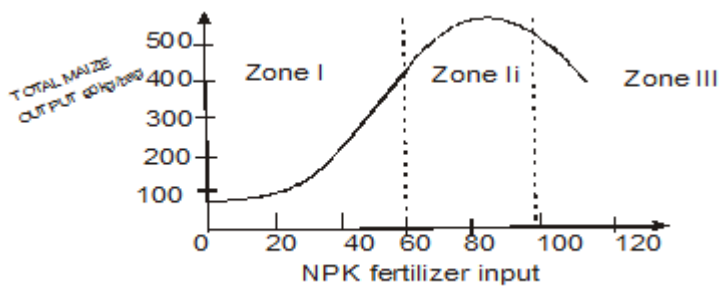
- (i) Identify the weeds labelled . (2mks)
 - (ii) Give **one** reason why weed J is difficult to control. (1mk)
 - (iii) Classify the above weeds based on plant morphology . (2mks)
20. The diagram below shows a method of crop propagation . Study it and answer the questions that follows : -



- (a) Identify the method of propagation done. (1mk)
 (b) Name **one** crop that can be propagated by above method. (1mk)
 (c) State **three** disadvantages of the above method in crop propagation. (3mks)
21. Below is a set up of an experiment to study an aspect of soil. The set up was left undisturbed for 5 hours.



- (a) What was the aim of the experiment? (1mk)
 (b) State the observation made in each flask I and II. (2mks)
 (c) Give a reason for each of your answer in (b). Above (2mks)
22. The graph below is an illustration of a law in agricultural economics.



- (a) Which is the rational zone of production? (1mk)
 (b) Give the reason for your answer in (a) above (1mk)
 (i) Explain what would happen in each of the three zones marked I, II & III in relation to fertilizer input and maize output. (3mks)

SECTION C (40MKS)

Answer any two questions in this section

23. (a) Describe the properties of nitrogenous fertilizer. (6mks)
 (b) Describe cultural methods of controlling soil erosion. (8mks)
 (c) Describe the problems of marketing Agricultural produce. (6mks)
24. (a) Describe production of dry beans under the following subheadings.
 (i) Land preparation (3mks)
 (ii) Planting (3mks)
 (iii) Disease control (2mks)
 (iv) Harvesting (2mks)
 (b) Outline **five** advantages of land consolidation in Kenya. (5mks)
 (c) Explain **five** physical measures used to control pests in the farm (5mks)
25. The following is accounts information prepared by Undugu farm in 2016.

Purchases

Feeds	-	2,000/=
Seeds	-	1,000/=
Fertilizer	-	1,300/=
Fuel	-	1,500/=
Tools & Equipment	-	10,000/=

During the year, the farm made the following sales

Wheat - 40,000
 Cabbage - 35,000
 Milk - 10,000

The farm also expects Ksh. 6,000 from a neighbouring farm for firewood delivery.

GATANGA SUB-COUNTY JOINT EXAMINATION

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AGRICULTURE

PAPER 2

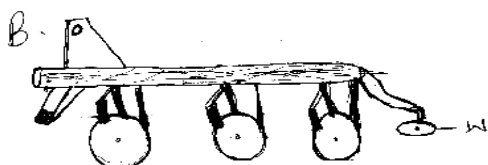
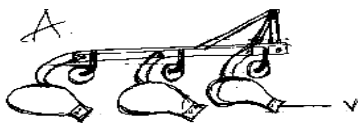
1. Give the appropriate term that refer to each of the following . (1¹/₂mks)
 - (a) Mature female sheep
 - (b) Castrated chicken
 - (c) Mature male goat.....
2. Name **two** nutritional diseases in cattle . (1mk)
3. State **four** methods of dehorning livestock . (2mks)
4. State **four** causes of egg eating in a flock layers . (2mks)
5. Name the strokes in a 4 -stroke cycle engine. (2mks)
6. State **four** signs of mite attack in poultry . (2mks)
7. Distinguish between the following terms as used in livestock health. (4mks)
 - (a) Isolation & quarantine
 - (b) Curative drug & prophylactic drugs.
8. State **four** disadvantage of fold system in poultry rearing (2mks)
9. State **four** practices carried out on fish before preservation (2mks)
10. State **four** structural requirement of a calf pen (2mks)
11. State **four** maintenance practice carried out on a spray race (2mks)
12. Name **three** categories of pig feeds according to the stage of growth (1¹/₂mks)
13. List **four** reasons for treating timber before roofing farm building (2mks)
14. Name **four** bacterial diseases in livestock (2mks)
15. State the function of the following farm tools and equipment (1¹/₂mks)
 - (a) Wire stainer
 - (b) Trocar & Canula
 - (c) Soil Auger
16. Name the hormone that hinders milk let down (1/2mks)

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

17. The diagrams below illustrates an external parasite of livestock



- a) Name the parasite (1mk)
 - b) State **two** harmful effects of the above parasite (2mks)
 - c) State **two** control measure of the above parasite (2mks)
18. A dairy farmer is required to prepare 200 kg of dairy meal containing 20% digestible crude protein (D.C.P.) Using the pearson 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 (5mks)
19. Study the diagrams below and answer the questions that follows: -



- (i) Identify the implements labelled : (1mk)
- (ii). Outline **two** advantages of implement B over A (2mks)
- (iii) State the functions of the parts labelled V and W (2mks)

20. The diagram below illustrates a method of identification in livestock production . Study the diagram and answer the questions that follows.



- (i) Name the type of identification illustrated above (1mk)
 (ii) Give identification number of the animal illustrated in the diagram. (1mk)
 (iii) Using diagrams illustrate how you can identify animals number 24 and number 36 with reference to above diagram. (2mks)
 (iv) Other than the method used, name any other method of identification. (1mk)

SECTION C (40 MARKS)

Answer Two questions in this section in the spaces provided

21. (a) Discuss Gumboro disease under the following sub heading (1mk)
 (i) Animal affected (1mk)
 (ii) Causal organism (6mks)
 (iii) Symptoms (2mks)
 (iv) Control measures (5mks)
 (b) Outline five factors to consider when culling dairy cattle (5mks)
 (c) State **five** advantages of live fence (10mks)
22. (a) Describe the difference between diesel and petrol engine (10mks)
 (b) Outline **ten** advantages of artificial insemination in livestock breeding (10mks)
23. (a) Describe the digestive system of a poultry under the following sub-heading (2mks)
 (i) Crop (1mk)
 (ii) Proventriculus (3mks)
 (iii) Gizzard (3mks)
 (iv) Duodenum (1mk)
 (v) Caecum (6mks)
 (b) State **six** characteristics of dairy cattle (4mks)
 (c) State **four** reasons for maintaining farm tools & equipments

KIGUMO SUBCOUNTY CLUSTER EXAMINATION 2016

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AGRICULTURE**PAPER 1**

1. Give **three** ways in which inorganic fertilisers are classified (1½mks)
2. State **four** advantages of communal land tenure (2mks)
3. List **four** factors that affect the quality of silage (2mks)
4. State **three** advantages of using sleeved tree seedlings (1½mks)
5. Name **four** details that can be entered in a dairy cattle production record (2mks)
6. Give **four** characteristics of horizon A in a soil profile (1mk)
7. State **four** factors that influence the seed rate in maize production (2mks)
8. Give **three** desirable characteristic of agroforestry trees and shrubs (1½mks)
9. Identify the most suitable method of irrigation in each of the following cases : (2mks)
 - (a) Growing tomatoes in a green house (½mks)
 - (e) Growing paddy rice (½mks)
 - (c) Raising seedlings in nursery bed (½mks)
10. List **three** post harvest practices that may be carried out in French beans (2½mks)
11. State **four** importance of undertaking primary tillage in crop production (2mks)
12. A farmer requests a seed company to supply him with seeds. Name **four** financial documents that may be drawn for the transaction (2mks)
13. Give **two** cultural methods of controlling pests in an established field of cabbages (1mk)
14. List **four** ways in which organic manures improve soil fertility (2mks)
15. Name **three** types of capital that a farmer requires in the management of his farm (1½mks)
16. State **four** government policies that influence Agriculture in Kenya (2mks)
17. List **four** farming practices that encourage soil erosion (2mks)

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

18. Below is a diagram of a type of soil structure. Study it and answer the questions that follow



- (a) Identify the soil structure illustrated above (1mk)
 - (b) Give **two** ways in which the structure illustrated above limit crop yields (2mks)
19. A farmer applied 500 kg of compound fertiliser 20-10-10 on his farm
- (a) Calculate the amount of K_2O that he applied (1mk)
 - (b) How much filler material did he apply (2mks)
 - (c) Work out the fertiliser ratio of the fertiliser applied (1mk)
20. Below are diagrams of **planting materials** used in crop production. Study them and answer the questions that follow : -



- (a) Identify the planting materials M, N, O and P (2mks)
- (b) State **one** treatment given to material given to material O in preparation for planting (1mk)
- (c) Name **one** crop that is propagated using the material labelled N (1mk)

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AGRICULTURE**PAPER 2**

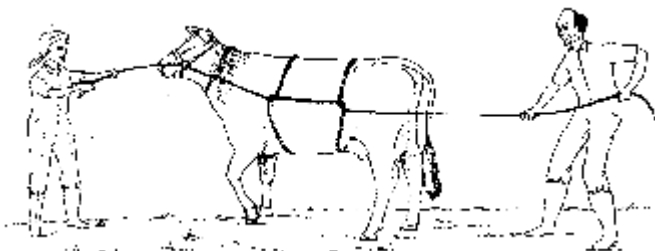
1. Name the tools used for the following management practices in livestock
 - (a) Ear notching (1/2 (mk)
 - (b) Deworming (1/2 (mk)
2. (a) Define the term starch equivalent (1/2 (mk)
- (b) State three factors that affect digestibility of animal feeds (1 1/2 mk)
3. List four equipments used when harvesting honey from a Kenya top bar hive (2mks)
4. Name two methods of brooding in poultry (1mk)
5. State four livestock management practices carried out in a crutch (2mks)
6. State four short term services of a tractor (2mks)
- (b) Name four bacterial diseases of cattle that are likely to be contracted through wounds (2mks)
7. Give two reasons for tooth clipping in pigs (1mk)
8. List four categories of produce stores used in the farm (2mks)
9. Name (2mks)
- (a) Two meat sheep breeds (1mk)
- (b) Two methods of grafting (1mk)
10. State two functions of the queen bee in colony (1mk)
11. Name four functions of lipids in livestock feeds (2mks)
12. What is the intermediate host of a livestock? (1mk)
13. List two materials used in construction of a green house (1mk)
14. Give four advantages of feeding a lamp on colostrum (2mks)
15. State two advantages of the disc plough brought about by the rotating disc (1mk)
16. Name four species of fresh water fish reared in Kenya (2mks)
17. State four reasons for clipping the upper beak of a chicken in poultry management (2mks)
18. Name two parasites that attack a bee colony (1mk)

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

19. Study the illustrations shown below and answer the questions that follow

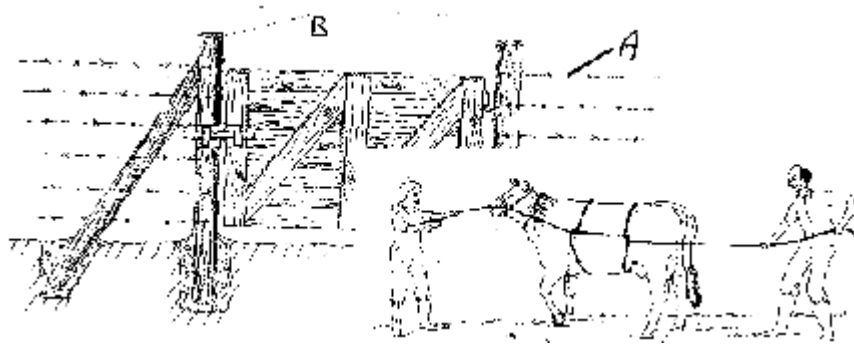


- (i) Name the type of combs shown by the birds (2mks)
 - (ii) State the genetic concepts that can be exploited in order to modify the above trait (1mk)
20. Study the illustration of a farming practice shown below



- (a) (i) Identify the above method of restraining cattle (1mk)
 - (ii) When is the above practice normally carried out? (1mk)
21. A bull weighing 1000kg is slaughtered for sale as meat. The total dressed carcass weight was noted to be 800kg
- (a) Calculate the kill out percentage of the animal . Show your working (2mks)
 - (b) Giving a reason state whether the breed of the bull was the most appropriate for beef (1mk)
-

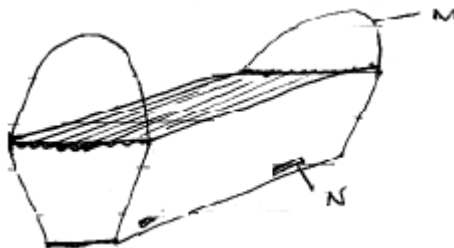
22. Observe the illustration of part of a fence shown below



- (i) Identify the part of fence (1mk)
 (ii) Identify the parts labelled A and B (2mks)
 (iii) Identify one way by which the above structure has been reinforced (1mk)
 (iv) Name two other types of dead fences (2mks)
23. Study the diagram of a sick cow's udder below and answer the questions that follow.



- (a) Identify the disease that the cow is suffering from (1mk)
 (b) List three conditions that predispose a cow to the disease in (a) above (3mks)
24. Study the diagram of a farm structure below and answer the questions that follows:



- (i) Identify the farm structure (1mk)
 (ii) Name the part labelled M and N (1mk)

SECTION C (40 Marks)

Answer any two questions in this section in the spaces provided after question 27

25. (a) State five symptoms of liver fluke infestation in livestock (5mks)
 (b) Describe five ways in which farm structures facilitate improved agricultural production (5mks)
 (c) Give the functions of any five parts of a mould board plough (10mks)
26. (a) Explain five factors to consider when selecting a dairy cattle breeding stock (10mks)
 (b) Describe brucellosis under the following subheadings
 (i) Animals effected (2mks)
 (ii) Symptoms (3mks)
 (iii) Control (5mks)
27. (a) State five advantages of battery cage system of poultry management (5mks)
 (b) State five differences between ruminant and non-ruminant digestion (5mks)
 (b) Describe management of dairy calves from birth to weaning in artificial calf rearing (10mks)

MERU SOUTH FORM 4 JOINT EVALUATION

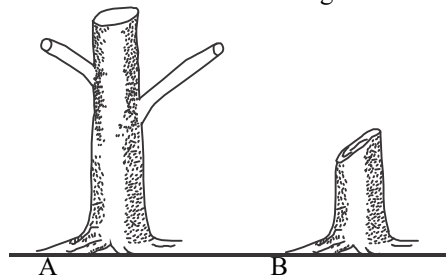
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AGRICULTURE**PAPER 1****SECTION A (30 MARKS)**Answer ALL questions in the spaces provided.

1. State two ways in which agriculture contributes directly to the development of industries. (1 mark)
2. State three reasons for processing farm produce before selling. (1½ marks)
3. State four disadvantages of using organic manure in crop production. (2 marks)
4. State four ways in which land reform is being implemented in Kenya. (2 marks)
5. Name six agricultural statutory boards in Kenya. (3 marks)
6. State three features considered when choosing water pipes. (1½ marks)
7. State four methods used for harvesting water in a farm. (2 marks)
8. State four reasons for controlling weeds in a pasture. (2 marks)
9. List three characteristics of intensive farming system. (1½ marks)
10. Give two roles of microorganisms in the soil that are beneficial to crops. (1 mark)
11. State two factors that favour surface irrigation. (1 mark)
12. Explain how each of the following leads to loss of soil fertility. (1 mark)
 - a) Leaching
 - b) Monocropping.
13. For each of the following micro-element stated below, give one function in plant. (1 mark)
 - a) Zinc
 - b) Boron
14. State any four problems a dairy farmer may face in marketing of milk. (2 marks)
15. State three functions of 4-K clubs in Kenya. (1½ marks)
16. Name two types of labour records. (1 mark)
17. Name four methods of drainage that can be used to reclaim a marshy area. (2 marks)

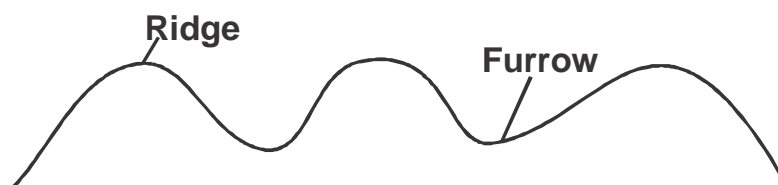
SECTION B (20 MARKS)Answer ALL the questions in this section.

18. The diagram below illustrates methods of tree harvesting.

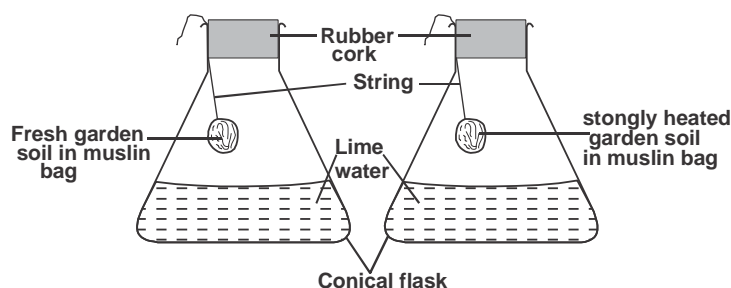


- a) Identify the methods of tree harvesting illustrated above. (2 marks)
- b) Name three products the farmer can get after carrying out the practise illustrated above. (3 marks)

19. The diagram below show an important operation carried out during land preparation.



- a) Identify the field operation illustrates above. (1 mark)
 - b) State four reasons for carrying out the practice named in (a) above. (4 marks)
20. The diagram below shows a set up of an experiment to study an aspect of soil. The set up was left undisturbed for five hours. Study it and answer the questions that follows;



- i) What was the aim of the experiment. (1 mark)
- ii) State one observation that was made in each of the flasks labelled C and D. (2 marks)
- iii) Give reasons for each of your observation in (ii) above. (2 marks)
21. a) The following information was extracted from Mr. Mambo's farm records for the year ending 30th June 2015. Study it and prepare a profit and loss account for the farm. (4 marks)

Ksh	
Rent received	10,000
Egg sales	60,000
Repair of tractor	30,000
Interest on bank loan	20,000
Opening valuation	80,000
Tax paid	40,000
Closing valuation	90,000
Purchases of farm inputs	90,000
Debts received from farmer's cooperative society	100,000
Maize sale	55,000

- b) Did the farm make a profit or loss? (1 mark)

SECTION C : (40 MARKS)

Answer ANY two questions from this section.

22. a) Explain the factors that should be considered when selecting a farm enterprise. (15 marks)
- b) Explain five roles of farm manager in agricultural production. (5 marks)
23. Describe the establishment of kales under the following subheadings;
- a) Nursery establishment (7 marks)
- b) Nursery management (5 marks)
- c) Transplanting of seedlings (8 marks)
24. a) Explain five factors that determines the correct spacing of crops. (10 marks)
- b) Discuss cultural methods of controlling crop diseases. (5 marks)
- c) Explain the role of trees in soil and water conservation. (5 marks)

MERU SOUTH FORM 4 JOINT EVALUATION

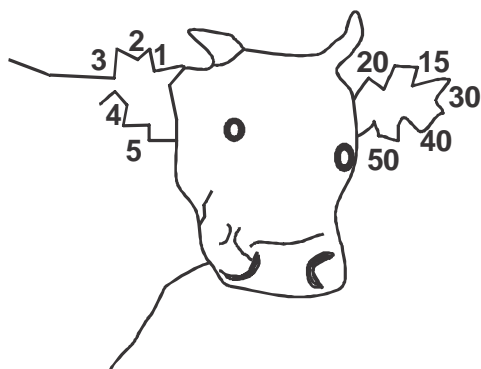
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AGRICULTURE**PAPER 2****SECTION A (30 MARKS)****Answer ALL questions in the spaces provided**

1. Name a vitamin deficiency that is responsible for curled toes paralysis in chicks. (1 mark)
2. List down four behavioural activities which would indicate that the chicks in a brooder are under stress. (2 marks)
3. State two advantages of timber as a construction material of farm buildings. (2 marks)
4. List down two appropriate hand tools needed to finish off the handle of a fork jembe. (1 mark)
5. Put down four qualities of good beef. (2 marks)
6. State one way by which balanced feed ration contributes to diseases control in livestock. (1 mark)
7. Give one reason why a cow suffering from milk fever should never be given medicine orally. (1 mark)
8. Outline four factors that would accelerate depreciation of farm tools. (2 marks)
9. a) What is a notifiable disease? (1 mark)
b) List four notifiable disease in Kenya. (2 marks)
10. Outline three factors that lower the quality of concrete. (1½ marks)
11. When is it recommended to carry out the following livestock feeding practices? (2 marks)
a) Flushing
b) Steaming up
12. Name two dual-purpose breeds of cattle. (1 mark)
13. Give the meaning of the following terms as used in livestock production. (1½ marks)
a) Pullet
b) Gilt
c) Steer
14. Give the use of each of the following equipment used by dairy farmers. (1½ marks)
a) Milk strainer
b) Milk churn
c) Strip cup
15. State four signs of broodiness in a hen. (2 marks)
16. Name the livestock disease/disease condition caused by each of the following organisms; (2 marks)
a) Salmonella gallinarum
b) Ascaris lumbricoides
17. Explain the following as applied in tractor engines. (1½ marks)
a) Firing order
b) Compression ratio
c) Compression ignition engine
18. State two human factors that influence the quality of honey. (2 marks)

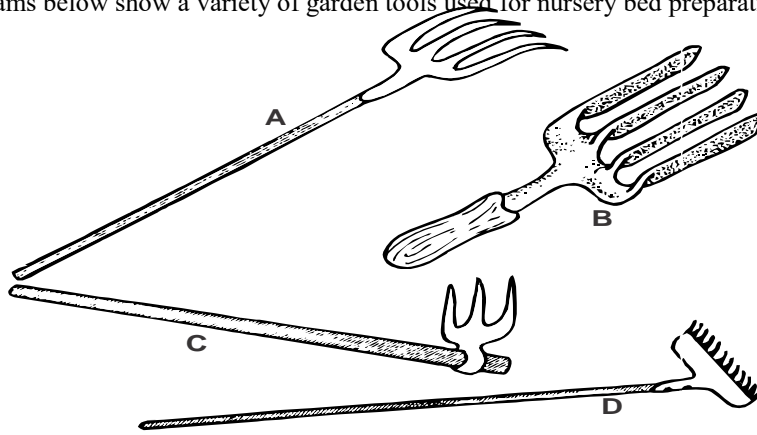
SECTION B (20 MARKS)**Answer all the questions in this section**

19. The diagram below shows a type of livestock identification method.

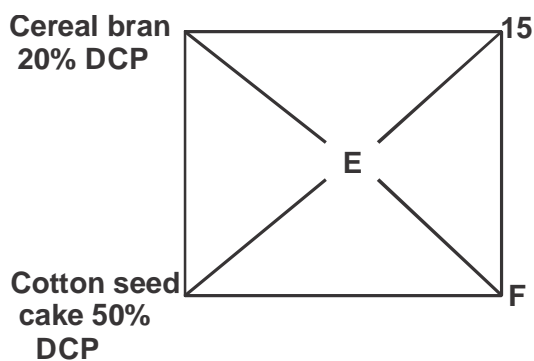


- a) Give the method of identification indicated by the diagram above. (½ mark)
- b) Which is the most appropriate method of identification for animals with light skins. (½ marks)
- c) State the tool used in the method in the diagram shown above. (½ mark)
- d) Write down three importance of livestock identifications. (1½ marks)
- e) Give one reason why a programmed administration of antihelminitics in cattle is vital. (1 mark)
- f) Other than a dosing gun name two other tools used to administer antihelminitics. (1 mark)

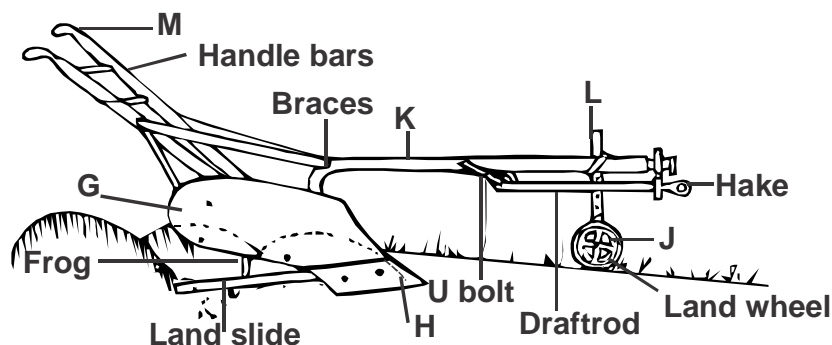
20. The diagrams below show a variety of garden tools used for nursery bed preparation.



- Identify the tools labelled A, B, C and D. (2 marks)
 - Name another tool that can be used in place of tool B. (½ mark)
 - State three maintenance practices on tool C. (1½ marks)
 - Give the best ratio of cement, sand and gravel for marking deep foundations of farm buildings. (2 marks)
21. A student is in the process of determining quantities of ingredients to make a livestock ration using the feed computation method illustrated below.



- Name the feed computation method illustrated above. (1 mark)
 - Determine the values of E and F. (2 marks)
 - What will be the percentage of digestible crude protein (DCP) in the feed that the student intends to make? (1 mark)
 - Except the method of feed computation illustrated above name one other feed computation method. (1 mark)
22. The illustration below shows an ox-drawn mouldboard plough. Study it and answer the questions that follow.



- Name the parts labelled G, H, J and K. (2 marks)
- State the use of the parts labelled L and M. (2 marks)
- Give two uses of the plough illustrated above. (1 mark)

SECTION C (40 MARKS)

Answer any TWO questions from the section.

- Explain the management of broilers in a deep litter system. (20 marks)
- Describe the importance of keeping farm animals healthy. (10 marks)
 - How does the digestion of food in pigs differ from that of ruminants. (10 marks)
- Explain five care and maintenance practices carried out on a tractor battery. (10 marks)
 - Name five components /parts of a plunge dip and state the use of each. (10 marks)

KANDARA SUB-COUNTY FORM 4 JOINT EVALUATION

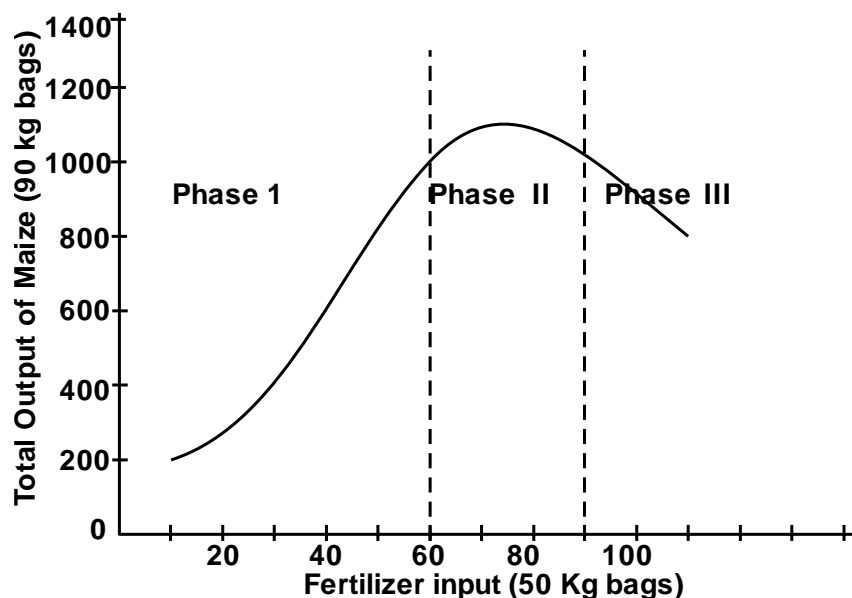
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AGRICULTURE**PAPER 1****SECTION A 30 MARKS***Answer all the questions in the spaces provided*

1. List four agricultural activities that make agriculture a science (2 mks)
2. State three problems associated with the use of farm yard manure (1 ½ mks)
3. Name two types of labour records (1 mk)
4. Name the vegetative propagation material for each of the following crops; (2 mks)
 - i) Sisal
 - ii) Bananas
 - iii) Pyrethrum
 - iv) Tea
5. Give a reason why the width of the nursery bed is limited to 1 - 1.5 m? (1 mk)
6. State three effects of nematodes in crops (1 ½ mks)
7. Give four reasons why it is difficult to control Sodom apple (*Solanum incanum*) in pastures (2 mks)
8. State four factors causing fragmentation and sub-division of land in Kenya (2 mks)
9. State three reasons for early seedbed preparation (1 ½ mks)
10. Give two reasons for tying a union during budding and grafting using a transparent polythene strip (1 mk)
11. Distinguish between a pasture and a fodder crop. (2 mks)
12. Name four types of micro catchments (2 mks)
13. List three methods of harvesting agroforestry trees (1 ½ mks)
14. Outline four factors that contribute to the competitive ability of weeds (2 mks)
15. State four factors that determine the stage of harvesting a particular crop (2 mks)
16. Give three sources of underground water (1 ½ mks)
17. State four effects of early defoliation on forage crops (2 mks)
18. State three factors considered when classifying crop pests (1 ½ mks)

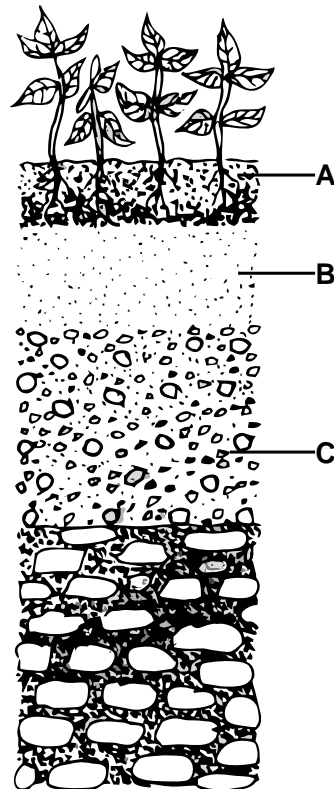
SECTION B (20 MARKS)*Answer all the questions in this section in the spaces provided*

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

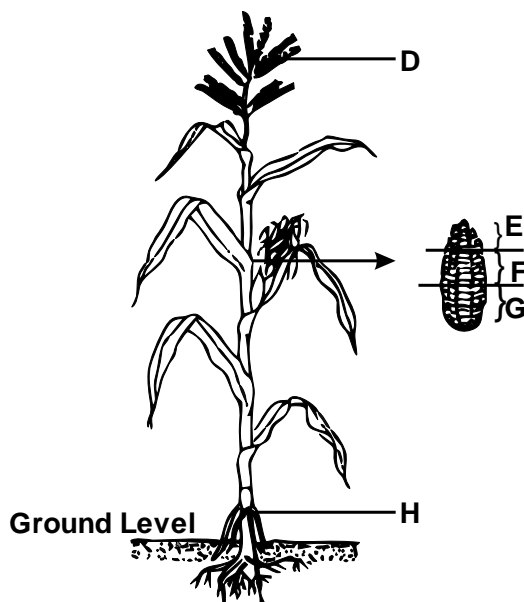


- a) Identify the law identified by the graph (1 mk)
- b) Explain how each additional unit of fertilizer input relates to the total output of maize in phases II and III
 - Phase II (1 mk)
 - Phase III (1 mk)
- c) State the importance of the law identified in (a) above to the maize farmer (1 mk)

20. The diagram below illustrates a feature observed after digging the soil several metres deep. Study the diagram carefully and answer the questions that follow;



- Identify the feature that the diagram above represents in the study of soil (1 mk)
 - Name the parts of the diagram labelled A, B and C (3 mks)
 - State one way in which the knowledge of the above feature would be of benefit to a farmer (1 mk)
21. The diagram below illustrates a maize crop plant and its produce. Study the diagram carefully and answer the questions that follow



- Name one disease that attacks the part of the plant labelled D in the diagram (1 mk)
- From which section of the produce labelled E, F and G should seeds for planting be obtained? (½ mk)
- Give one reason for the answer given in (b) above (1 mk)
- State two functions of the part labelled H in the diagram (1 mk)
- A plot measuring 4 m x 3 m was prepared for planting cabbages at a spacing of 60 cm x 60 cm. Calculate the plant population in the plot. Show your working (1 ½ mks)

22. The table below shows PH values of different soil samples. Study it and answer the questions that follow

Soil sample	pH value
A	3
B	4
C	5
D	6
E	7
F	8
G	9
H	10

- i) Which soil sample has the lowest acidity? (1 mk)
 ii) State two ways in which PH value of soil sample H can be lowered (2 mks)
 iii) Which of the soil samples is suitable for coffee production? (1 mk)
 iv) Give two effects of soil PH on crop growth and production (2 mks)

SECTION C (40 MARKS)

Answer any two questions from this section in the spaces provided after question 25.

23. State and explain;
 a) Four advantages of crop rotation (8 mks)
 b) Factors which may influence the spacing of crops (8 mks)
 c) Describe four measures which should be taken to minimise water pollution on the farm (4 mks)
24. a) Describe the growing of the bulb onions under the following;
 i) Field management practices (4 mks)
 ii) Harvesting (3 mks)
 b) Describe the production of dry beans (*Phaseolus vulgaris*) under the following sub-headings
 i) Selection and preparation of planting materials (3 mks)
 ii) Planting and weeding (5 mks)
 c) Describe five roles of agricultural based women groups in farming (5 mks)
25. a) The table below gives information on the supply and demand schedules for oranges on a market.

Table 1: Prices and quantities of oranges supply

Oranges (kg)	Price per kg (Kshs)
140	15.00
120	13.20
115	12.80
102	12.00
96	11.70
75	10.80
40	9.60
32	9.40
20	9.20
15	9.10

Table 2: Prices and quantities of oranges demanded

Oranges (kg)	Price per kg (Kshs)
70	17.00
77	15.70
91	14.50
109	13.10
125	12.20
145	11.40
161	10.80
175	10.30
181	10.10
195	9.80

- i) Using the above data plot supply and demand curves on the same axes (7 mks)
- ii) Determine the price at which 110 kg of oranges were supplied on the market (1 mk)
- iii) How many kilogrammes of oranges were bought at a market price of Kshs. 12.00? (1 mk)
- iv) What was the equilibrium price of oranges in market? (1 mk)
- b) Kamau farm bought the following on credit from Thika farmers Agro-vet on 5/01/2015
- 15 bags of chick mash 70 kg each @ 2500
- 20 bags of maize germ 50 kg each @ 1200
- 17 bags of DAP fertilizer, 50 kg each @ 3,000
- 40 bags of wheat seeds, 3 kg each @ 500
- i) Prepare a purchase order that Kamau's farm made to Thika farmers agro-vet (6 mks)
- ii) Calculate the value of each item purchased and the total value of the order (4 mks)

KANDARA SUB-COUNTY FORM 4 JOINT EVALUATION
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AGRICULTURE
PAPER 2

SECTION A (30 MARKS)

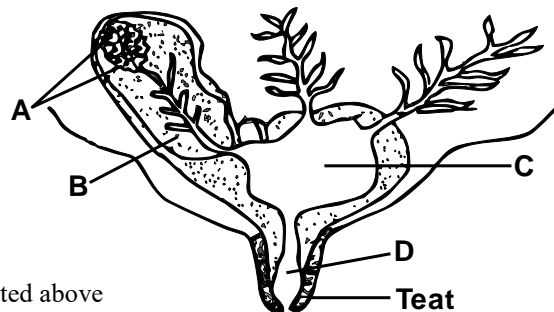
Answer ALL questions in this section in the spaces provided

1. State four ways of controlling lice in poultry (2mks)
2. State three signs of heat observed in rabbits (1 ½ mks)
3. Give three uses of a jackplane (1 ½ mks)
4. Name three methods of extracting honey from honey combs (1 ½ mks)
5. State three signs of broodiness in a hen (1 ½ mk)
6. Name four parts of a building that can be reinforced using concrete (2 mks)
7. Give four methods of docking in sheep rearing (2 mks)
8. State four limitations of biogas as a source of power (2 mks)
9. Give two reasons why a farmer prefer single housing for his calves (1 mk)
10. Name two hormones responsible for milk letdown (1 mk)
11. Mention three types of vaccine (1 ½ mks)
12. State three physiological body processes considered when assessing an animals health (1 ½ mks)
13. Name three insect pests that are parasites to livestock (1 ½ mks)
14. a) Define the term outcrossing (1 mk)
- b) State the two benefits of outcrossing (1 mk)
15. Outline four structures used to control livestock parasites (2 mks)
16. Name four notifiable diseases in livestock (2 mks)
17. Give five factors considered when siting an apiary (2 ½ mks)

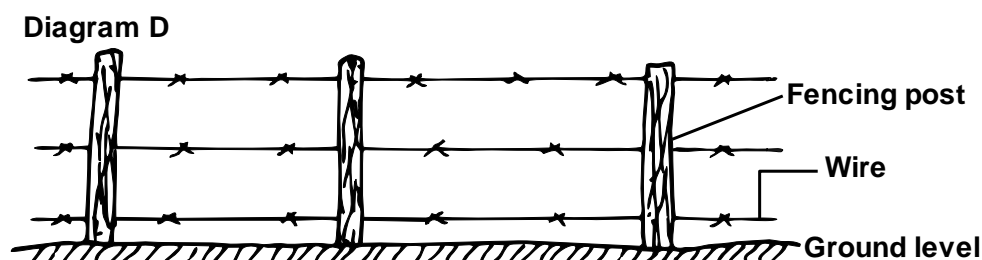
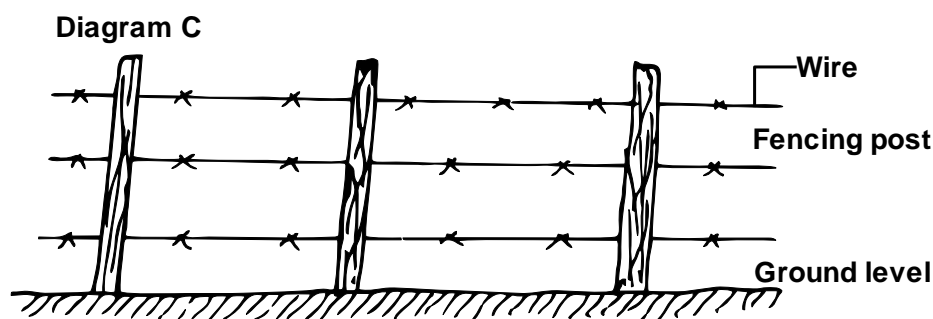
SECTION B (20 MARKS)

Answer all the questions in this section in the spaces provided

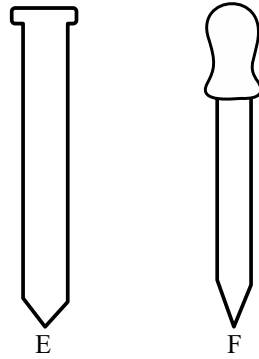
18. The diagram below is an illustration of a certain structure



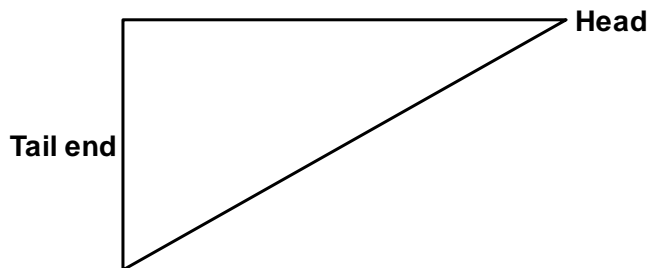
- a) Name the structure illustrated above (1 mk)
 - b) Identify the parts labelled A, B and C (3 mks)
 - c) Give one function of the part labelled D (1 mk)
 - d) Give one way in which the teat can be injured (1 mk)
19. a) Below are diagrams of fences C and D. Study them carefully and illustrate on diagram C how diagonal wire braces and on diagram D how horizontal wooden braces are used to reinforce the fencing posts (2 mks)



- b) The diagram below shows a set of equipment used in livestock management. Study them and answer the questions that follow.



- i) Identify the equipment labelled E and F (1 mk)
 ii) State the appropriate use of the set of equipment illustrated above (½ mk)
 iii) Describe the appropriate procedure followed when using the equipment (2 mks)
20. a) A farmer wanted to prepare a 200 kg of calf rearing ration containing 20% DCP. Using the Pearson'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 work) (4 mks)
 b) Define the term digestible crude protein (DCP) (1 mk)
21. The diagram below illustrates the general shape of a cattle breed. Study it carefully and answer the questions that follow



- a) Identify the type of breed illustrated by the above shape (1 mk)
 b) Give an example of a breed in (a) above (1 mk)
 c) State four physical characteristics of the shape of breed identified in (a) above (2 mks)

SECTION C (40 MARKS)

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

22. a) Describe the artificial rearing of day old layer chicks to the end of brooding (10 mks)
 b) Explain factors that influence the quality of milk (6 mks)
 c) Give four structural requirements of a good calf pen (4 mks)
23. a) Describe how the following tractor components are used to attach implements to the tractor
 i) Three (3) point linkage / hitch (6 mks)
 ii) Power take off shaft (P.T.O.) (4 mks)
 b) Describe the life cycle of a two host tick (6 mks)
 c) State four factors that affect digestibility of a feed (4 mks)
24. a) Discuss blackquartars disease under the following subheadings
 i) Animals attacked (1 mk)
 ii) Causal organism (1 mk)
 iii) Symptoms of attack (4 mks)
 iv) Control and treatment (2 mks)
 b) Outline the advantages of artificial insemination (6 mks)
 c) Explain three breeding practices carried out on livestock (6 mks)

NANDI NORTH AND NANDI CENTRAL JOINT EXAMINATIONS 2016

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AGRICULTURE

PAPER 1

SECTION A (30 MARKS)

Answer ALL Questions in the Spaces Provided

1. (a) Give **two** reasons why minimum tillage is encouraged in crop production. (2mks)
(b) State **two** precautions by which minimum tillage can be achieved in crop production. (1mk)
2. State **three** benefits of a land title deed to a farmer. (1½mks)
3. State **three** farming practices that can be carried out to increase amount of light harnessed by crops. (1½mks)
4. Explain the meaning of the following terms in crop production. (1½mks)
 - (i) Close Season:.....
 - (ii) Trap Cropping:.....
 - (iii) Integrated Pest Management (IPM):.....
5. Differentiate between the pricking out and thinning as used in nursery management practices. (1mk)
6. (a) Define the term Working Capital. (½ mk)
(b) Give **three** examples of Working Capital employed by a farmer in the production of maize.
7. (a) State **three** reasons why forage crops used for making silage should be harvested just before flowering stage. (1½mks)
(b) Outline **three** roles of additives in making silage. (1½mks)
8. Name the form in which the plant absorbs the following nutrients. (1½mks)
 - (i) Nitrogen:.....
 - (ii) Phosphorus:.....
 - (iii) Calcium:.....
9. Explain how do the temperature as an environmental factor influence the effectiveness of herbicides. (1mk)
10. Give **three** reasons why seeds may fail to germinate after planting. (1½mks)
11. State **two** advantages of undersowing in pasture establishment. (1mk)
12. State **four** characteristics of an ideal green manure crop. (2mks)
13. Outline **three** conditions which necessitate the use of flood irrigation. (1½mks)
14. State **three** agro-forestry practices. (1½mks)
15. State **one** condition in which each of the following documents are used. (1mk)
 - (i) Invoice:.....
 - (ii) Delivery note:.....
16. Outline **four** functions of Horticultural crops development authority (HCDA) (2mks)
17. State **three** ways in which the government can help farmers to adjust to risk and uncertainties (1½mks)
18. State **four** types of terraces. (2mks)
19. State **two** factors which determine the soil colour. (1mk)

SECTION B (20 MARKS)

Answer all questions in the spaces provided in this section

20. The diagrams below illustrate both a nursery and a field practice.,
 - (i) Identify the practices: (2mks)
 - (ii) State **one** effect of failing to carry out the above named practices in L and M. (2mks)
 - (iii) Give **two** benefits of roguing in crop production. (2mks)
21. Below is a diagram showing a crop disease.
 - (i) Identify the crop disease. (1mk)
 - (ii) Name the category in which the crop disease is classified. (1mk)
 - (iii) Name the causal organism of the above named crop disease. (1mk)
 - (ii) State **one** control measure of the above disease. (1mk)
 - (iii) State **two** harmful effects of crop diseases. (2mks)
22. A farmer wishes to change her enterprise from vegetable production to dairy cattle rearing. The costs she incurs in the growing of vegetable are as follows:-

Weeding	Shs. 400
Pruning	Shs. 600
Harvesting	Shs. 700
Chemicals	Shs. 1,200

When she changes her enterprise to dairy cattle rearing, she incurs the following costs:

Cost of buying cattle	Shs. 20,000
Disease control	Shs. 200
Salary of milk person	Shs. 3,000
Fencing	Shs. 1,000

The revenue she gets when growing tomatoes is Sh. 16,000. In dairy cattle production, the revenue she gets from milk sale is sh. 25,000 and manure sale sh. 3,000.
Draw up a partial budget and advise the farmer accordingly. (3mks)
23. The Diagrams below show some common weeds. Study them and answer the questions that follow.

- (i) Identify the weeds E and K. (1mk)
(ii) State **two** economic importance of weed E. (2mks)
(iii) State **one** problem associated with the use of herbicide in the environment. (1mk)

SECTION C**Answer any two questions in the spaces provided**

24. (a) Describe the field production of beans under the following sub-headings:
(i) Ecological requirements (2mks)
(ii) Planting (3mks)
(iii) Diseases and their control. (6mks)
(b) Describe various factors affecting spacing in crops. (9mks)
25. (a) State **five** qualities of a good manager. (5mks)
(b) State and explain **five** functions of a manager in a farm. (5mks)
(c) Explain ten factors influencing the supply of a commodity. (10mks)
26. (a) Describe **five** ways through which soil loses fertility. (10mks)
(b) Explain **five** factors considered in choosing seed rates. (5mks)
(c) Explain **five** reasons why seedlings are raised in a nursery. (5mks)

NANDI NORTH AND NANDI CENTRAL JOINT EXAMINATIONS 2016

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AGRICULTURE

PAPER 2

SECTION A (30 MARKS)

Answer ALL Questions in the Spaces Provided

1. State **four** abnormalities of eggs that can be detected during egg candling. (2mks) ...
2. (a) Name the causative organism of Gumboro disease. (½ mk)
- (b) State **two** symptoms of coccidiosis infection in poultry. (2mks)
3. State **four** observations on the behaviour of chicks under excess heat in the brooder. (2mks)
4. Give **three** conditions necessary for artificial incubation of poultry production. (1½mks)
5. State **three** ways used to improve production of indigenous cattle. (1½mks)
6. Differentiate between the following breed terms: (2mks)
 - (i) Bull and Bullock
 - (ii) Billy and Nanny
7. State **two** differences between the Dromedary and Bactrian breed of camels. (2mks)
8. Below is a photo micrograph of a livestock breed. Study it and answer the questions that follow.



- (i) Name the livestock breed. (1mk)
- (ii) Classify the cattle. (1mk)
- (iii) Give **three** reasons for your answer in (b) above. (1½mks)
9. State **four** factors that determine the amount of water taken by a dairy animal. (2mks)
10. Give **four** reasons why feeding of colostrums is important in rearing of piglets. (2mks)
11. Give **four** functions of proteins in the body of an animal. (2mks)
12. Give the mineral whose deficiency in livestock animals results to the following disease condition. (2mks)
 - (i) Head retraction in chicks:.....
 - (ii) Sway back in lambs:.....
 - (iii) Curled toe paralysis:.....
 - (iv) Soft shelled eggs:.....
13. Give **four** reasons why breeding boar may be culled. (2mks)
14. State **four** methods of identification in livestock production. (2mks)
15. Explain the meaning of the following terms as used in livestock health.
 - (i) A notifiable disease:.....
 - (ii) Prophylactics:.....
16. List **four** factors considered when formulating a livestock ration. (2mks)

SECTION B (20 MARKS)

Answer all questions in the spaces provided in this section

17. The illustration below shows a dairy cow suffering from a disease. Three days after calving the cow went down with its head turned back and unable to walk.
 - (i) What disease did the cow suffer from? (1mk)
 - (ii) State **two** causes of the dairy cattle disease you have identified in (a) above. (2mks)
 - (iii) State **two** methods of preventing the disease you have identified in (a) above. (1mk)
18. The diagram below is equipment used in livestock production.
 - (i) Identify the equipment. (1mk)
 - (ii) State the use of the above equipment. (1mk)
 - (iii) State **two** maintenance practices carried out on the equipment. (2mks)
 - (iv) What value does the equipment add in livestock feeding? (2mks)
19. Study the diagram below and answer the questions that follow.
 - (i) Name the parts labeled A, B and C. (1½mks)

- (ii) Give **one** function for the parts labeled D, E and F. (1½mks)
- (iii) State **two** maintenance practices of a diesel engine. (2mks)
20. The diagram below represents part of a fence.
- (i) Name the parts labeled P, R, S and T. (2mks)
- (ii) State **two** advantages of using plain wire fence over barbed wire fence. (2mks)
- (iii) State the use of the following tools during fencing:-
- (i) Ramming rod:.....
- (ii) Claw bar:.....

SECTION C

Answer any two questions in the spaces provided

21. (a) Describe the management of sheep from preparation for mating up to birth. (15mks)
- (b) Give **five** signs of infestation by internal parasites in sheep. (5mks)
22. (a) Describe scours (infections diarrhea) under the following sub-headings:-
- (i) Animals affected (2mks)
- (ii) Predisposing factors (4mks)
- (iii) Symptoms (4mks)
- (b) Explain **five** maintenance practices of an ox-drawn plough. (5mks)
- (c) Give the advantage of animal drawn implements over tractor drawn implements. (5mks)
23. (a) Explain **five** precautions observed when handling bees. (5mks)
- (b) Distinguish between cropping and harvesting as used in fish farming. (2mks)
- (c) Describe the maintenance and management practices that would ensure maximum fish harvest from a fish pond. (9mks)
- (d) Using the Pearson's square method, compute a 300kg ration with 25% DCP from wheat which contains 15% DCP and sunflower seedcake containing 30% DCP. (4mks)

NANDI NORTH AND NANDI CENTRAL JOINT EXAMINATIONS 2016

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AGRICULTURE

Marking scheme

1. (a)
 - Maintain soil structure
 - Maintain soil moisture
 - Saves time
 - Reduces operation cost. (2 x ½ = 1mk)
- (b)
 - Use of mulch to prevent weed growth.
 - Slashing or uprooting of weeds.
 - Use of herbicides to kill weeds.
 - Planting cover crops. (2 x ½ = 1mk)
2.
 - Use as security to get loans.
 - Minimize land disputes with neighbours.
 - Security to a farmer to carry out long term investment on the farm. (2 x ½ = 1mk)
3.
 - Pruning
 - Thinning
 - Weeding
 - Wider spacing (3x½=1½mks)
4. (i) Close seasons – This is a period during which a particular crop is deliberately not grown in given area into control disease and pest build up.
- (ii) Trap crop – These are crops grown with the aim of attracting pest hence diverting them from main crop.
- (iii) IPM – It involves combination of several or both chemical and cultural pest-control methods to control a persistent pest. (3x½=1½mks)
5. Pricking out – is where overcrowded seedlings are removed and planted in a second nursery bed while thinning the uprooting / removal of the excessive seedlings to allow spaces for the remaining seedlings. (1 x 1 = 1mk) Mark as a whole.
6. (a) Raw materials used in the process production. (1 x ½ = ½mk)
- (b)
 - Maize seeds
 - Fertilizers
 - Fuel
 - Pesticides / herbicides (3x½=1½mks)
7. (a)
 - It has high leaf – stem ratio.
 - It has high crude protein content / more nutrients / optimum plants nutrients.
 - It has high amount of soluble carbohydrates for fermentation.
 - It is easily digestible.
 - It is succulent. (3x½=1½mks)
- (b)
 - Increases nutrients value of silage / quality of silage.
 - Prevent growth of undesirable micro-organisms in the silage.
 - Increase the palatability of silage.
 - Increase carbohydrates supply for proper fermentation.
8. (i) Nitrate ions / NO_3^- / NH_4^+ / Ammonia ions
- (ii) Phosphrous pentaoxide P_2O_5
- (iii) Calcium ions / Ca^{2+}
9. Temperature increases translocation hence absorption of more herbicides and therefore death of weed.
10.
 - Pest and disease attack
 - Deep / shallow placement
 - Long storage of seed
 - Inadequate moisture in the soil. (4x½=2mks)
11.
 - Intensive land use
 - Control soil erosion
 - Reduce cost of production
 - Proper utilization of soil resources. (2x ½ = 1mk)
12.
 - Should be highly vegetative / leafy

- Should have a fast growth rate
 - Should have high nitrogen content / leguminous plants are preferred.
 - The plant should be hardy / capable of growing in poor conditions (4x½ = 2mks)
- 13.
- Where land is relatively flat
 - Where soil can hold water for long periods
 - For crops that require large quantities of water throughout their growing periods. (3x½ = 1½mk)
- 14.
- Alley cropping
 - Woodlots
 - Multistorey cropping (3x½ = 1½mk)
15. (i) When goods are brought on credit. (½x 1 = ½mk)
(ii) When goods are physically delivered by the seller to the buyer. (½x 1 = ½mk)
- 16.
- Offering advisory services to farmers through extension agents.
 - Collecting produce from farmers
 - Sorting and grading the produce
 - Marketing the produce both locally and abroad. (4x ½ = 2mks)
- 17.
- Information on weather forecasting
 - Research and extension services
 - Subsidization of input prices.
 - Marketing regulation. (3x½=1½mks)
- 18.
- Bench terraces
 - Broad-base terraces
 - Bench terraces
 - Narrow-base terraces
 - Fanya Juu terraces (4x ½ = 2mks)
- 19.
- Humus content
 - Parent rock material (2 x ½ = 1mk)

SECTION B (20 MARKS)

20. (a) L - Root pruning
M - Propping
- (b) M – Breakages of the stem due to the heavy weight.
L – Lifting of seedling becomes difficult when transplanting.
- Increases chance of damages to the seedling. (1 x 1 = 1mk)
- (c) - It helps to control the spread of pests and diseases.
It controls the multiplication of crops with undesirable traits. (2 x 1 = 2mks)
21. (a) (i) Late blight (1 x 1 = 1mk)
(ii) Fungal / Fungal disease
(iii) Phytophthora infestans
- (b) Use appropriate fungicide.
- (c)
- Lower crop yield
 - Production of poor quality products.
 - Cause food poisoning.
22. Partial budget for a farmer

Debit (-)	Kshs.	Ct.	Credit	Kshs.	Ct.
Extra Cost for Dairy			Extra Revenue Dairy		
Cost of cattle	20,000	00	Milk sales	2,500	00
Disease control	200	00	Manure sales	3,000	00
Salary of milk person	3,000	00	Sub-Total	28,000	00
Fencing	1,000	00			
Subtotal	24,200	00	Cost saved		
Revenue forgone			Weeding	400	00
Tomatoes	16,000	00	Pruning	600	00
			Harvesting	700	00
			Chemical	1,200	00
			Sub-total	2,900	00
TOTAL	40,200	00	TOTAL	30,900	00

Naming columns	(2 x ½ = 1mk)
Totals	(2 x 1 = 2mks)
Correct difference between debit and credit.	(1mk)
Correct advice	(1mk)
TOTAL	(5mks)

(Extra Revenue + Cost saved) - (Extra cost + revenue forgone)	
=	30,900 – 40,200
=	- 9,300

- It is not worthwhile;
- The farmer should not replace tomatoes with dairy.

23. (a) E – Double thorn / Oxygonium sinuatum (½mk)

K – Thorn apple / Datura stramonium. (½mk)

(b)

- Lower quality and palatability of pasture.
- Cause injury to livestock when feeding.
- It pricks and irritate form workers / reducing the efficiency. (2x1 = 2mks)

(c)

- It can result in environmental degradation as some herbicide have long residual effect.
- Excessive herbicides are harmful to beneficial soil microbes. (1x1 = 1mk)

SECTION C

24. (a) (i) Ecological requirements

- Do well in well drained loam soils which are rich in organic matter.
- Require moist soil throughout the growing period / Do well in moderate rainfall.
- Grows best between 600 – 700m a.s.l. (2 x 1 = 2mks)

(ii) Planting

- Planting at the beginning of rains / timely planting / when the soil has enough moisture.
- Apply phosphotic fertilizer / DSP, SSP, DAP, MAP / manure during planting.
- Make shallow furrows / holes at a depth of 3-5cm using appropriate tool.
- Place 2 – 4 seeds per hole and cover with soil / seed rate of 50 – 60kg per ha.
- Spacing is 30 – 50cm x 10 – 15cm depending on variety. (3 x 1 = 3mks)

(iii) Diseases and their control

- Haloblight / Bacterial blight

Control

- Planting healthy seeds / certified seeds.
- Rogueing / uprooting and destroying infected plants.
- Crop rotation.
- spraying with appropriate chemicals / copper oxychloride.
- Anthrachose

Control

- Grow resistant variets / K74 / Wairimu.
- Use clean / certified seeds.
- Spraying using benomyl, copper fungicide, mancozeb / spray with appropriate chemicals.
- Bean rust

Control

- Planting health / certified seeds.
- Rogueing
- Crop rotation
- Spraying with appropriate chemicals.

Name of disease – 1mk, Control – 2mks. (Max. 2 diseases)

(b)

- Type of machinery to be used – the space between the rows should allow for passage of machinery which can be used.
- Soil fertility – fertile soil requires closed spacing than infertile soil.
- Size of the plant – tall varieties requires wider spacing while short varieties requires closer spacing.
- Availability of moisture – soil with a lot of water tend to require closer spacing than the one with low moisture.
- Purpose of the crop – crops grown purposely for silage will require closer spacing than the one grown for grain production.
- Pest and disease control – when crops are properly spaced, pests find it difficult to move from one place to another.
- Growth habit of the crops – spreading crop varieties requires wider spacing than erect type.
- Number of seeds per hole – spacing is wider when more seeds are planted per hole.
- Crop stand – wider spacing when crops are inter-planted.
- Tillering / suckering – plants that tiller or produce suckers require wider spacing.

25.

(a) Qualities of a good manager

- The manager should have knowledge about specific agricultural principles marketing and accounting..
- A good manager should be hardworking and time conscious.

- Should have practiced farming skills.
- Should be responsible / dynamic / prudent / competent / ambitious.
- Should be flexible in decision making in order to adjust to the ever-changing social and economic trends in the society.

(b) Role of a manager

- Short-term planning – making quite decision regarding any emergency on the farm e.g. outbreak of a disease.
- Long term planning – making decision linked to future plans and operations on the farm.
- Information gathering – should collect information related to enterprises.
- Comparing the standards of one enterprise with the set standards.
- Detecting weaknesses and constraints and finding ways and means of overcoming them.
- Keeping farm records up to date and using them in day to day running of the farm.
- Implementing farm decisions and taking responsibility. (first 5 x 1 = 5mks)

(c) Factors influencing supply of a commodity

- Number of sellers in the market – increase in seller in the market increases the supply of a given commodity in that market.
- Price of related goods – if the price of other related products increases, the demand for other product (related) increases hence increasing their supply. (*Examples must be in Agric.*)
- Price expectation – the supply of a commodity will be low if the future price of the same commodity is expected to increase.
- Technology – modern techniques of production leads to increased production of goods and subsequently increased in supply.
- Weather – favourable weather conditions leads to increased production, which means more goods available for sale.
- Government policy – If the government increases tax on a particular commodity the price of that commodity increased hence decrease in supply of that commodity.
- Changes in prices – increase in the price of a commodity increases the supply of that commodity.
- Cost of production – lower cost of production increases the production output hence increase in supply.
- Increase in supply of associated goods – increase in the supply of an associated commodity increases the supply of the other.
- Transportation system – improve and efficient means of transport enables goods to be delivered to market on time hence increases their supply. (*State ½, Explain ½*) (10 x 1 = 10mks)

26.

(a) Various ways through which soil losses fertility.

- Leaching – As water infiltrates into the soil it moves together with dissolved soluble minerals to lower horizon beyond the reach of many plant roots.
- Soil erosion – carrying away of top soil rich in nutrients by its agents – the fertile soil will be deposited elsewhere.
- Monocropping – growing of one type of crop on a piece of land over a long period of time – the crop grown will use the same nutrients till exhausted leaving out other nutrients remain unused.
- Continuous cropping – continuous growing of crops on the same piece of land over a long period of time exhaust all nutrients in the soil leaving the soil deficient of these plant nutrients.
- Burning of vegetation – burning destroy organic matter leading to destruction of soil structure – burning also exposes the soil to its agents of erosion.
- Accumulation of salts – express salts in the soil leads to salinity. This changes the soil PH thus leading to loss of soil fertility.
- Change in soil PH – increase or decrease in soil PH as a result of use of different fertilizers affects the activity of soil micro-organism as well as availability of soil nutrients. (first 5 ways 5x2 = 10mks) (*State ½, Explain ½*)

(b) Factors considered when choosing seed rate.

- Seed purity – pure seed have high germination percentage therefore less seed required.
- Germination percentage – less seed is used when its germination is higher. Seed of lower germination percentage is required in large amounts.
- Spacing – at closer spacing, more seeds are used than at wider spacing.
- Number of seeds per hole – when two or more seeds are planted per hole, higher seed rate is required than when only one seed is planted per hole.
- Purpose of the crop – a crop to be used for silage making is spaced more closely than one meant for grain production therefore increasing the seed rate. (5x1 = 5mks)

(c) Reasons for raising seedlings in a nursery bed

- It facilitates production of many seedlings in a small area.
- Routine management practices are easily and timely carried out in the nursery bed than seedbed.
- It makes it possible to provide the best conditions for growth.
- It facilitates the planting of small seeds which develop into strong seedlings that are easily transplanted.
- It ensures transplanting of only healthy seedlings and vigorously growing.
- It facilitates transplanting of seedlings that are already established thus reducing the period taken in the field.
- Excess seedlings from the nursery may be sold – source of income. (any 5x1 = 5mks)

NANDI NORTH AND NANDI CENTRAL JOINT EXAMINATIONS 2016

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AGRICULTURE

Marking scheme

- 1.
- Absence of yolk;
 - Double / triple yolk;
 - Airspace in wrong position;
 - Excessively large airspace;
 - Cracks on egg shell;
 - Blood / meat spots
- (4 x ½ = 2mks)
(½ mk)
2. (a) Birna Virus
(b) Sudden death;
- Diarrhoea;
 - Dysentery / blood in faeces;
 - Emaciation;
 - Ruffled feathers;
 - Dullness with drooping wings;
- (4 x ½ = 2mks)
- 3.
- Chicks make abnormal noise;
 - Chicks move away from heat source;
 - Parting / opening beaks wide;
 - Opening / spreading of wings;
 - Drinking water excessively;
 - Chicks lie flat on their bellies.
- (4 x ½ = 2mks)
- 4.
- Temperature of between 37.5⁰C - 39.4⁰C; Acc. within the range.
 - Fresh air / ventilation;
 - Relative humidity of about 60%;
 - Egg turning;
- (3 x ½ = 1½mks)
5. Selection and breeding;
- Pasture improvement;
 - Control of parasites;
 - Provision of clean water;
 - Proper housing;
 - Restrict long distance movement;
- (3 x ½ = 1½mks)
6. (i) Bull and Bullock
- Bull – mature male cattle;
 - Bullock – mature castrated male;
- (1 x 1 = 1mk)
- (ii) Billy and Nanny
- Billy – mature male goat;
 - Nanny – mature female goat;
- (1 x 1 = 1mk)
- 7.
- | pomedary | Bactrian |
|-------------------------|-------------------------|
| (i) Single / one humped | 1. Double humped |
| (ii) Larger – less hair | 2. Smaller – more hairy |
8. (a) Hereford; (1 x 1 = 1mk)
(b) Beef cattle breed; (1 x 1 = 1mk)
(c)
- Blocky / rectangular in conformation;
 - Have thick muscles / well fleshed;
 - Deep chest and wide heart girth;
 - Have square rumps;
 - Short strong legs / lowly set;
- (3 x ½ = 1½ mks)
9. Type of feed taken by the animal;
- Species of the animal;
 - Level of production;
 - Ambient temperature;
 - Physiological state of the animal;
- (4 x ½ = 2mks)
- 10.
- Colostrums is highly nutritious / rich in protein, vitamins, fats and minerals;
 - Contains antibodies which provides immunity to piglets;
 - Acts as a laxative and helps to clear the digestive tract;

REVISION EXERCISES

NYERI COUNTY FORM 4 JOINT ASSESSMENT

443/1

AGRICULTURE

PAPER 1

SECTION A : (30 MARKS)

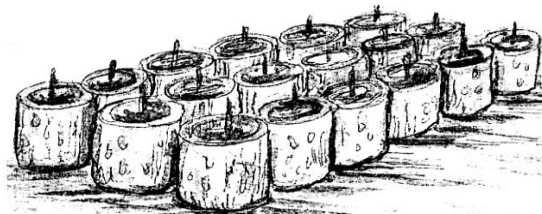
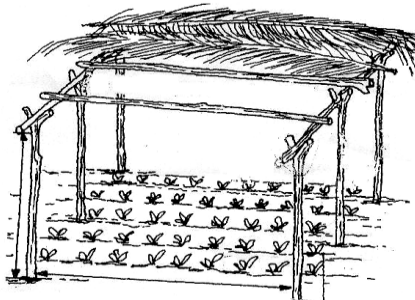
Answer all questions in the spaces provided.

1. What is nomadic pastoralism ? (1 mark)
2. List two contributions of agriculture to industrial development in Kenya. (1 mark)
3. State four effects of pathogens in crop production. (2 marks)
4. Outline four characteristics of sub-soil. (2 marks)
5. Give four disadvantages of minimum tillage. (2 marks)
6. Name two tertiary operations carried out during land preparation. (1 mark)
7. Give three surface water sources for use in a farm. (1½ marks)
8. List four properties of safe and clean water. (2 marks)
9. a) Give the meaning of the term scarcity as used in agricultural economics. (1 mark)
b) State four importances of feeding records to a livestock farmer. (2 marks)
10. Name two macronutrients which are classified as :
a) Liming elements. (1 mark)
b) Fertilizer elements (1 mark)
c) What do you understand by the term micro-nutrient as used in crop production. (1 mark)
11. Give four importance of vegetables production. (2 marks)
12. Give four factors that enable a farmer to grade tomatoes for fresh market. (2 marks)
13. Name four species of legume pastures grown in medium altitude areas. (2 marks)
14. State three methods of rotational grazing. (1½ marks)
15. Differentiate between monopoly and monopsony types of market. (1 mark)
16. List four ways by which trees contribute to soil and water conservation. (2 marks)
17. Give two reasons why use of organic manures is discouraged in carrot production. (1 mark)
18. Name the routine field practice done by :
a) Removal of extra suckers in a banana stool. (½ mark)
b) Removal of old stems down to the level of top foliage in pyrethrum. (½ mark)
c) Removal of suckers from coffee bushes. (½ mark)
d) Removal and destruction of infected plants and plant parts. (½ marks)

SECTION B : (20 MARKS)

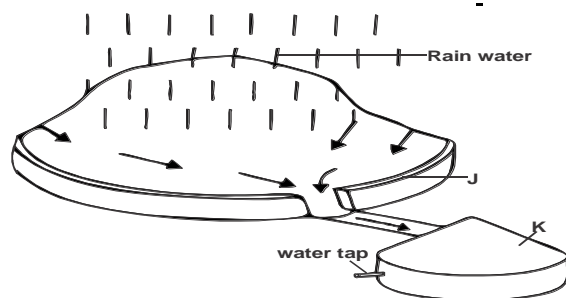
Answer all the questions from this section.

19.



- a) State three advantages of using crop propagation method shown in diagram B over A. (3 marks)
- b) List two materials used to prepare the rooting medium in diagram B above. (2 marks)
- c) Which practice is carried out two weeks before transplanting seedlings in diagram A. (1 mark)

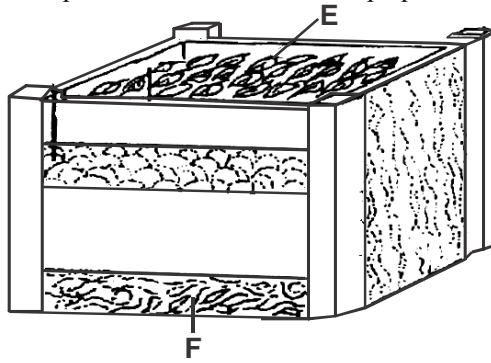
20.



- a) Identify the method of water harvesting shown in the diagram above. (1 mark)
- b) Name the parts labelled J and K (2 marks)

c) List four materials used in construction of the part labelled J. (2 marks)

21. The diagram below represent a method of manure preparation. Study it carefully and answer the questions that follow.



a) Identify the type of manure being prepared. (1 mark)

b) Name the parts labelled E and F (2 marks)

22. Shown in the diagram below is a method of pruning coffee. Study it carefully and answer the questions that follow.



a) Name the method of pruning illustrated above. (1 mark)

b) Give another form of pruning coffee. (1 mark)

c) State two advantages of the method shown in the diagram over the method in (b) above. (2 marks)

SECTION C : (40 MARKS)

Answer two questions from this section.

23. a) Explain three soil properties that are influenced by soil texture. (6 marks)
 b) Explain four factors that should be considered while choosing seed rate in crop production. (8 marks)
 c) Describe six cultural methods of controlling weeds in crop production. (6 marks)
24. a) Discuss production of dry beans under the following sub-headings :
 i) Planting (4 marks)
 ii) Disease control (4 marks)
 iii) Harvesting (4 marks)
- b) i) Outline the steps followed during land adjudication. (4 marks)
 ii) List four pieces of information contained in a title deed. (4 marks)
25. a) Describe the steps farmers should follow when planning a farm enterprise. (6 marks)
 b) Outline four importances of farm accounts. (4 marks)
 c) Outline four factors which influence the supply of a commodity. (4 marks)
 d) Outline six methods of controlling nematodes in crop production. (6 marks)

NYERI COUNTY FORM 4 JOINT ASSESSMENT

443/2

AGRICULTURE

PAPER 2

SECTION A : (30 MARKS)

Answer all the questions in the spaces provided.

1. a) Give two dual purpose breeds of sheep. (1 mark)
- b) Name the pig breed which is white in colour, straight snout, ears drop over the face. (1 mark)
2. State two maintenance activities of a green house for growing of horticultural crops. (1 mark)
3. a) Name two recognised hatcheries where farmers can source chicks. (1 mark)
- b) Give the function of the drones in a bee colony. (½ mark)
4. Mention four benefits realised by adopting battery cage poultry rearing system. (2 marks)
5. Outline any two characteristics of succulent roughages required by a farm animal. (1 mark)
6. Give two enzymes produced by the pancreas for the digestion of food materials in the duodenum of a dairy cow. (1 mark)
7. Differentiate between raddling and ringing in sheep rearing. (1 mark)
8. State one sign of kindling. (½ mark)
9. Name two common structures for the preparation and storage of silage in the farm for beef rearing. (1 mark)
10. State four methods of administering vaccines to livestock. (2 marks)
11. a) State two limitations of tractor hire services. (1 mark)
- b) Name two practices that ensures efficient spraying using tractor boomers. (1 mark)
12. Describe the following terms used in selection and breeding. (1 mark)
 - i) Epistasis
 - ii) Upgrading
13. Explain the importance of the following requirements in artificial incubation. (2 marks)
 - a) Proper ventilation
 - b) Maintaining relative humidity at 60°C
14. List two effects of cannibalism and stress in poultry keeping. (1 mark)
15. a) Mention two notifiable viral diseases in mammals. (1 mark)
- b) Study the table and fill in the blank spaces.

Parasite	Disease transmitted	Animals affected
	Fasciolosis	
Brown ear tick		

- c) Name one parasite under each of the following classifications. (1 mark)

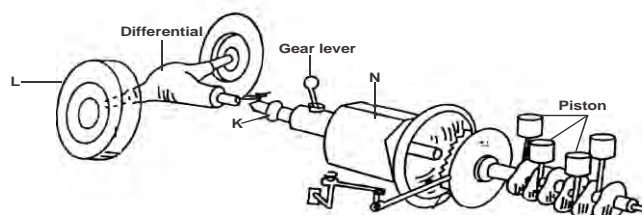
Insecta

Arachnida
16. Briefly describe the following terms as used in livestock health. (1 mark)
 - i) Incubation period
 - ii) Mortality rate
17. Describe two physical conditions that will predispose a cow to mastitis attack. (1 mark)
18. Outline the importance of ensuring there is adequate litter in the brooder. (1 mark)
19. Give two reasons for tailing practice in sheep production. (1 mark)
20. State four non-pathogenic causes of diseases in livestock. (2 marks)

SECTION B : (20 MARKS)

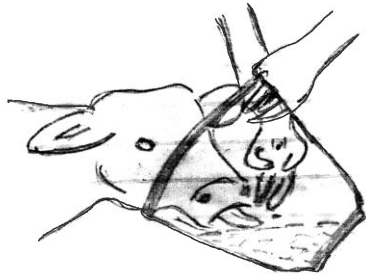
Answer all the questions in this section in the spaces provided.

21. The diagram below shows the power transmission system of a tractor. Study it carefully and answer the questions that follow.



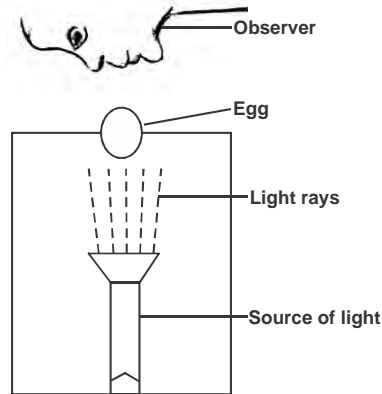
- i) Identify the parts shown as K (1 mark)
- ii) Give two functions of part N. (2 marks)
- iii) Mention two activities on part L that enables to increase traction of the tractor. (2 marks)

22. Study the diagram below showing an operation in livestock production.



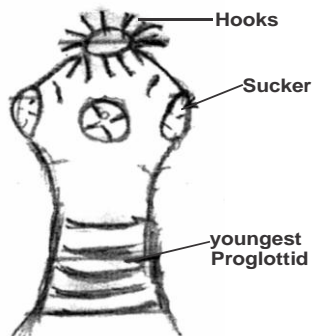
- i) Identify the operation. (1 mark)
 ii) Outline the procedure for the operation shown above. (4 marks)

23. The diagram below shows a practice in poultry rearing. Study it carefully and answer the questions that follow.



- a) Identify the practice. (1 mark)
 b) State the ideal features observed on the egg if the practice was conducted on
 i) A day before incubation (3 marks)
 ii) On the 18th day of incubation. (1 mark)

24. The diagram below represents a livestock parasite. Study it and answer the questions below.



- a) Name the intermediate host of the parasite. (1 mark)
 b) List two signs observed on livestock under attack. (2 marks)
 c) Give two control measures of the parasite. (2 marks)

SECTION C : (40 MARKS)

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

25. a) Describe five ideal features of a deep litter poultry house. (5 marks)
 b) Outline the management activities that should be carried out on a sow during farrowing period. (7 marks)
 c) Explain the use of any four tools / equipment used in the establishment of an irrigation. (8 marks)
26. a) Describe six importances of various nutrients in a livestock feed. (6 marks)
 b) State four problems associated with artificial methods of service in cattle production. (4 marks)
 c) Describe the factors to consider when selecting fencing materials. (10 marks)
27. a) Give six factors that affects productivity of draught animals. (6 marks)
 b) State the importance of identification in livestock management. (4 marks)
 c) Discuss Anthrax disease under the following sub-headings :
 i) Animals affected (1 mark)
 ii) Causal organism (1 mark)
 iii) Symptoms observed in affected animals (4 marks)
 iv) Control measures (4 marks)

MAARA FORM FOUR JOINT EVALUATION
443/1
AGRICULTURE
PAPER 1

SECTION A (30 marks)

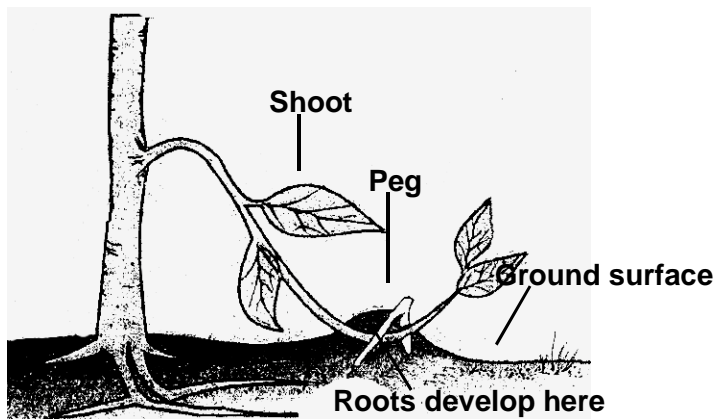
Answer ALL questions in this section on the spaces provided.

1. What are problems associated with the use of herbicides in crop production. (2 marks)
2. State any four farming practices which help to improve soil structure. (2 marks)
3. Give two ways by which overheating can be avoided in the process of making silage. (2 marks)
4. What is the advantage of tenancy system in farming. (2 marks)
5. Name the vegetative part of each of the following crops which is propagated. (2 marks)
 Sweet potatoes.....
 Cassava
 Bananas
 Oranges
6. Give four factors that would determine the number of tillage of operations when preparing a seedbed. (2 marks)
7. Give two reasons why it is important to keep breeding records in livestock productions. (2 marks)
8. State four factors that would determine the demand for oranges by a household. (2 marks)
9. Name four sources from which a farmer can obtain capital. (2 marks)
10. State four reasons why a farmer would diversify his farming enterprise. (2 marks)
11. Give four methods of seed treatment before planting in agroforestry. (2 marks)
12. State four observable indicators of economic development of a nation. (2 marks)
13. List four examples of joint products in livestock production. (2 marks)
14. State four factors influencing seedrate in crop production. (2 marks)
15. Give three precautionary measures a farmer should put into consideration when harvesting coffee (2 marks)

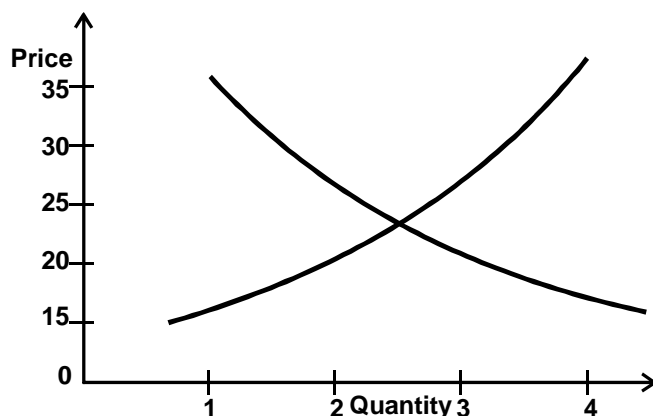
SECTION B (20 marks)

Answer all questions in this section in the spaces provided.

16. Study the diagrams below of crop propagation and answer the questions that follow.



- a) Identify the propagation method. (1 mark)
 - b) State two factors which encourage root formation in the above method of propagation. (2 marks)
 - c) Name two crops that can be propagated using the above method. (2 marks)
17. The following is a supply and demand curve of eggs to teachers in a school.



- a) What is the name given to the point where the curves intersect. (1 mark)
- b) i) What is the price of eggs per tray at the point of intersection. (1 mark)
- ii) What is the supply and demand of eggs at the point of intersection. (1 mark)
- c) What marketing assumptions can you make from the data given on the sale of eggs with respect to demand. (2 marks)
18. The diagram below is an illustration of a modern grain store. Study the diagram and answer the questions that follow.



- a) Identify the parts A and B. (1 mark)
- b) State the functions of the parts A and B. (2 marks)
- c) State any four qualities of a good grain store. (2 marks)
19. Explain the steps followed in land adjudication. (5 marks)

SECTION C

Answer any TWO questions.

20. A farmer has 160 hectares of arable land, 60 hac. of which is under wheat 32 hac under maize, 12 ha under fodder crops and the rest under pasture. He wishes to know whether replacing 12 hac of maize with Irish potatoes the following year would be worthwhile.
- The fertilizer rate would have to be increased from 5 bags per hac. for maize to 7 bags per hac. for Irish potatoes. An extra 100 mandays of casual labour per hac. will be necessary as a result of the change. The average yield of maize and Irish potatoes is 45 and 115 bags per ha respectively. The prices are 1400/= per bag for Irish potatoes seed costs are 2,500/= per ha for maize and 30,000/= per ha for Irish potatoes, fertilizer costs are 1,300/= per bag , labour is paid at 150/= per manday.
- a) Draw a partial budge and indicate the effect of the change. (12 marks)
- b) under what conditions is partial budget an appropriate tool for planning. (4 marks)
- c) State four questions a farm manager formulates in preparing a partial budget. (4 marks)
21. a) Explain how agricultural contributes to national development. (10 marks)
- b) Explain the importance of early planting in crop production. (10 marks)
22. a) Explain the benefits of weeds to a farmer. (7 marks)
- b) Describe the physical or structural methods of controlling soil erosion. (7 marks)
- c) Outline the importance of draining farm land. (6 marks)

MAARA FORM FOUR JOINT EVALUATION
443/2
AGRICULTURE
PAPER 2

SECTION A (30 marks)

Answer ALL questions in this section on the spaces provided.

1. List four importance of livestock to the people of Kenya. (2 marks)
2. List down three main parts of a farm building. (1½ marks)
3. Outline three harmful effects of ticks in cattle. (1½ marks)
4. Name two pure breeds of poultry kept by farmers in Kenya. (1 mark)
5. Give two conditions which would necessitate to feed bees. (1 mark)
6. State four qualities of clean milk. (2 marks)
7. State four maintenance of a jackplane. (2 marks)
8. Name two tractor drawn implements that are attached to the drawbar. (1 mark)
9. Outline any four methods of controlling coccidiosis in poultry. (2 marks)
10. Name three methods that are used in selection of cattle for breeding (1½ marks)
11. The table below shows a page plucked from a farm record.

S. No. 8975

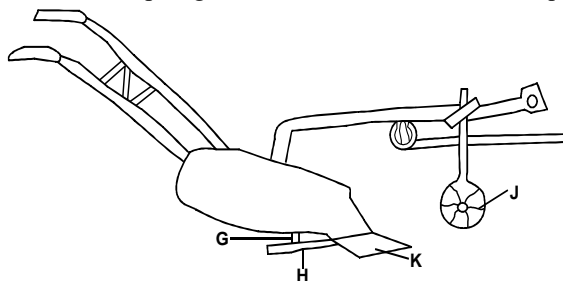
Date	Disease Symptoms	Animal affected	Cost of treatment	Remarks

- a) Name the type of farm record shown. (½ mark)
- b) State two ways in which this record is important to the farmers. (1 mark)
- c) State two pieces of information that may be recorded in the remarks column. (2 marks)
12. State one use of each of the following livestock tools. (1½ marks)
 - i) Burdizzo pliers
 - ii) Strip cup
 - iii) Lactometer
13. Outline three factors that will lead to low hatchability of incubated eggs. (1½ marks)
14. a) Define dry cow therapy. (½ mark)
- b) State the importance of dry-cow therapy. (4 marks)
15. Outline four disadvantages of artificial insemination. (2 marks)
16. Why is drenching alone not effective in the control of internal parasites. (1½ marks)

SECTION B (20 marks)

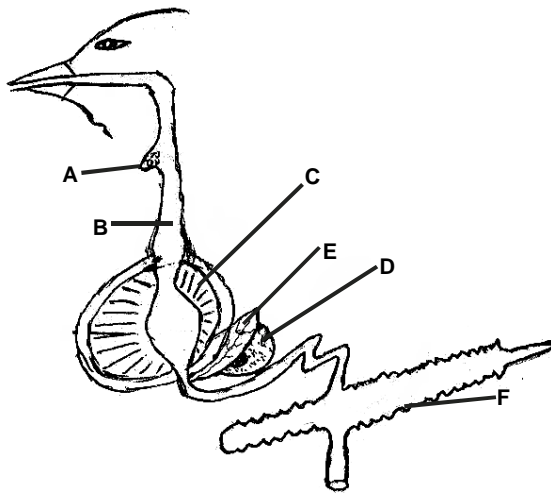
Answer ALL questions in this section in the spaces provided.

17. Study the diagram of an ox-drawn plough shown below and answer the questions that follow.



- a) Name the parts labelled G, H, J and K. (2 marks)
 - b) State one maintenance practice that should be carried out on each of the parts labelled J and K. (2 marks)
 - c) State the functions of the part labelled H and J. (1 mark)
 - d) What adjustment should be carried out on the improvement so as to reduce the depth of ploughing. (1 mark)
 18. a) Give four factors that determine digestibility of a feed in livestock. (4 marks)
 - b) A cow was given 120kg of roughage feed out of that 40kgs was lost as faeces, 10kgs as urine and 5kgs as gases. Calculate the digestibility of the feed. (3 marks)
- (Show your working.)

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



- a) Name the parts labelled A - F. (3 marks)
 b) How is part C adapted to perform its functions? (2 marks)
 c) State the function of the part labelled C and F. (2 marks)

SECTION B (40 marks)

Answer two questions from this section

20. a) Give the merits of using tractor hire services on a farm. (4 marks)
 b) State the advantages of animal power over tractor power in seedbed preparation. (6 marks)
 c) Compare the use of an ox-drawn mouldboard plough with a tractor drawn mouldboard plough. (10 marks)
21. a) Name two species of camel (2 marks)
 b) Give six reasons why camels are suited to arid areas. (6 marks)
 c) Give three reasons why goats are suited to drier areas in Kenya. (3 marks)
 d) Explain the problems that face dairy farming in Kenya. (9 marks)
22. a) Outline six structural requirements of a calf pen. (6 marks)
 b) Describe the factors considered when siting farm buildings and structures. (14 marks)

GUCHA SOUTH EVALUATION TEST (GSET)

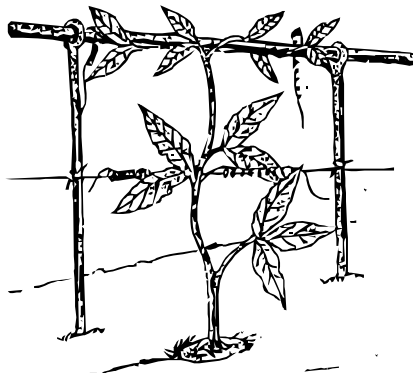
443/1

AGRICULTURE**PAPER 1****SECTION A (30 marks)**Answer ALL questions in this section on the spaces provided.

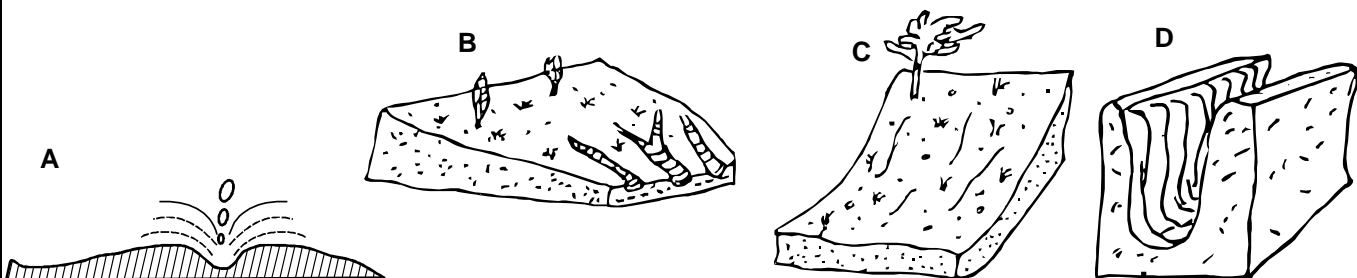
1. Mention four practices that should be carried out to maintain grass pasture. (2 marks)
2. State two benefits of conserving forage crops. (2 marks)
3. Mention four management practices that are carried out on agro forestry trees from transplanting to maturity. (2m arks)
4. Give four possible causes of seed dormancy. (2 marks)
5. Give four farming practices that may help in achieving minimum tillage. (2 marks)
6. State four advantages of adding organic manure to sandy soil. (2 marks)
7. Give four functions of young farmers clubs in Kenyan secondary schools. (2 marks)
8. List four reasons for treating water for use on the farm. (2 marks)
9. State five characteristics of a large scale farming system. (2½ marks)
10. State four ways in which burning of vegetation may lead to lose of soil fertility. (2 marks)
11. Give two forms in which nitrogen is absorbed from the soil by plants. (2 marks)
12. Why is it necessary to allow freshly cut sorghum (Columbus grass) to wilt before feeding it to livestock. (1 mark)
13. Give three reasons for growing crops under optimum temperature conditions. (1½ marks)
14. Give two ways in which cover crops help to conserve water in the soil. (1 mark)
15. Give a reason for carrying out each of the following management practices on a tree nursery.
 - i) Pricking out. (1 mark)
 - ii) Root trimming. (1 mark)
16. Give two conditions in Agricultural production under which opportunity cost is zero. (1 mark)

SECTION B (20 marks)Answer ALL questions in the spaces provided.

17. The diagram below shows a practice in crop production.



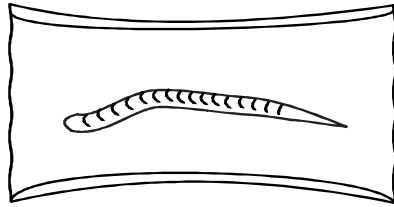
- a)
 - i) Give the identity of the field management practice illustrated above. (½ mark)
 - ii) Give two reasons for carrying out the above field management practise. (2 marks)
 - b) A plot measuring 4m × 3m was prepared for planting cabbages at a spacing of 60cm × 60cm. Calculate the plant population in the plot show your working. (1½ marks)
18.
 - a) What is silage? (1 mark)
 - b) Outline any 5 qualities of good silage. (5 marks)
 19. The illustration below indicates types of soil erosion that take place on cultivated farm land. Study and answer the questions that follow.



Identify the type of erosion represented by each of the illustrations above.

(2 marks)

20. The diagram below shows a maize stalk infested by a certain pest. Study it and answer questions that follow.



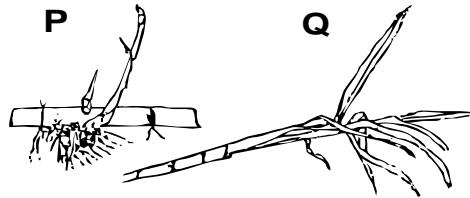
a) Identify the pest

(1 mark)

b) Give two damages caused to crops by the above pest.

(2 marks)

21. Identify the illustration P and Q which are materials used in propagation of sugarcane.



P(½ mark) Q

(½ mark)

b) Giving reasons which of the above is more suitable as a planting material in sugar cane.

(2 marks)

c) Outline two precaution taken when harvesting sugarcane.

(2 marks)

SECTION C : (40 marks)

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

22. Describe the establishment of kales under the following sub-heading.

a) Nursery preparation

(4 marks)

b) Establishment in the nursery.

(3 marks)

c) Management of seedling in the nursery.

(5 marks)

d) Transplanting of seedling.

(8 marks)

23. Study the information provided carefully and use it to prepare a profit and loss account for Mr. Kemboi's farm for the year ending 2014. His purchases and expenses were as follows.

Goat	4,000
Poultry	15,000
Diary meal	25,000
Pasture seeds	50,000
Transportation of farm produces	15,000
Casual worker	12,000
Ox-plough	10,000
Opening valuation	150,000
His sales and receipts	
Mohair	75,000
Rabbits	36,000
Pigs	70,000
Ground nuts	100,000
Orange	20,000
Eggs	15,000
Closing valuation	200,000

a) Prepare a profit and loss account for Mr. Kemboi's farm as at 31-12-2014.

(7 marks)

b) From the calculations in (a) above, state whether Mr. Kemboi made a profit or a loss.

(1 mark)

c) State the use of each of the following documents.

i) Cash receipt

ii) Purchase order

iii) Delivery note

(3 marks)

d) Name two types of inventories in farm accounts.

(2 marks)

e) Explain how farmers overcome risks and uncertainties.

(7 marks)

24. a) Describe five factors considered before choosing the type of irrigation system to use in the farm.

b) Describe the importance of farm records in the farm.

(10 marks)

GUCHA SOUTH EVALUATION TEST (GSET)

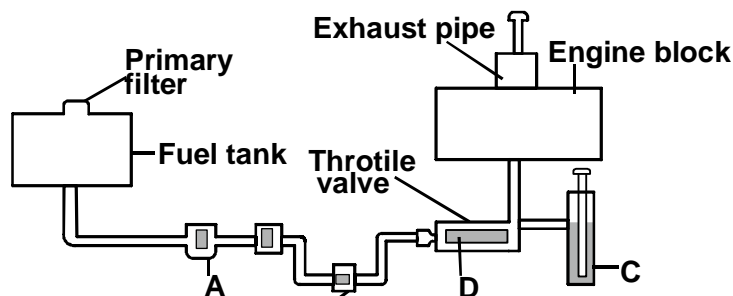
443/2

AGRICULTURE**PAPER 2****SECTION A (30 marks)****Answer ALL questions in this section on the spaces provided.**

1. Mention any two example of meat goat kept in Kenya. (1 mark)
2. Give four functions of a worker bee in a colony. (2 marks)
3. State two qualities of colostrum which make it suitable for feeding newly born calf. (1 mark)
4. Give four reasons for castration in goats. (2 marks)
5. Differentiate between outcrossing and crossbreeding. (2 marks)
6. State two factors that could lead to failure to conceive in sows after service. (1 mark)
7. List two abnormalities that can be seen in egg candling. (1 mark)
8. List two factors associated with the animal that determine the amount of feed that an animal consumes. (2 marks)
9. Mention any four structures that are necessary for handling dairy animals. (2 marks)
10. a) Give one functional differences between each of the following pairs of tools and equipment.
 - i) Garden trowel and masonry trowel. (1 mark)
 - ii) Ball pein hammer and claw hammer. (1 mark)
- b) Explain two maintenance practices carried out on a pruning saw. (1 mark)
11. State two methods of treating timber for construction. (1 mark)
12. Give four causes of infertility in cattle. (2 marks)
13. Give four requirement of a good grain store. (2 marks)
14. State four effects of protein deficiency in livestock production. (2 marks)
15. a) Name two hormones responsible for milk let-down (1 mark)
- b) Give four ways of stimulating milk let-down in a dairy cow. (2 marks)
16. Give two methods of harnessing tractor power. (1 mark)
17. a) State two reasons for raddling in sheep management. (1 mark)
- b) Give two causes of soft shell in eggs. (1 mark)

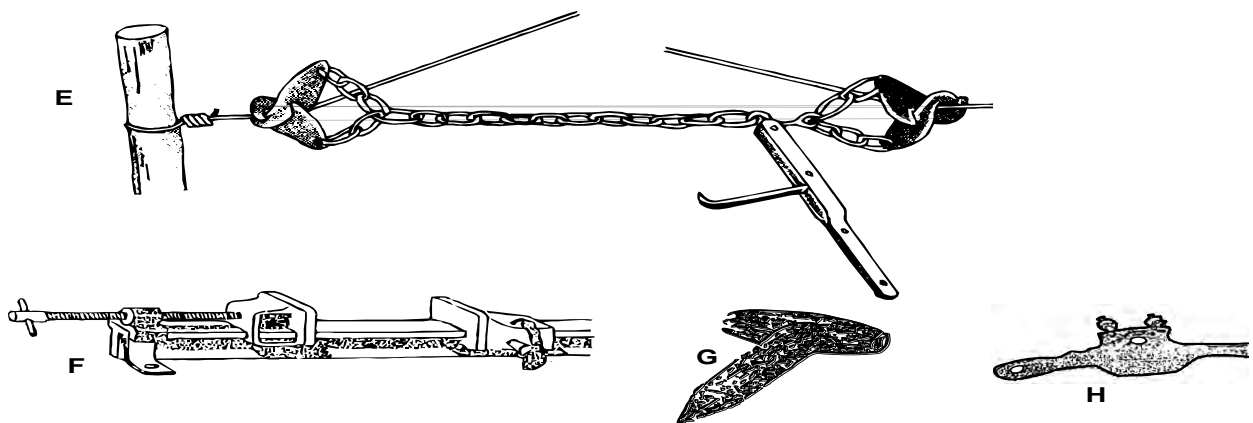
SECTION B (20 marks)**Answer ALL questions in this section in the spaces provided.**

18. The diagram below shows the petrol fuel system of a tractor engine. Study it carefully and answer the questions that follow.



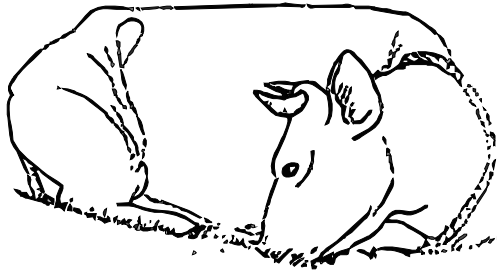
- a) Name the parts labelled A, B, C and D. (2 marks)
- b) State the functions of the parts labelled A, C and D. (3 marks)

19. Below are illustrations of farm tools.

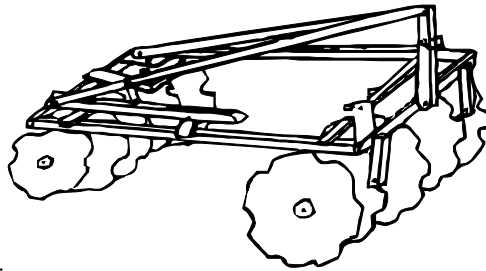


- a) Identify the farm tools labelled E, F, G and H. (2 marks)

- b) State the use of tools labelled E, F and G. (2 marks)
 c) Give one maintenance practice of the tool labelled F. (1 mark)
20. Below is a diagram of a cow suffering from a deficiency disease. Study it and answer the questions that follow.



- a) Identify the disease the above animal is suffering from (1 mark)
 b) Give a condition that may make the animal prone to such a disease. (1 mark)
 c) List three symptoms of the above disease. (3 marks)
21. Below is a diagram of farm equipment. Study it and use it to answer the questions that follow.



- a) Identify the equipment. (1 mark)
 b) State one function of the toothed notches. (1 mark)
 c) State two ways in increasing the depth of penetration of the equipment. (2 marks)
 d) State two maintenance practices carried out on the equipment shown above. (1 mark)

SECTION C (40 marks)

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

22. a) Describe Anthrax under the following sub-heading. (1 mark)
 i) Causal organism (2 marks)
 ii) Animals affected. (5 marks)
 iii) Symptoms of attack (3 marks)
 iv) Control measures. (9 marks)
23. a) Describe the preparation done before farrowing in pigs. (10 marks)
 b) Explain five functions of water in livestock nutrition. (5 marks)
 c) Outline five advantages of artificial insemination in cattle management. (5 marks)
24. a) Describe ten components of a plunge dip for cattle management (10 marks)
 b) State five reasons why bees swarm from a bee hive. (5 marks)
 c) Describe the use of various hand tools required for the construction of a wooden fence. (5 marks)

MAKUENI COUNTY CLUSTER PREPARATORY EXAMINATION 2016

**443/1
AGRICULTURE
PAPER 1
JULY / AUGUST 2016
TIME: 2 HOURS**

SECTION A (30 MARKS)

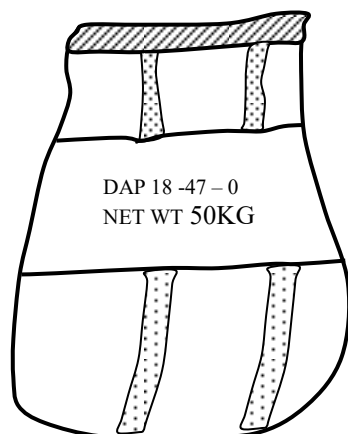
Answer all the questions in this section in the spaces provided.

1. Give four benefits of practicing farming (2 marks)
2. State three factors that cause most farmers to adopt small scale farming in Kenya (1½ marks)
3. State three effects of low temperature in crop production (1½ marks)
4. Give four differences between soil formed in situ and decomposition (2 marks)
5. State the form in which the following elements are taken up by plants from the soil,
 - a) Boron (½ marks)
 - b) Calcium (½ marks)
6. Give two disadvantages of using plastic pipes in conveying water in the farm (1 marks)
7. a) Name two agricultural lime materials that may be used in the farm. (1mark)
- b) State four reasons for liming soils (2 marks)
8. Give three advantages of cultivation as a means of weed control. (1½ marks)
9. a) What is land fragmentation? (½ marks)
- b) State three causes of land fragmentation (1½ mark)
10. Name two joint products in crop production (1 mark)
11. a) What is green manure in crop production? (½ mark)
- b) State four characteristics of green manure crops (2 marks)
12. Name four methods of harvesting water in the farm. (2 marks)
13. Differentiate between Gross Domestic product (GDP) and Gross National Product (GNP) (2marks)
14. The price of millet in a market changes from Sh. 8.00 to Sh. 12.00 per kilogram resulting in a change of supply from 400kg to 600 kg. Calculate the elasticity of supply of the millet in that market. Show your working. (2marks)
15. Give two activities carried out during hardening off cabbage seedlings. (1 mark)
16. a) What is topping in pasture management? (½ marks)
- b) State two ways of increasing the carrying capacity of pastures (1mark)
17. Give two reasons why a tomato crop should be pruned (1 mark)
18. State three methods of weed control in a Napier grass field (1½ marks)

SECTION B (20 MARKS)

Answer all the questions in the spaces provided.

19. Study the illustration shown below and answer the questions that follow



- a) What is the fertilizer grade of the above fertilizer material? (1 mark)
 - b) Calculate the amount of filler material in the above fertilizer material (show your working) (2 marks)
 - c) State two disadvantages of applying the above fertilizer in crop production (2 marks)
20. A farmer has four plots L1, L2, L3 and L4 as shown in the table below. Each plot has an agronomic problem as indicated.

L1 Infected with witch weed (strigaspp)	L2 Infected with bacterial wilt	L3 Deficient in Nitrogen	L4 Prone to soil erosion
--	--	---------------------------------------	---------------------------------------

- a) Plan a crop rotation programme for the first year in the four plots using the following crops maize, Irish potatoes, Rhodes

MAKUENI COUNTY CLUSTER PREPARATORY EXAMINATION 2016

443/2

AGRICULTURE

PAPER 2

JULY / AUGUST 2016

TIME: 2 HOURS

SECTION A (30 MARKS)

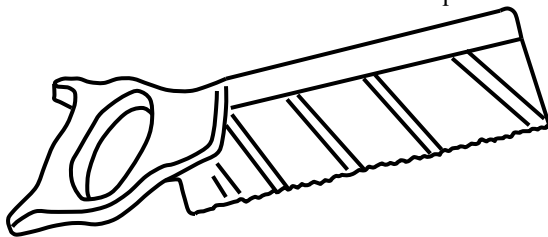
Answer *all* the questions in this section in the spaces provided.

1. Name two brooding methods in poultry. (1 mark)
2. Give four predisposing factors of mastitis (2 marks)
3. Name two dual purpose breeds of cattle (1 mark)
4. Give four characteristics of a good livestock house (2 marks)
5. State four harmful effects of keds in sheep (2 marks)
6. Give four characteristics of clean milk (2 marks)
7. Distinguish between ringing and crutching as used in livestock management (1 mark)
8. Give two reasons for maintaining wheelbarrow in good working conditions. (1 mark)
9. State four limitations of using solar power on the farm (2 marks)
10. Give three types of bees found in a bee colony (1½ marks)
11. State three reasons for clipping teeth in piglets (1½ marks)
12. Differentiate between contemporary comparison and progeny testing as used in livestock breeding (1 mark)
13. Give four conditions under which a farmer would use animal power instead of tractor power for seedbed preparation. (2 marks)
14. Name the causal agent of anthrax disease in cattle (1 mark)
15. Name the breed of dairy cattle that produces the lowest amount of milk but with the highest butter fat content. (1 mark)
16. Give four reasons for controlling livestock diseases. (2 marks)
17. List four factors that influence the pulse rate of an animal (2 marks)
18. List four livestock tools and equipments used to maintain livestock healthy. (2 marks)
19. State four reasons for steaming up in animal production. (2 marks)

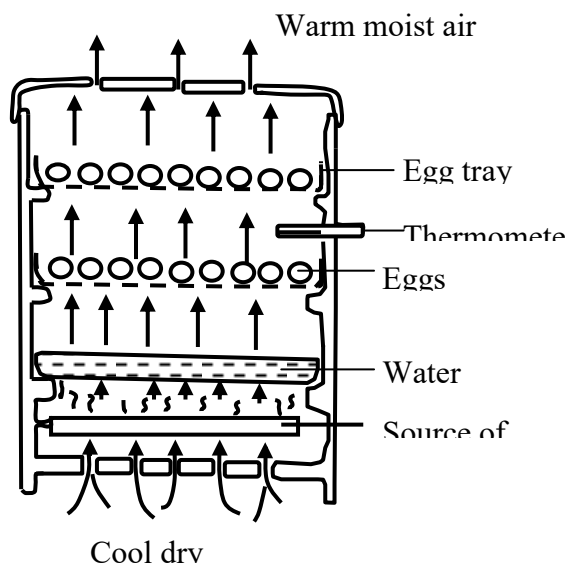
SECTION B: (20 MKS)

ANSWER ALL THE QUESTIONS IN THIS SECTION

20. Study the tool illustrated below and answer the questions that follow



- (a) Identify the tool (1mark)
 - (b) State one safety measures when using the tool. (1 mark)
 - (c) State two ways of monitoring the tool above (2 marks)
21. Below is a structure used in poultry production. Study it and answer the questions that follow.



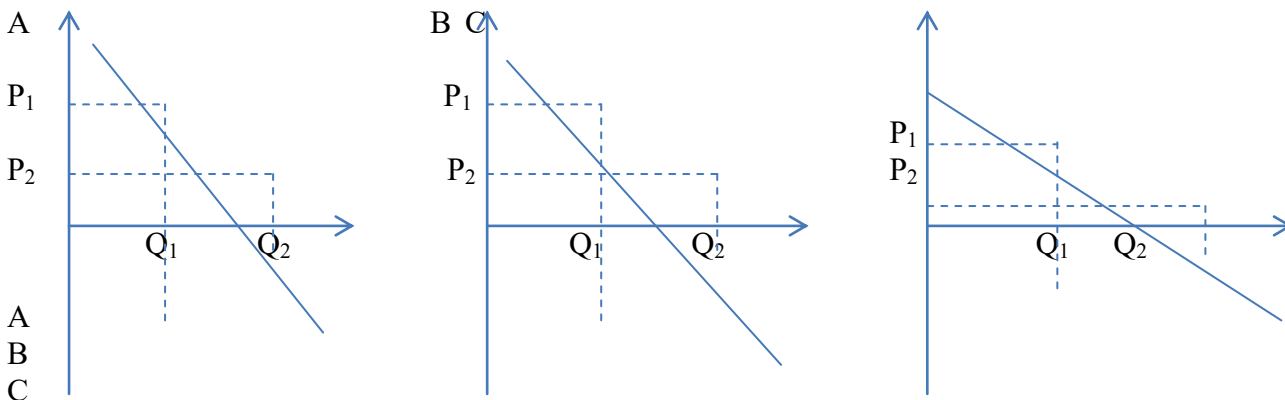
GATUNDU-SUB COUNTY JOINT EVALUATION EXAMINATION
443/1
AGRICULTURE
PAPER 1

SECTION A:

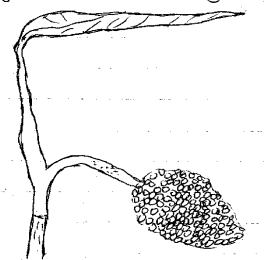
1. Give two sub-branches of arable farming. 1mk
2. Give four biotic factors that influence agriculture. 2mks
3. Give four reasons why land should be prepared early in readiness for planting. 2mks
4. State four reasons for deep ploughing during land preparation. 2mks
5. List two methods of land reclamation. 1mk
6. Give two circumstances that may necessitate irrigation. 1mk
7. Name the parts harvested for each of the following crops. 1½ mks
 - (a) Onions
 - (b) Carrots
 - (c) Coffee
8. Give two characteristics of fresh market tomatoes. 1mk
9. Name four general methods of controlling crop pests. 2mks
10. Give two effects of scarcity in agricultural production. 1mk
11. Differentiate fertilizer grade and fertilizer ratio. 2mks
12. Give three precautions that should be observed when storing nitrogenous fertilizers. 1½ mks
13. State two conditions that must exist for a market to be purely competitive. 2mks
14. Distinguish between grading and standardization in agricultural marketing. 2mks
 - (i) Grading
 - (ii) Standardization.
15. A form four student at Muthiga girls planted maize for her KCSE agriculture project. She used a spacing of 75cm x 25cm. her plot was 4x 3m.
 - (i) What does 75cm stand for in this statement? 1mk
 - (ii) Calculate the plant population. Show your working. 3mks
16. Give four benefits of a land title deed to a farmer. 2mks
17. State four control measures of river bank erosion. 2mks
18. Name two types of pests with piercing and sucking mouth parts. 1mk

SECTION B:

19. (a) Indicate the type of elasticity shown in diagrams A, B and C.



- (b) Give three factors that determine elasticity of demand. 3mks
 - (c) Give one example of a marketing agency in Kenya. ½ mk
20. Study the diagram below carefully and answer the questions that follow.

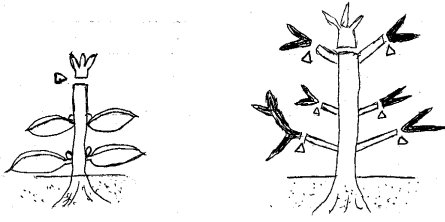


- (a) Identify the variety of sorghum shown in the diagram. ½ mk
- (b) Name two types of pests whose damage can be controlled by planting the above named variety. 2mks
- (c) State two other measures used to control the pests named in (b) above. 2mks

(d) Name one disease that cause wilting of crops.

½ mks

21. The illustration below is methods of pruning. Study them carefully and then answer the questions that follow.



(a) Identify the methods of pruning.

1mk

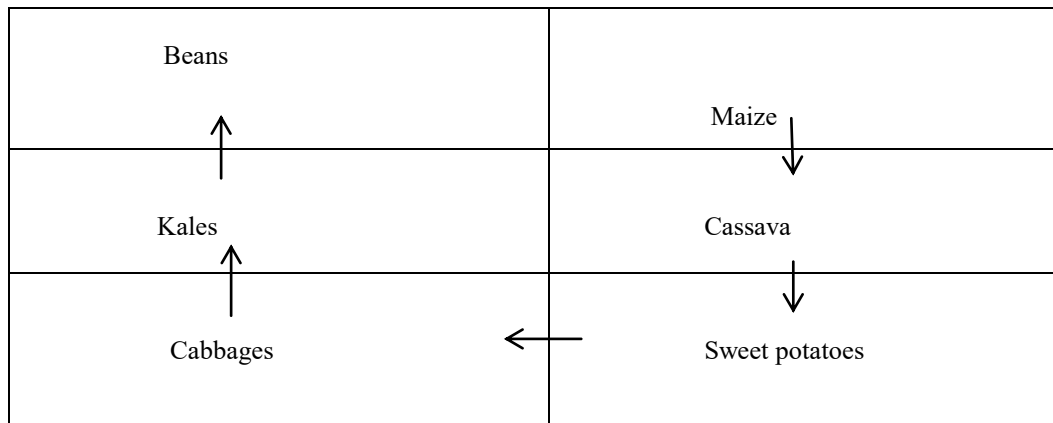
(b) State two ways in which pruning help in control of pests and diseases.

2mks

(c) Identify 3 tools used in pruning and give the use of each of them.

3mks

22. The illustration below shows a cropping programme.



(a) Identify the cropping programme.

½ mk

(b) Giving a reason, identity one mistake the farmer made when designing the above programme.

½ Mk

(c) State two ways the above programme help in control of weeds.

2mks

(d) State three advantages of this programme.

1 ½ mk

SECTION C: 40mks

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

23. The following is a table of maize at various levels of NPK fertilizer application.

Land (Ha)	NPK (kgs)	Total product (TP) maize in 90kg bags	Marginal product maize in 90kg bag	Average product maize in 90kg bag
1	30	10	10	10
1	60	27	17	--
1	90	42	--	14
1	120	56	14	--
1	150	63	--	12.6
1	180	65	2	--
1	210	65	--	9.3
1	240	60	-5	--
1	270	52	--	5.8
1	300	42	-10	4.2

(a) Complete the marginal product and average product columns.

4mks

(b) Describe eight factors considered when drawing a farm plan.

8mks

(c) Describe uses of farm records.

8 x 1 = 8mks

24. (a) Describe six harmful effects of weeds.

6mks

(b) Explain the principles of co-operatives.

8mks

(c) Describe six advantages of mixed stand of pastures.

6mks

25. (a) Describe maize production under the following sub-topics.

(i) Land preparation.

3mks

(ii) Field practices.

5mks

(iii) Post-harvest practices.

5mks

(b) Describe the cultural methods of controlling crop diseases.

7mks

GATUNDU-SUB COUNTY JOINT EVALUATION EXAMINATION
443/2
AGRICULTURE
PAPER 2

SECTION A: 30mks

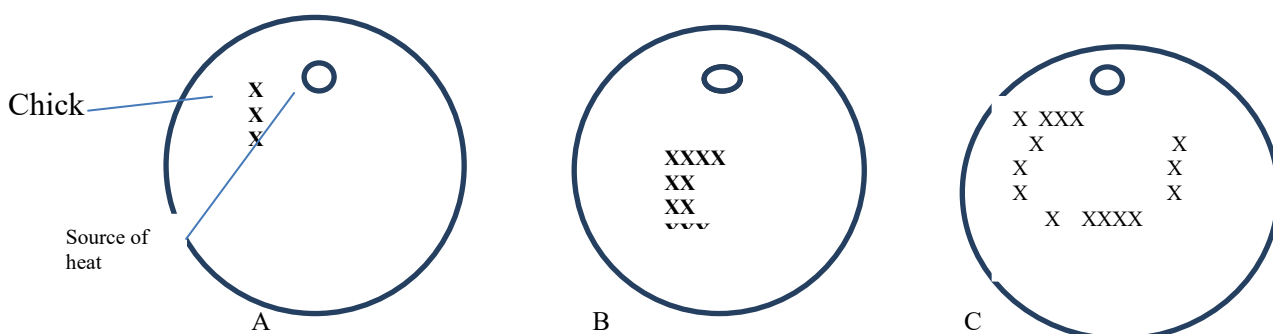
Answer all the questions in this section in the space provided.

1. Name **three** methods that are used in selection of breeding stock in livestock production. 1 ½ mks
2. In the preparation of artificial colostrum what is the role of each of the following:
 - (a) Castor oil. 1mk
 - (b) Cod liver oil. 1mk
3. Name **two** non-infectious causes of livestock diseases. 1mk
4. State **two** methods of igniting the fuel-air mixture in a tractor engine. 1mk
5. State **two** advantages of natural calf rearing. 1mk
6. Define the following term:
 - (i) Killing out percentage. 1mk
 - (ii) Instinct in sheep. 1mk
7. State **three** instances when a beekeeper may handle bees. 1 ½ mks
8. (a) What is dry cow therapy in dairy cattle management? 1mk
 (b) At what stage of gestation is dry cow therapy practiced? 1mk
9. Name the most appropriate tools used in the following operations.
 - (a) Removing metal clippings in files. 1mk
 - (b) Cutting wood along grains. 1mk
 - (c) Cutting identification marks on ears of an animal. 1mk
10. State **three** signs of heat in pigs. 1 ½ mks
11. State **two** functions of a queen bee in a colony. 1mk
12. (a) Name a tractor drawn implement that achieves both primary and secondary tillage at the same time. ½ mk
 (b) Give two categories of tractor drawn implements on the basis of the mode of attachment. 1mk
13. Give **three** reasons for carrying out egg candling before incubation. 1 ½ mks
14. Give **three** symptoms of liver fluke attack in cattle. 1 ½ mks
15. State **two** examples of water-soluble vitamins. 1mk
16. Give **three** pig breeds that are good for bacon production. 1 ½ mks
17. How does the principle of enclosure (quarantine) operate in livestock production? 1mk
18. State **three** characteristics of creep feed that make them appropriate for piglets. 1 ½ mks
19. Outline **four** major differences in reproductive system of poultry and that of cattle. 2mks
20. Give **two** uses of calcium in dairy goats. 1mk

SECTION B: 20mks

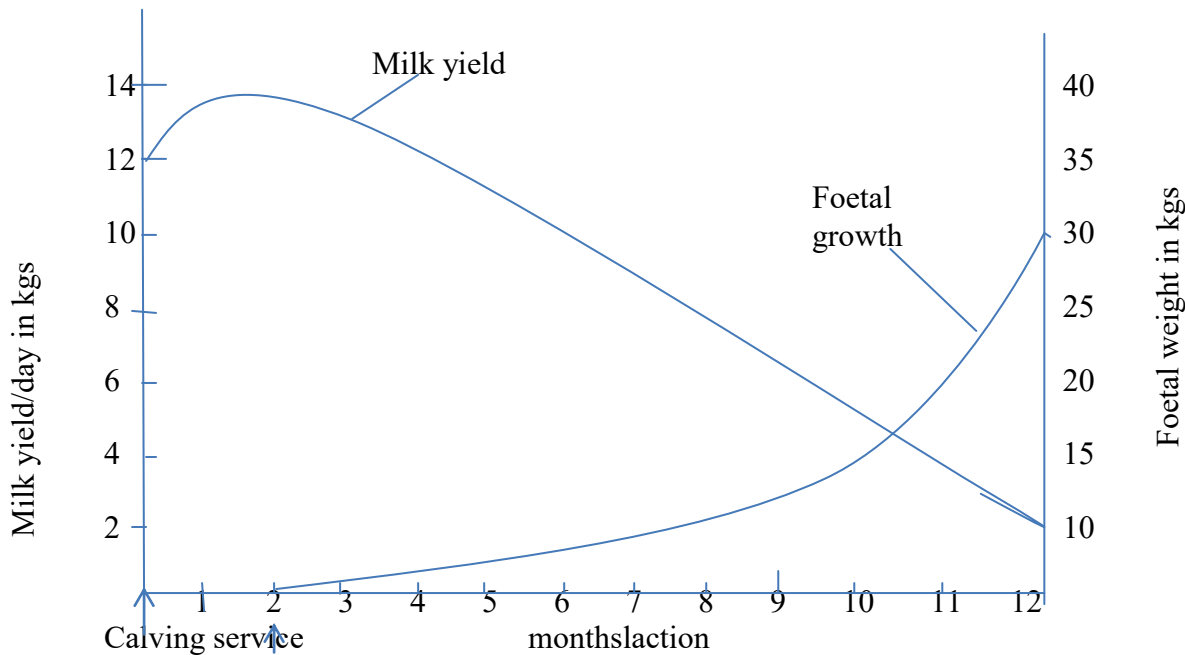
Answer all questions in this section in the spaces provided.

21. The diagram below shows behavior of chicks in a brooder in response to heat. Study the diagram and answer the questions that follow.



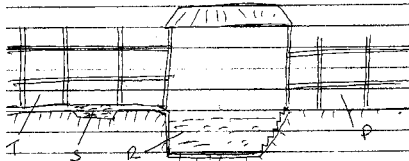
- (a) Explain the behaviour of chicks in each case. 3mks
- (b) Explain why the brooder guard is rounded. 1mk
- (c) Draw a diagram to show the behavior of the chicks if the temperature in the brooder is optimum. 1mk

22. The graph below shows the relationship of milk yield and foetal growth against time.



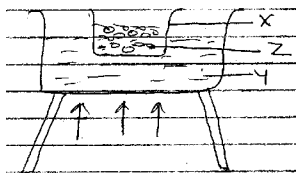
- (a) Name the stage between the months in respect to lactation and gestation. 2mks
- (i) 2rd to 12th month.
- (ii) 1st to 10th month.
- (b) Apart from dry cow therapy, give one practice carried out on the incalf cow within the period from the 10th to the 12th month. 1mk
- (c) State two routine practice a farmer should avoid carrying out on the incalf cow between the 10th and 12th month. 2mks

23. Below is an illustration of a farm structure. Study it carefully and answer the questions that follow.



- (a) Identify the above structure. 1mk
- (b) Name the parts labeled:- 2mks
- (c) State two factors considered in siting the above structure. 2mks

24. Below is an illustration of a method of extracting honey from combs. Study the diagram and answer the questions that follow.



- (a) Identify the above method of extracting honey. 1mk
- (b) Give a reason why container X should not be heated directly. 1mk
- (c) Name the parts labeled:- 3mks

SECTION C: 40mks

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

25. (a) Describe Anthrax under the following sub-headings. 1mk
- (i) Causal agent. 4mks
- (ii) Mode of transmission. 5mks
- (iii) Symptoms. 2mks
- (iv) Control 8mks
- (b) Describe using relevant examples, the signs of parasite attack on animals. 10mks
26. (a) Outline the importance of fences in a mixed farm. 10mks
- (b) Describe digestion of grass in the rumen of a cow. 10mks
27. (a) Describe 10 daily maintenance and servicing of a tractor before use. 10mks
- (b) Describe uses of various tools used when erecting a stone wall. 10mks

KAMDARA JET -2016
443/2
AGRICULTURE
PAPER 2

SECTION A (30 MARKS)

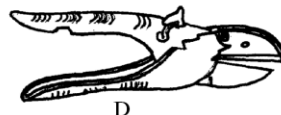
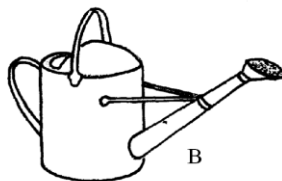
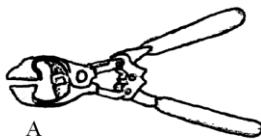
Answer all questions in this section in the spaces provided after each question.

1. Name an exotic beef breed of cattle with the following characteristics
 - Black in colour
 - polled
 - Has a long cylindrical compact and deep body. (1mk)
2. Give five reasons for identification of cattle in cattle management. (2 ½ mks)
3. State four qualities of eggs preferred by consumers in the market (2 mks)
4. (a) List four predisposing factors of livestock diseases. (2 mks)
- (b) Distinguish between isolation and quarantine in livestock health. (2 mks)
- (c) Name the intermediate and final host of the tapeworm.
 - Intermediate..... (½mk)
 - Final..... (½mk)
5. State one role of the damp proof course in the foundation of a farm building. (½mk)
6. List three signs of farrowing in a sow. (1 ½ mks)
7. State two reasons for raddling in sheep management. (2marks)
8. Name the livestock diseases that may be controlled by use of artificial insemination. (1 mk)
9. Name four uses of dromedary camel. (2 mks)
10. A part from transmission of disease, give three harmful effects of ticks on cattle. (1½ mks)
11. State any four factors considered when siting farm structures (2mks)
12. State four major categories of farm tools and equipment (2mks)
13. State two reasons for proper care and maintenance of farm tools and equipment (1mks)
14. Outline any four causes of cannibalism in poultry production. (2mks)
15. Give the functional difference between a rip saw and a tenon saw. (1mk)
16. Name two cattle diseases controlled by vaccines. (1mk)
17. Differentiate between a broiler and a capon (1mk)
18. State two advantages of using embryo transplant. (1mks)

SECTION B (20 MARKS)

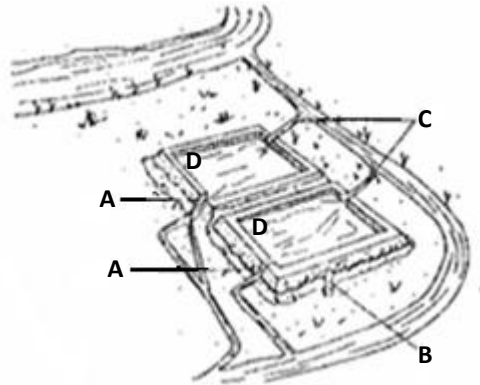
Answer all questions from this section in the spaces provided after each question.

19. (a) If the maize meal contains 6% Digestible Crude Protein (DCP) and Fish meal contains 64% DCP, calculate the amount of each feed stuff in kilogrammes, required to prepare 200kg of chickmash containing 18% DCP (Show your working) (4mks)
- (b) Name two other feed ingredients which should be added to the chick mash to make it a balanced feed. (1mk)
20. Below are illustrations of farm tools and equipments.

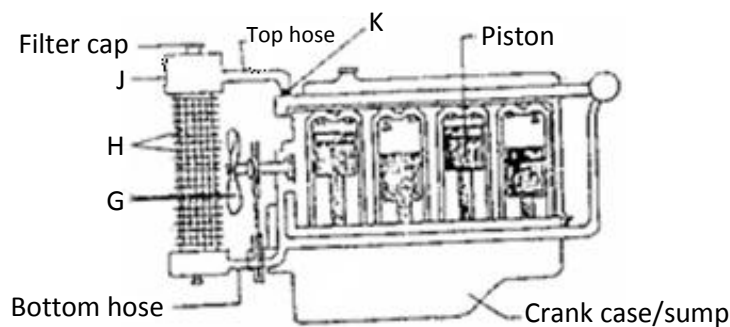


- (a) Identify the tool/equipment labelled A and B
- (b) State two appropriate uses of the tool labelled C. (1 mk)
- (c) Explain two maintenance practices of the tool labelled D. (2 mks)

- (a) Identify the practice illustrated above. (1 mark)
 (b) Name the tool being used in carrying out the practice illustrated above. (1 mark)
 (c) State **two** precautions that should be taken when carried out the above practice. (2 marks)
 (d) How often should the practice be carried out. (1 mark)
21. Below is an illustration of a fish pond. Study it carefully and then answer the questions that follow.



- (a) Give the reasons why part **D** is usually deeper than the rest of the pond. (1 mark)
 (b) Name the parts labelled. (1½ marks)
 (c) Give **two** reasons why a fence should be constructed around the fish pond. (1 mark)
 (d) State **three** maintenance practices that should be carried out on this fish pond apart from fencing. (1½ marks)
22. The diagram below shows the cooling system of a tractor engine. Study it carefully and answer the questions that follow.



- (a) Name the parts labelled. (2 marks)
 (b) State the functions of the parts labelled **G**, **J** and **K** in the cooling system. (3 marks)

SECTION C: (40 MARKS)

Answer any two questions from the section.

23. (a) Describe the management of a sow during parturition. (10 marks)
 (b) Outline **five** control measures of cannibalism in poultry keeping. (5 marks)
 (c) Explain the precautions observed in handling of bees. (5 marks)
24. (a) Describe the lifecycle of a three host tick. (5 marks)
- (b) Give **six** importance of keeping animals healthy. (6 marks)
 (c) Explain **nine** factors considered when selecting livestock for breeding. (9 marks)
25. (a) Describe the procedure for establishing a barbed wire fence. (7 marks)
 (b) State **five** advantages of a spray race. (5 marks)
 (c) (i) Give **five** maintenance practices of a trailer. (5 marks)
 (ii) Mention **three** advantages of natural calf rearing. (3 marks)

NANDI EAST, NANDI SOUTH & TINDERET SUB-COUNTIES JOINT EVALUATION 2016
443/1
AGRICULTURE
PAPER 1

SECTION A (30 MARKS)

Answer ALL Questions in the Spaces Provided

1. Define the following economic concepts:
 - (i) Scarcity (½mk)
 - (ii) Opportunity cost (½mk)
2. State **two** types of organic manure. (2mks)
3. (a) State **four** factors that will influence the classification of herbicides. (2mks)
 (b) Highlight **two** advantages of tillage in weed control. (1mk)
4. Give **four** characteristics of variable inputs. (2mks)
5. (a) Why should the following precautions be taken when transplanting vegetable crop seedling?
 - (i) Watering the nursery before transplanting. (½mk)
 - (ii) Lifting the seedling with a garden trowel. (½mk)
 - (iii) Application of a light mulch. (½mk)
 - (iv) Transplanting when the weather is cool. (½mk)
- (b) State **two** causes of blossom-end rot disease in tomatoes. (1mk)
6. What are the uses of the following financial documents on the farm? (1mk)
 - (i) Invoice:.....
 - (ii) Delivery note:.....
7. (a) What is agroforestry? (½mk)
 (b) Identify **three** sites for agroforestry trees. (1½mks)
8. Give **two** contributions that agriculture make to boost industrial development in Kenya. (1mk)
9. (a) What is a market? (1mk)
 (b) Distinguish between a perfect market and an imperfect market. (1mk)
10. (a) State **two** reasons for processing agricultural products. (1mk)
 (b) Identify **two** storage pests in maize. (1mk)
11. Give **four** roles of soil micro-organisms that are of economic importance to crops. (2mks)
12. State **two** disadvantages of co-operate land tenure system. (1mk)
13. Outline **four** importances of sub-soiling. (2mks)
14. Explain how planting of trees helps in drainage. (1mk)
15. (a) What is integrated pest management as used in crop production? (2mks)
 (b) What plant parts are used in the propagation of the following? (1mk)
 - (i) Pyrethrum:.....
 - (ii) Sweet potatoes:.....
16. Outline the effects of soil erosion in crop production. (2mks)

SECTION B (20 MARKS)

Answer all questions in the spaces provided in this section

17. The diagram below illustrates a method of irrigation. Study it and answer the questions that follow.



- (i) What is irrigation? (1mk)
- (ii) Identify the method of irrigation above. (1mk)
- (iii) State **two** advantages and **two** disadvantages of the above method of irrigation. (2mks)
- (iv) Other than the above type of irrigation, name **two** other types of surface irrigation. (1mk)

NANDI EAST, NANDI SOUTH & TINDERET SUB-COUNTIES JOINT EVALUATION 2016**443/1****AGRICULTURE****Marking scheme**

1. (i) Scarcity – limitedness of factors of production i.e. land, labour, capital and managements. (½ mark)
(ii) Opportunity cost – The cost of the foregone returns / Foregone returns from the best alternative. (½mk)
2. (a)
– Green manure
– Farmyard manure
– Compost manure. (mark the first two points) (2 x ½ = 1mk)
(b)
– PH affects availability of certain nutrients in the soil.
– PH affects the activities of soil micro-organisms.
– PH affects the type of plant species to grow in an area.
– PH affects damage by crop pests.
– PH affects attack by crop diseases. (first four) (2 x ½ = 1mk)
3. (a)
– Formulation
– Time of application
– Selectivity
– Mode of action. (4 x ½ = 2mks)
(b)
– Crop residue is incorporated into the soil.
– Earthing up is done to crops.
– Allows water infiltration.
– It is cheap to small scale farmers. (first two) (1mk)
4.
– They are added to fixed inputs during production.
– Are allocated to specific enterprises.
– Their cost depends on quality and quantity used.
– They change in quantity with the level of production
– Their cost value is used to calculate gross margin of farm enterprises. (any four) (2mks)
5. (a)
– Ensures lifting the seedling with a ball of earth without damaging roots.
– To prevent root damage
– To prevent evaporation of water from the soil / conserve water for the plant.
– Prevent excessive water loss from soil and crop. (½mk) each
(b)
– Too much nitrogen
– Infrequent / Irregular watering
– Calcium deficiency (any first two) (1mk)
6. (i) Inform the farmer of goods delivered on credit / debits the farmer. (½ mk)
(ii) Accompanies goods delivered. Evidence that goods have been delivered to the farmer. (½ mk)
7. (a) Growing of crops, rearing of livestock and planting of trees in the same piece of land. (½mk)
(b)
– Boundaries
– River banks
– Homestead (1½mks)
8.
– Source of raw materials for industries.
– Provision of market for industrial goods. (1mk)
9. (a) A market is an institution for the exchange of goods and services. (1mk)
(b) A perfect market is a situation where price of a commodity of same grade is same all over the market while an imperfect market is where prices of some commodities vary with sellers. (1mk)
10. (a)
– Reduce bulkiness so as to lower transportation and storage costs.
– Improve keeping quality.
– Improve flavours.

- To change into usable form (final product)
(b)
- Maize weevil
- Red flour beetle
- Rats (first 2 x ½ = 1mk)
- 11.
- Burrow into the soil making it well aerated and loose.
- Carry out decomposition boosting soil fertility.
- Fixing free atmospheric nitrogen in the soil.
- Cause damage to crops by causing diseases. (any four) (2mks)
- 12.
- Poor management and fund embezzlement lead to inefficiency in the system.
- Its title deed cannot be used by individual member to obtain loans. (any two) (1mk)
- 13.
- Breaking hard pans.
- Facilitates adequate gaseous exchange in the soil.
- Bringing leached minerals to the surface.
- Encourage water infiltration into the soil.
- Encourage root penetration into the soil. (mark the first four) (4x ½ = 2mks)
14. Plants absorb water from the soil and lose a lot of it through transpiration. (1x1 = 1mk)
15. (a) A combination of both chemical and cultural pest control methods. (1mk)
- (b) (i) Splits (½ mark)
- (ii) - Vines
- Root tubers (any one) (½ mark)
- 16.
- Removes organic matter and soil nutrients leaving soil infertile.
- Carries away soil micro-organisms useful in decomposition.
- Exposes underground water pipes and roots.
- Causes sedimentation and silting in water bodies. (any four) (2mks)
- SECTION B**
17. (i) Artificial application of water to crops. (1x1 = 1mk)
- (ii) Furrow irrigation. (1x1 = 1mk)
- (iii) Advantages
- Reduces fungal diseases.
- Cheap to establish. (first 2 x ½ = 1mk)
- Disadvantages
- A lot of water is lost through evaporation and ground seepage.
- Soil erosion occurs if not properly maintained. (first 2 x ½ = 1mk)
- (iv)
- Flood irrigation (½ mark)
- Basin irrigation (½ mark)
18. (a) Weed whose cultivation is prohibited by law e.g. bhang (cannabis sativa). (1 x 1 = 1mk)
- (b) (i) A – Double Thorn (Oxygonum sinuatum) (1 x 1 = 1mk)
- B – Black Jack (Bidens pilosa) (1 x 1 = 1mk)
- C – Couch grass (Digetaria scalarum) (1 x 1 = 1mk)
- (ii) It has well developed rooting system / it propagates vegetatively by underground roots and stems. (1 x 1 = 1mk)
19. (a) Mouse bird (1x1 = 1mk)
- (b) Sudan dioch (Quelea quelea aethiopica) (1x1 = 1mk)
- Common weaver bird (1x1 = 1mk)
- Domestic fowl.
- (c)
- Trapping (½ mark)
- Scaring (½ mark)
- Poisoning (½ mark) (The first four points)
- Destroying breeding pests (½ mark)
- Bombing (½ mark)

20. Mr. Kiptoo's partial budget.

Debit (-) (½ mark)	Credit (+) (½ mark)
<u>Extra costs</u> Kshs.	<u>Costs saved</u> Kshs.
Tractor hire (600 x 6) = 3,600 (½ mark)	Labour costs (80 x 30) = 2,400 (½ mark)
Harvesting costs (1200x6) = 7,200 (½ mark)	<u>Extra revenue</u>
<u>Revenue foregone</u>	Sale of maize (1,200 x 60 = 72,000 (½ mark)
(800 x 60) = 48,000 (½ mark)	
58,500 (½ mark)	74,400 (½ mark)

ADVICE: Mr. Kiptoo can make the proposed change because he stands to make a profit of Kshs.15,600. The change is worthwhile.

SECTION C: (40 MARKS)

21. (a)

- Should be highly vegetative.
- Should have a fast growth rate.
- Should have a high nitrogen content / leguminous.
- Must be capable of rotting quickly,
- Should be hardy / capable of growing in poor conditions. (5 points x 1 mark = 5mks)

(b) (i)

- High attitude between 1800 and 2900m above sea level.
- Well distributed rainfall of about 750mm; large headed varieties 2000mm.
- Irrigation where conditions are dried.
- Deep, rich, well-drained soil.
- Slightly acidic soils PH 6.5. (Mark the first four points – 1 mark each) (4mks)

(ii)

- Ready for transplanting one month after sowing / 3 – 4 true leaves, 15cm high.
- Healthy and vigorous growing seedlings should be selected.
- Lift with a lump of soil around the roots / watering first.
- Seedlings planted at same depth they were in the nursery and soil firmed.
- Done late in the evening or during a cloudy day. (mark the first 3 points x 1mk = 3mks)

(iii)

- Damping off
- Black rot
- Downy mildew (3x1 = 3mks)

(c)

- Forage species used
- Stage of harvesting / leaf : stem ratio
- Length of the drying period
- Weather conditions during the drying process
- Condition of the storage structure (5x1 = 5mks)

22. (a) (i) It is the period when a viable seed cannot germinate even under favourable climatic conditions / stage of inhibited growth of a seed.

(ii)

- Mechanical – scratching the seed coat to make it permeable to water / scarification / knicking.
- Heat treatment; use of hot waer or burning the seeds lightly.
- Chemical treatment; seeds are dipped in some specific chemicals e.g. concentrated sulphuric acid for 2 minutes and then removed.
- Soaking in water – seeds soaked for 24 – 48 hours until they swell then removed and planted immediately. (the first four, well explained x 1 mark) (4 x 1 = 4mks)

(b)

- Purpose of the crop / use
- Market demand
- Concentration of he required chemicals.
- Weather conditions.
- Prevailing market price and profit margins. (5 x 1 = 5mks correctly explained)

(c) (i)

- Materials carried by water damage the banks.
- It widens the riverbed by constantly eroding the bank / reduce potential size of cultivated land.
- Eroded soil is deposited downstream thereby causing sedimentation in dams and other bodies.

(first 3 points x 1 mark = 3mks)

(ii)

- Trash lines: crop residue such as maize stalk, grass etc are heaped along the contour.
- Storeline; stones heaped along the slope to trap soil.
- Bunds: heaps of soil along the contour.
- Cut-off drains / diversion ditches; open trench with an embankment on the lower side.
- Terraces; reduce the surface flow of water and carry away excess water.
- Gabions / porous dams: Boxes of galvanized wire mesh filled with stones.
- Dams and reservoirs. (7 points x 1 mark = 7mks)

23. (a) - To remove weeds.

- To bury organic matter for easy decomposition.
- To facilitate water infiltration and aeration.
- To destroy soil-borne pests by exposing them to predators and sun.
- To make subsequent operations easy. (5 points x 1 mark = 5mks)

(b) (i)

- Picked flowers should be put into an open woven basket to allow ventilation.
- Tins or polythene bags should not be used (leads to fermentation).
- Wet flowers should not be picked because they may host up and ferment.
- Don't compact flowers in the basket as this encourages heating up and fermentation lowering pyrethrin content. (5 points x 1 mark = 5mks)

(ii)

- Prevents water evaporation / maintains moisture in the soil.
- Acts as an insulator / modifies / regulates soil temperature.
- Control soil erosion by reducing the speed of running water.
- Controls the weeds by suppressing their growth.
- Organic materials decompose and improve soil structure.
- Organic materials improves soil fertility by releasing nutrients after decomposition. (5 points x 1 mark = 5mks)

(c)

- Remedy to deforestation
- Source of income
- Environmental benefits / protect soil from strong rains, sun and wind.
- Labour saving
- Aesthetic value. (5 points x 1 mark = 5mks)

NANDI EAST, NANDI SOUTH & TINDERET SUB-COUNTIES JOINT EVALUATION 2016

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AGRICULTURE**Marking scheme****SECTION A**1. Tools for cutting galvanized pipes.

- Hack saw
- Pipe cutter

(2 x ½ = 1mk)

2. Harmful effects of fleas

- Cause wounds
- Cause anaemia
- Cause irritation
- Cause cannibalism

(2 x ½ = 1mk)

3. Difference between large white and landrace breeds of pig.

Large white	Landrace
- Pink skin	- White skin
- Medium body	- Long body
- Arched back	- Less arched body
- Slightly dished snout	- Straight snout
- Ears upright	- Long drooping ears
- Produces lean pork	- Reared for bacon

(2x1 = 2mks)

4. Definition of Capon and Hen

- Capon – Male bird that has been rendered sterile.
- Mature female bird.

(2 x ½ = 1mk)

5. Ways proper feeding contribute to disease control.

- Prevent deficiency diseases.
- Improves animals ability to resist diseases.

6. Tenon and cross cut saw

- Tenon is shorter while cross cut saw is longer.
- Tenon has more teeth (per unit length) while cross cut saw has less teeth per unit length.
- Tenon is used for cutting small sections in woods while cross cut is used for cutting wood across grains.(2 x ½ = 1mk)

7. Control measures of tapeworms.

- Use of pit latrines by humans.
- Eat well cooked beef / pork.
- Practice rotational grazing.
- Regular drenching of animals.

(first 2 points x 1mk = 2mks)

8. Importance of additives

- Stimulate faster growth
- Protect animal against diseases
- Keeps animals calm during transit.

(3 x ½ = 1½ marks)

9. Factors that determine maintenance requirements in livestock.

- Body size / weight.
- Physiological status of the animal.
- Health status of the animal.

(2 x ½ = 1mk)

10. Functional differences between the Rumen and Abomasum

Rumen	Abomasum
- Temporary store	- True stomach
- Has micro-organisms for fermentation	- Produces digestive enzymes

11. Desirable characteristics considered when selecting heifer for milk production.

- Docile / mild temperament
- High milk production records from ancestors.
- Free from physical deformities

- Good health
- Good size / weight for the breed.
- True to type e.g. wedge shaped. (4 x ½ = 2mks)

12. Advantages of Embryo transplant.

- Possible to implant embryo from a high quality female.
- Stimulates milk production.
- Highly productive female can spread over and benefit many farmers.
- Easier to transport.
- Embryos can be stored for a long period. (4 x ½ = 2mks)

13. Advantages of spray race over plunge dips.

- Faster and can spray more animals per hour.
- Small stock can be sprayed easily.
- Suitable for pregnant and sick animals as they don't get shock.
- Less labour requirement.
- Animals cannot swallow acaricide. (first 4 x ½ = 2mks)

14. Structural requirement of a calf pen.

- Concrete floor
- Adequate space
- Single housing
- Proper lighting
- Proper drainage
- Drought free
- Leak proof roof (4 x ½ = 2mks)

15. Common vectors of protozoan diseases

- Ticks
- Tsetse flies (2 x ½ = 1mk)

16.

- Curing method
- Nature of clay
- Preparation method
- Ratio of clay to sand. (4 x ½ = 2mks)

17.

- Species of animals.
- Quantity of food already in the digestive system.
- The ratio of energy to protein.
- Chemical composition of feed.
- The form in which the feed is offered to the animals. (4 x ½ = 2mks)

18.

- Cement – 1 bag / wheelbarrow
- Sand – 3 wheelbarrows
- Aggregate – 4 wheelbarrows. (3 x ½ = 1½mks)

19.

- Cold chisels
- Wood chisels. (2 x 1 = 2mks)

20. (i) Lack of phosphorous / calcium in feeds. (2 x 1 = 2mks)
 (ii) Newcastle infection.

SECTION B

21. (a) Artificial incubator. (1x1 = 1mk)
 (b) A – Source of heat
 B – Thermometer
 C – Warm water (3 x 1 = 3mks)
 (c) C – Maintain relative humidity. (1 x 1 = 1mk)
 (d) Ensure even distribution of warmth for even chick development. (1 x 1 = 1mk)

22. (a) Parasites
 E – Louse

F - Flea

G – Liver fluke

(3 x 1 = 3mks)

(b) (i) The difference between parasite E and parasite G.

– E is an external parasite while G is an internal parasite. (mark as a whole)(1 x 1 = 1mk)

(ii) Effective method of controlling parasite labeled G.

– Eradicating the water snail / intermediate host.

– Deworming

– Avoid grazing animals in marshy areas.

– Drain stagnant water.

(2 x 1 = 2mks)

23. (a) Security

– Drainage of the place

– Direction of the prevailing wind.

– Accessibility of the place.

– Relationship with other farm buildings. (award 1 for each response)

(2 x 1 = 2mks)

(b)

Q – Should be painted.

S – should be treated with wood preservatives e.g. old engine oil, creosote etc)

Should be charred.

(2 x 1 = 2mks)

(c) Reasons for raising rabbit hutch

– To ensure security from attack by dogs, cats etc.

– To hasten drying of beddings.

– To avoid dampness from the ground.

(2 x 1 = 2mks)

24. (a) Feeding practice

– Artificial rearing / bucket feeding.

(1 x 1 = 1mk)

(b) Precautions in rearing practice.

– Right amount of milk should be given.

– Regular interval of feeding.

– Right temperature

– Clean equipment

– Observe personal hygiene.

(1 x 1 = 1mk)

SECTION C

25.

(a) Factors affecting milk composition.

(i) Age of the animal – young animals produce milk with a higher butter fat content than older animals.

(ii) Physiological condition of the animal – under extreme emaciation there is a drop in the butter fat content of the milk.

Animal at its late stages of pregnancy produces milk with low butter fat content.

(iii) Stage of lactation and pregnancy

Butter fat content is higher at middle phase of lactation period.

Protein and minerals increase in the second phase of lactation.

(iv) Completeness of milk.

(v) Breed differences – different breeds of animals produce milk with different percentage composition.

(vi) Season of the year – fat percentage increase during cold seasons of the year.

(vii) Type of food eaten by the animal

– Volatile fatty acids produced in the rumen influence composition of milk.

– Acetic acid influence the synthesis of milk with high fats protein and lactose.

(viii) Diseases like mastitis reduces lactose composition in milk.

(1 mark stating, 1 mark explaining) (mark the first five points) (5 x 2 = 10mks)

(b) Processing honey using heat method.

– Heat some water in a sufuria.

– Put honey combs in an enamel basin or any other container which is not made of iron.

– Put the container with honey combs on the boiling water.

– Heat until most of the honey melts.

– Separate the melted honey from the combs by straining through a muslin cloth.

– Keep honey in a container to cool down.

– Remove the wax layer that may have formed on the surface of the honey.

(6 points x 1mk = 6mks)

(c) Factors determining the quality of honey.

– Type of plants from which the nectar was obtained.

– Maturity stage of honey at the time of harvesting.

- Method of harvesting
- Method of processing honey.

(4 points x 1mk = 4mks)

26. (a) Rinder pest disease(i) Causal organism

(i) Virus

(1 x 1 = 1mk)

(ii) Symptoms

- Animal develops high temperature
- Animal has staring coat
- Discharge in the mouth and nose
- Watery eyes
- Diarrhoea and dysentery
- Emaciation
- Animal grinds teeth.

(any 5 x 1 = 5mks)

(iii) Control

- Vaccination every six months.
- Quarantine be applied incase of an outbreak.
- Affected animals must be killed and disposed off well.
- Nurse animals with disinfectants on the wounds to prevent entry of other pathogens.

(b) Prevent measures of livestock disease.

- Isolation of sick animals – done to avoid further spread; applied against highly infectious and contagious diseases.
- Imposition of quarantine – incase of an outbreak of a notifiable diseases in a given area.
- Use of prophylactic drugs
- Carrying out regular vaccinations.
- Controlling of vectors.
- Slaughtering the affected animals.
- Use of antiseptic and disinfectants. (stating 1mk, explaining 1mk)

(5 x 2 = 10mks)

27. (a) Benefits of using biogas as a source of power.

- It is a cheap source of energy.
- Requires low running / maintenance cost.
- It can be put to many uses.
- Does not pollute the environment / environmentally friendly.
- It is a suitable / renewable source of energy.
- By-products / fermented slurry is used as manure.

(any 5x1 = 5mks)

(b) Daily maintenance practices carried out in a tractor.

- Check engine oil by use of a dip stick, if the oil level is low it should be added.
- Check fuel level before start of the day's work and top it up if necessary.
- Inspect water in the radiator.
- Check daily the level of electrolyte.
- Tighten loose nuts and bolts daily.
- Apply grease through nipples.
- Remove large sediments from sediment bowl.
- Check tyre pressure before day's work, inflate / deflate appropriately.
- Check tension of fan belt (should deflect between 1.9cm to 2.5cm when pushed)
- Grease the break shaft bearing.

(10 x 1 = 10mks)

(c) Practice carried out on fish before preservation.

- Cleaning the fish to remove mud and any worms.
- Removing scales and slimes.
- Opening the fish on the side to remove the gut and the intestines (gutting).
- Cleaning the abdominal cavity.
- Keeping fish in open containers.

(any 5x1 = 5mks)

BURETI SUB-COUNTY JOINT EVALUATION TEST

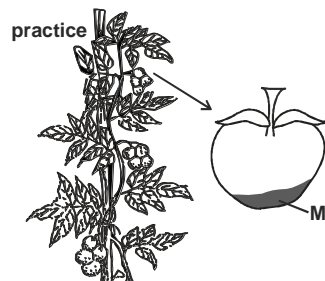
443/1

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

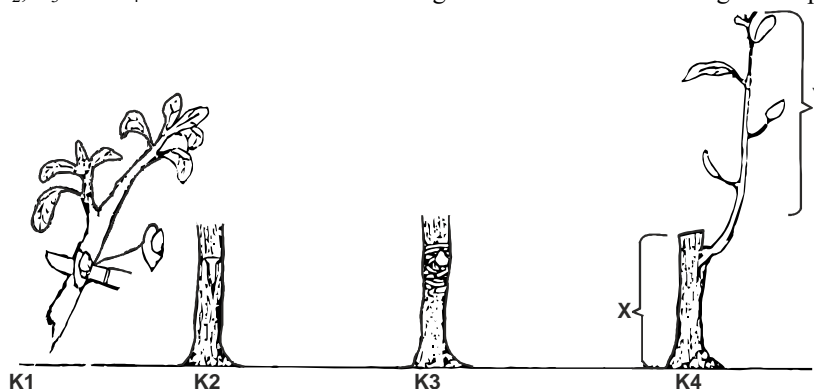
1. State two characteristics of plantation farming. (1 mark)
2. State three ways by which plant nutrients may be lost from the soil. (1½ marks)
3. State two feeding habits of field insect pests. (1 mark)
4. Give four ways in which land reform can be implemented in Kenya. (2 marks)
5. Give four reasons why most farmers don't use green manure in crop production. (2 marks)
6. Give two factors that would influence the time of planting beans. (1 mark)
7. Name two crop production practices carried out after planting to achieve optimum plant population. (1 mark)
8. State four practices which help in achieving minimum tillage. (2 marks)
9. Name two types of labour record. (1 mark)
10. List four ways of applying fertilizers in crop. (2 marks)
11. a) Define the term opportunity cost as used in economics. (1 mark)
- b) What is working capital in a farming situation ? (1 mark)
- c) Define the term utility of a commodity as used in agriculture economics. (1 mark)
12. Give a weed for each case which has the following effect on cattle.
 - a) Poisoning (1 mark)
 - b) Tainting milk when eaten before milking (1 mark)
13. Outline four effects of soil organisms which benefit crop growth. (2 marks)
14. Give two activities carried out during hardening off tomato seedling. (1 mark)
15. Distinguish between intensive hedgerow and border planting forms of agroforestry. (2 marks)
16. State three practices that should be carried out to maintain grass pasture. (1½ marks)
17. a) List four types of financial books farmers should keep. (2 marks)
- b) State four ways of improving labour productivity. (2 marks)

SECTION B : (30 MARKS)**Answer all the questions in this section in the spaces provided.**

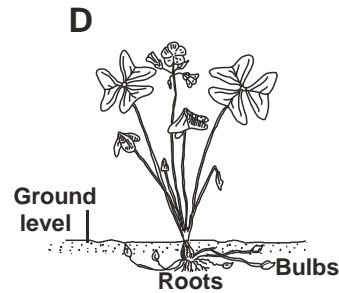
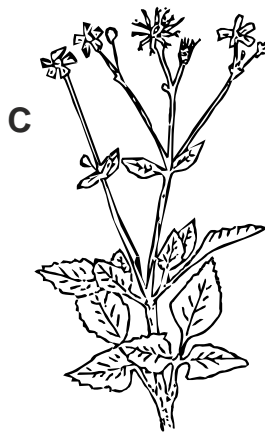
18. The diagram below illustrate a field management practice in tomatoes. Study it carefully and answer the questions that follow.



- i) Identify the field practice. (1 mark)
 - ii) Identify the condition shown by letter M on the diagram. (1 mark)
 - iii) Give three causes of the condition identified in (ii) above. (3 marks)
 - iv) State two reasons for carrying out the practice named in (i) above. (2 marks)
19. Diagram K₁, K₂, K₃ and K₄ below illustrate various stages of a method used in vegetative propagation.



- i) Identify the method of vegetative propagation illustrated in the diagrams above. (1 mark)
 ii) Why is the tying necessary as illustrated in K₃? (2 marks)
 iii) Name the part of K₄ marked Y. (1 mark)
 iv) Name the crop plant in which the method of propagation illustrated above is recommended. (1 mark)
20. The diagram below illustrate common weeds in arable land. Study them and answer the questions that follow.



- a) Identify the weeds labelled D and C. (2 marks)
 b) Classify the weed labelled C according to plant morphology. (1 mark)
 c) Give one reason why it is difficult to control the weed labelled D. (1 mark)
21. a) Using the information on the table below answer the questions that follow.

Fertilizer input (units)	Maize yield (bags)	Marginal products (bags)
0	50	-
1	62	12
2	66	4
3	68	2
4	69	1
5	69	0

The cost of fertilizer is sh.1500 per unit and the price of maize is sh.1200 per bag.

- i) At what unit of fertilizer input should the farmer be advised to stop applying any more fertilizer to the maize? (1 mark)
 ii) Give reason for your answer in (b) above. (1 mark)
 iii) Calculate the marginal return at the point of optimum production. (1 mark)
- b) State the law of diminishing return in production function. (1 mark)

SECTION C :

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

22. a) Describe five ways in which high temperature affects agricultural production in Kenya. (5 marks)
 b) Explain five ways in which biotic factors influence crop production in agriculture. (5 marks)
 c) Describe the establishment of Napier grass under the following sub-headings:
 i) Seedbed preparation (5 marks)
 ii) Planting (5 marks)
23. a) Explain the problems farmers face in marketing agricultural produce. (10 marks)
 b) Explain how various practices carried out in the field help to control crop diseases. (10 marks)
24. a) Explain eight cultural methods of soil and water conservation. (8 marks)
 b) State six disadvantages of communal land tenure system. (6 marks)
 c) Describe precautions that should be observed when harvesting cotton. (6 marks)

BURETI SUB-COUNTY JOINT EVALUATION TEST

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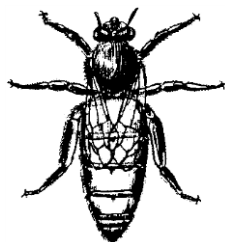
AGRICULTURE**PAPER 2****SECTION A : (30 MARKS)**

1. State four maintenance practices for a disc plough. (2 marks)
2. Name three methods that are used in selection of breeding stock in livestock production. (1½ marks)
3. Name the pig breed which has the following characteristics: long, large and white body, broad and dished face, upright ears. (1 mark)
4. Give two vices in poultry controlled by debeaking. (1 mark)
5. Give two reasons for using litter in a poultry house. (1 mark)
6. Name one livestock disease that is transmitted by each of the following parasites.
 - a) Blue ticks (½ mark)
 - b) Brown ear ticks (½ mark)
 - c) Tsetseflies (½ mark)
7. Give two ways in which proper nutrition helps to control livestock diseases. (1 mark)
8. Name two developmental stages of a liverfluke (*fasciola spp*) which occur in the fresh water snail (*limnae sp*) (1 mark)
9. Name two bloodless methods of castration in lambs. (1 mark)
10. Name two breeding systems that can increase the frequency of high milk production genes in indigenous cattle. (1 mark)
11. State four signs that indicate that a doe is about to kindle. (2 marks)
12. State four advantages of natural feeding in calf rearing. (2 marks)
13. Name the strokes in a four stroke cycle engine. (2 marks)
14. State four signs of mite attack in poultry. (2 marks)
15. State two functions of the reticulum in the digestive system of a ruminant. (1 mark)
16. Explain the following terms as used in agricultural engineering :
 - a) Top dead centre (1 mark)
 - b) Bottom dead centre (1 mark)
17. Give four uses of ox-drawn harrow. (2 marks)
18. Name the complementary tool for each of the tools named below :
 - i) Trochar (½ mark)
 - ii) Hand drill (½ mark)
19. Name three tools used in handling cattle during an agricultural exhibition. (1½ marks)
20. a) Define the term inbreeding. (1 mark)
- b) Give four disadvantages of inbreeding in livestock production. (2 marks)

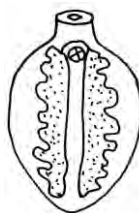
SECTION B :

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

21. The diagrams below represent livestock parasites.

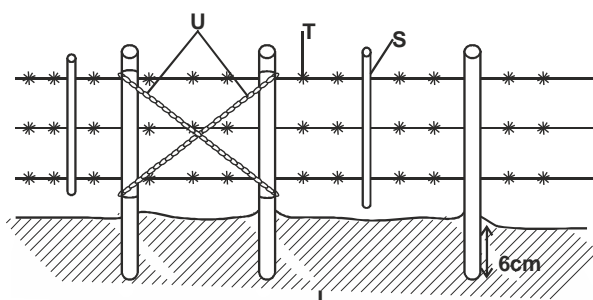


Parasite E

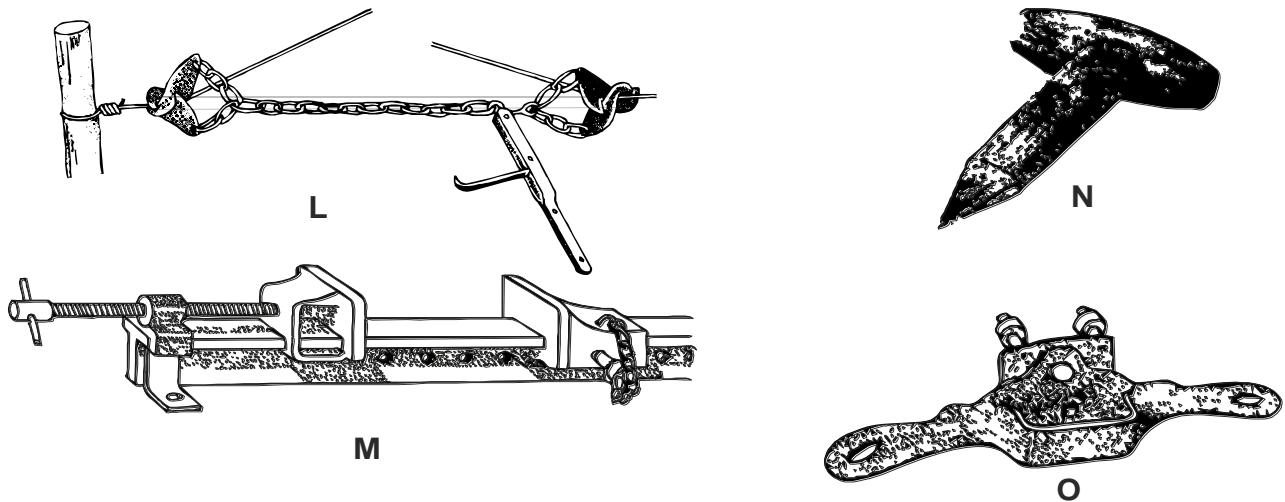


Parasite F

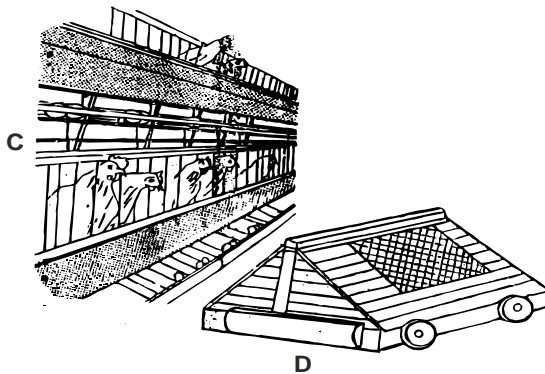
- i) Identify parasite E. (1 mark)
 - ii) State three effects that may be observed in an animal that has been attacked by parasite F. (3 marks)
 - iii) Name the intermediate host for parasite F. (1 mark)
22. a) Below is a diagram of a farm structure.



- i) Identify the structure J. (1mark)
 ii) Identify the parts labelled S, T and U (3 marks)
 iii) State the functions of the parts labelled T and U (2 marks)
 b) L, M, N and O are diagrams of farm tools. Study them and answer the questions that follow.



- i) Identify the farm tools. (2 marks)
 ii) State the use of each tool. (2 marks)
 23. The diagram below are livestock farm structures. Study them and answer questions that follow.



- i) Identify the structures. (2 marks)
 ii) State three advantages of the structure labelled D. (3 marks)

SECTION C :

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

24. a) Describe six structural requirements of a deep litter house. (6 marks)
 b) Describe gumboro under the following sub-headings:
 i) Animals affected (1 mark)
 ii) Causal organism (1 mark)
 iii) Incubation period (1 mark)
 iv) Symptoms of attack (7 marks)
 v) Control (2 marks)
 c) Name two nutritional disorders of cattle. (2 marks)
 25. a) Describe the five functions of a gear box in a tractor. (10 marks)
 b) Describe the long term service carried out during tractor servicing. (10 marks)
 26. a) Outline four functions of vitamins in livestock nutrition. (4 marks)
 b) Explain six control measures of tapeworms in livestock. (6 marks)
 c) Outline the factors to consider when selecting livestock for breeding. (10 marks)

BURETI SUB-COUNTY JOINT EVALUATION TEST**443/1****AGRICULTURE****Marking scheme**

-
1.
- production of one crop
- practised in large scale farming. *1 mark*
2.
- leaching
- plant uptake
- volatilization / burning *1½ marks*
3.
- Biting and chewing
- Piercing and sucking. *1 mark*
4.
- Land consolidation
- land adjudication and registration
- Land settlement and resettlement.
- Tenancy reform
- Redistribution of land/ land subdivision
- Improved land legislation *2 marks*
5.
- Most of the crop used are food crops.
- Green manure crops use most of the soil moisture leaving little for the next crop
- Most nutrients are used by micro-organisms in the process of decomposing the green manure.
- It delays planting as it takes time for green manure crop to decompose. *2 marks*
6.
- Rainfall patter/ reliability
- Variety of beans
- Incidence of pest and diseases attack
- Expected harvesting time *1 mark*
7.
- Thinning
- Gapping *1 mark*
8.
- Establishing cover crop.
- Use of herbicides to control weeds.
- Use of mulch on the surface.
- Timing cultivation
- Restricting cultivation to the area where seeds are to be planted.
- Uprooting /slashing weeds. *2 marks*
9.
- Muster roll
- Labour utilization analysis *1 mark*
10.
- Broadcasting
- Foliar application
- Side/ row / basal application
- Fertigation
- Hole placement / drilling
- Drip *2 marks*
11.
a) Is the value of foregone best alternative / revenue forgone because of choosing the best alternative. *1 mark*
b) Raw material used up in the process of production e.g. seeds, fuel, fertilizer feeds.
(OWTTE if examples are included) *1 mark*
12.
- Thorn apple / Datura stramonium
- Sodium apple / Solanuminclanum *1 mark*
- b)
- Mexican marigold / Tagetes minutta *1 mark*
- 13.

- Decompose organic matters
 - Help to aerate the soil
 - Convert atmospheric nitrogen to nitrate
 - Upon death and decay release plant nutrients. *2 marks*
- 14.
- Removal of the shade.
 - Reduce the frequency of watering.
 - Reduce the amount of water. *1 mark*
- 15.
- Intensive hedgerow trees or shrubs are planted between rows of crops while the borders of the farm. (Mark as a whole) Border planting - trees or shrubs are planted on
2 marks
- 16.
- Topdress / apply manure.
 - Control weed.
 - Practice controlled grazing to avoid denudation.
 - Cutting back dry and unpalatable parts.
 - Re-seeding when necessary.
 - Irrigation when necessary
 - Control pest and diseases. *1½ marks*
17. a)
- Journal
 - Cash book
 - Ledger
 - Inventory *2 marks*
- b)
- Training labour force.
 - Mechanizing operations.
 - Giving incentives e.g. housing.
 - Supervision of labour.
 - Assign specific tasks to workers.
- 18.
- i) staking *1 mark*
- ii) Blossom end rot *1 mark*
- iii)
- Too much nitrogen in early stages of growth.
 - Irregular or infrequent watering.
 - Calcium deficiency in young fruits. *3 marks*
- iv)
- Enhances production of clean fruits.
 - Helps in controlling diseases.
 - Facilities management practices (accept any specific practice (harvesting / weeding / pruning)
 - Prevent infestation by soil born pests. *2 marks*
- 19.
- i) T - budding / Budding.
- ii)
- Help to exclude water and air
 - To make tight contact between the bud and rootstock (accept any two correct answers) *2 marks*
- iii) Rootstock *1 mark*
- iv) Citrus (accept specific crop e.g. oranges, lemons, tangerines) *1 mark*
- 20.
- a) C - Black jack
- D - oxalis *2 marks*
- b) Broad leaved weed. *1 mark*
- c) Presence of underground bulb. *1 mark*
21. a)
- i) At the end of the third unit fertilizer application / 3 *1 mark*
- ii) This is the cost profitable unit of fertilizer application, beyond which there would be a loss. *1 mark*

iii) $MR = \text{Shs } 1200 \times 2 = 2400 \text{ /}=\text{}$

1 mark

- b) States that if successive units of one input are added to fixed units of other inputs a point is eventually reached where additional output per additional unit of input will decline.

1 mark

Section C

22. a)

- Increase incidences of some pests/ parasites and diseases.
- Improves quality of certain crops e.g. fruits.
- Lower quality of certain crops e.g. pyrethrum.
- Increase rate of evapotranspiration / causes wilting.
- Increase rate of maturity / hasten maturity.
- Limit distribution of exotic livestock breeds.

5 × 1 = 5 marks

b)

- Nitrogen fixing bacteria - convert atmospheric nitrogen to nitrates for plant uptake.
- Pollinators - transfer pollen grains from the another of a flower to stigma to bring variation.
- Decomposers - breakdown organic plant and animal remains to release nutrient for plants.
- Pests - attack crops by eating plant parts; / piercing and sucking sap and introducing spread disease causing micro-organisms to crops.
- Pathogens - they cause crop disease.
- Predators - reduce pest population.

5 × 1 = 5 marks

c)

i) Seedbed preparation (2 marks)

- Land is prepared early during the dry season.
- Vegetation is cleared and all stumps should be removed.
- Primary cultivation is then carried out and all perennial weeds are removed.
- It is followed by secondary cultivation Land.
- Is harrowed to produce a medium tilth
- Furrows are made at a spacing of 90 - 100cm
- Alternatively, holes can be dug at a spacing of 90 - 100cm between the rows and 50cm between the plants.

any (5 × 1) = 5 marks

ii)

- Stem cutting or splits are used.
- Planting should be done at the onset of the rains.
- Stem cutting should be placed in the furrows or planting holes in a slanting manner.
- A compound fertilizer such as NPK 20 - 20 - 0 is applied.
- Should be applied at a rate of 200kg /ha at a planting hole or furrow.
- Two nodes should be covered underground and one node should remain above the ground.
- Planting material should come from a healthy and mature plant

23.

- Storage - lack of storage facilities to handle perishable / large quantities at harvesting time.
- Seasonability - Agriculture production is seasonal in nature. Abundant during harvest time and scarce in dry season.
- Perishability - loose quality rapidly, so need to be sold immediately, or processed or put in special storage facilities.
- Lack of market information - lack technical knowledge accessing market information.
- Poor infrastructure - face problem of delivering produce to the market because of poor roads in some areas. produce get spoilt in transit before reaching the market.
- Change in the market demand time between making decisions to produce and when products are realised is long and within the period changes may occur in consumer's tastes and preference.
- Bulkiness - most are bulky thus they require a lot of space for storage and transporting which increase production cost.
- Competition from cheap imports - Similar produce imported into the country at cheaper prices can complete with locally produced products hence market problem.
- Delayed payments - This reduces the morale of farmers.
- Fluctuation in prices - change in supply brought about by over production with cause price to fluctuate.

any (10 × 1) = 10 marks

b)

- Control of pests - prevent spread of pathogen.
- Destruction of crop residue - kill the pest and pathogens.
- Pruning ; creates unfavourable microclimate for some pathogens/ prevent spread of the disease.
- Heat treatment; kills the pathogen
- Quarantine : prevent spread of the pathogen form one farm to the other.
- Use of clean tools / equipment, prevent spreading of the disease from one plant to the other.
- Use of resistant varieties ensure crops are not attacked by pathogens.

- Weed control : eliminate weeds that could be alternate hosts for particular pathogen.
- Proper spacing - creates unfavourable conditions for some pathogens to multiply.
- Timely / early planting help crop to establish early before attack.
- Close season breaks the life cycle of pathogens
- Use of clean planting materials - disease free prevents introduction of pathogens in the field.
- Rogueing, prevent further spread of disease.
- Crop rotation breaks life cycle of pathogens.
- Proper plant nutrition, increase disease resistance / control deficiency diseases.

OWTTE (*aNY 10 × 1 = 10 marks*)

24. a)

- Contour farming - Cultivation and planting done across the slopes helps in holding water thereby increasing infiltration and reducing runoff.
- Mulching - covers the soil thereby reducing splash erosion / reduce speed of run off.
- Strip cropping - give good soil cover with those that give soil cover controls movement of soil particles helping in soil control.
- Vegetated waterway - Slow down runoff / eroded soil preventing further erosion.
- Afforestation / reforestation trees protect soil from splash erosion by controlling the strength of raindrop.
- Intercropping - cover the ground preventing splash erosion / surface runoff.
- Minimum tillage - so as to maintain good soil structure / have a seedbed which is not easily detached.
- Cover cropping - protect soil from effect of raindrop.

Grass strip / filter strips - reduce speed of run-off and filter out eroded soil. *any 8 × 1 = 8 marks*

b)

- Difficult to control pests and diseases / parasites spread faster.
- Land disputes are common.
- No motivation to conserve land.
- No motivation to make long term investments.
- An individual cannot use land as security to acquire loan.

difficult to control breeding in livestock.

6 × 1 = 6 marks

c)

- Sisal / gunny bags should not be used to prevent mixing of lint with bag fibres.
- Picking should be done when the lint is dry to prevent fibres from sticking together.
- use different containers for AR (Safi) and Br (fifi) gardens of cotton to ensure quality.
- Picking should be done immediately the balls open to avoid staining by dust.
- Avoid picking leaves and twigs to avoid contamination.
- Use clean containers for picking.

6 × 1 = 6 marks

BURETI SUB-COUNTY JOINT EVALUATION TEST

443/2

AGRICULTURE**Marking scheme**

- | | |
|---|--|
| <p>1.</p> <ul style="list-style-type: none"> - Clean after use - Paining the frame - Greasing the moving parts / lubricating moving parts.
(<i>Rej- Movable parts</i>) - Repair / replace broken / worn out parts. - Apply oil on metal parts on long storage. - Proper storage - Tighten lose nuts / bolts. <i>2 marks</i> <p>2</p> <ul style="list-style-type: none"> - Progeny testing. - Mass selection - Contemporary comparison <i>1½ marks</i> <p>3. Large white <i>1 mark</i></p> <p>4.</p> <ul style="list-style-type: none"> - Egg eating - Cannibalism <i>1 mark</i> <p>5.</p> <ul style="list-style-type: none"> - To absorb moisture from poultry droppings. - Keep birds busy scratching, thus reducing cannibalism. - Keep the house warm. <i>1 mark</i> <p>6.</p> <ul style="list-style-type: none"> a) Blue ticks ; Gallsickness; red water. <i>½ mark</i> b) Brown ear ticks ;
ECF, Redwater, Nairobi sheep diseases / Theiliosis. c) Tsetse flies
Trypanosomiasis (nagana) <i>½ mark</i> <p>7.</p> <ul style="list-style-type: none"> - Prevents nutrient deficiency diseases. - Ensures resistance against disease infections. <i>1 mark</i> <p>8.</p> <ul style="list-style-type: none"> - Sporocyst - Cercaria - Redia <i>1 mark</i> <p>9.</p> <ul style="list-style-type: none"> - Use of rubber ring and elastrator. - Use of burdizzo. <p>10.</p> <ul style="list-style-type: none"> - Upgrading / grading up. - Cross breeding. <i>1 mark</i> <p>11.</p> <ul style="list-style-type: none"> - Nest building. - Plucking of fur from the belly. - Loss of appetite - Restlessness <i>2 marks</i> <p>12.</p> <ul style="list-style-type: none"> - Calf takes milk at body temperature. - Milk is free from contamination. - It prevents scouring in calves. - Milk is provided ad libitum. - Low labour requirement. <i>2 marks</i> <p>13.</p> <ul style="list-style-type: none"> - Induction - Compression - Power / ignition stroke - Exhaust. <i>2 marks</i> | <p>14.</p> <ul style="list-style-type: none"> - Irritation / scratching of the body. - Anaemia - Presence of mites below the plumage in patches. - Falling off feathers. - Wounds / dermatitis due to burrowing effects. - Formation of crusts. <p>15.</p> <ul style="list-style-type: none"> - Sieve food / separating fine from coarse food. - Retain foreign and indigestible material like polythene and nails. <i>1 mark</i> <p>16. a) Top dead centre - This is the highest point the piston reaches in the cylinder during compression and exhaust stroke
during compression of fuel and air mixture. <i>1 mark</i></p> <p>b) Bottom dead centre This is the lowest point; the piston reaches in the cylinder during the intake and power strokes.</p> <p>17.</p> <ul style="list-style-type: none"> - Incorporate manure into the soil / stirring the soil. - Breaking soil clods. - Levelling the seedbed. - Covering broadcasted seeds. - Gathering / removing trash. <i>2 marks</i> <p>18.</p> <ul style="list-style-type: none"> i) Trachar; Canular <i>½ mark</i> ii) Hand drill - Drills bits / twist drill. <i>½ mark</i> <p>19. - Halter
- Rope
- Nose ring and lead stick. <i>1½ marks</i></p> <p>20.</p> <ul style="list-style-type: none"> a) It the mating of animals which are closely related. b) - Inbreeding can bring loss of hybrid vigour. - May lead to decline in fertility leading to species extinction. - Bring about reduction in performance. - Leads to high rate of pre-natal mortality. <p><u>SECTION B</u></p> <p>21.</p> <ul style="list-style-type: none"> i) Tsetse fly (<i>Glossina</i> spp) <i>1 mark</i> ii) <ul style="list-style-type: none"> • Trypanosomiasis disease • Cause anaemia • Damaged skin and hides / causing wounds (which act as routes for secondary infections by pathogenic organisms). <i>3 marks</i> iii) Water snail (<i>Limnea</i> species) <p>22.</p> <ul style="list-style-type: none"> i) Barbed wire fence <i>1 mark</i> ii) S - Barbed wire / barbs. (<i>3 marks</i>)
T - Drooper
U - Braces / wire braces / ties. iii) T - Prevent bending of wires / maintain tension. - Stopwire from sagging. <i>2 marks</i> |
|---|--|

- Give support / make firmer / prevent loosening of wire / support post / prevent them from bending.

b)

- i) L - wire strainer / monkey strainer.
M - Clamp / sash clamp / T-clamp
N - Dibber
O - Spoke share 2 marks
- ii) L - To tighten wires during fencing to correct tension.
M - To hold pieces of work /holding for joinery
N - Making holes when planting.
O - For smoothening curved surfaces in woodwork.

23.

- i) C - battery cage
D - fold system 2 marks
- ii)
 - There is even distribution of manure.
 - Birds can feed on grass hence reducing the cost of feed used.
 - Fold can rotate to fresh area daily 3 marks

24.

- It should be properly ventilated.
- It should be leak proof to avoid dampness in the house which encourage disease infections.
- Litter on the floor to the house to be warm / absorbing moisture.
- Draught free / This can be achieved by making windward side wall solid top to bottom.
- Enough space for birds to avoid overcrowding.
- Proper drainage to avoid dampness and easy to clean.

 $1 \times 6 = 6 \text{ marks}$

- b) i) Chicken, turkeys, pigeons and ducks.
- ii) Causal organism 1 mark
 - Virus (accept)
 - Birna virus
- iii) Incubation period 1 mark
 - 2 - 3 days
- iv) Symptoms of attack
 - Glands above the vent become swollen.
 - Decrease in egg production.
 - Birds develop respiratory distress
 - There is loss of appetite.
 - Affected birds show low water intake.
 - Severe immuno-suppression / birds become susceptible to other diseases.
 - In hot weather and high humidity conditions the death rate (mortality rate) increases.

Control

(2 marks)

- Vaccination
- Use vitamins (especially B12) 2 marks
- c) - Milk fever 2 marks
- Bloat

25. a)

- Helps the driver to select any toward or reverse gear.
- Adjust speed of the drive from the engine crankshaft to the drive shaft.
- Helps to alter the speed ratio
- Enables the power from the engine to be more easily applied to the work done by the tractor.

- Enables the driver to stop the tractor movement without stopping the engine or without foot pressing on the clutch all the time.

 $5 \times 2 = 10 \text{ marks}$

b)

- Engine oil should be drained completely from the sump and replaced with new oil.
- The steering gear box oil should be inspected and refilled if the level goes below the recommended level
- The oil in the differential should be replaced as recommended.
- The linkage and the pulley attachment should be greased.
- Pulley oil level should be checked and added if need be.
- The dirty oil should be removed and replaced with clean one. any 5 correct points.

 $5 \times 2 = 10 \text{ marks}$

26. a)

- Promote growth.
- Help in blood clotting.
- Help in bone formation
- Help in muscular activity
- Prevent diseases in animals
- Act as organic catalyst in various metabolic and physiological. 4 marks

b)

- Use of prophylactic drugs such as antihelminthes or dewormers to kill parasites in animals.
- Keep animal houses clean and disinfected to kill eggs of the warm.
- Practise rotational grazing and rest pastures to starve larvae to death
- Keep the feeding and watering equipment clean to control re infection
- Use latrines by farm worker or proper disposal of human excreta to destroy the eggs.
- Proper meat inspection to avoid consuming of infected beef / pork.
- Proper cooking of meat to destroy the cysts of the tapeworm in the meat. 6 well explained $\times 1 = 6 \text{ marks}$

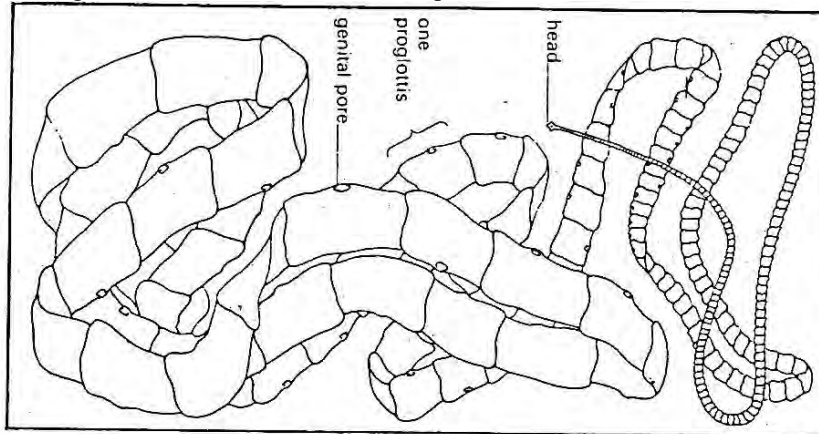
c)

- Body conformation
- Fertility /breeding ability
- Adaptability of breed to the area /hardiness
- Mothering ability in case of females.
- Production potential / yielding capacity / performance.
- Temperament / behaviour e.g. cannibalism / egg eating.
- Deformities / abnormalities e.g mono eyed.
- Health
- Offspring performance.
- Age of the animal
- Growth rate
- Prolificacy
- Quality product

 $10 \times 1 = 10 \text{ marks}$

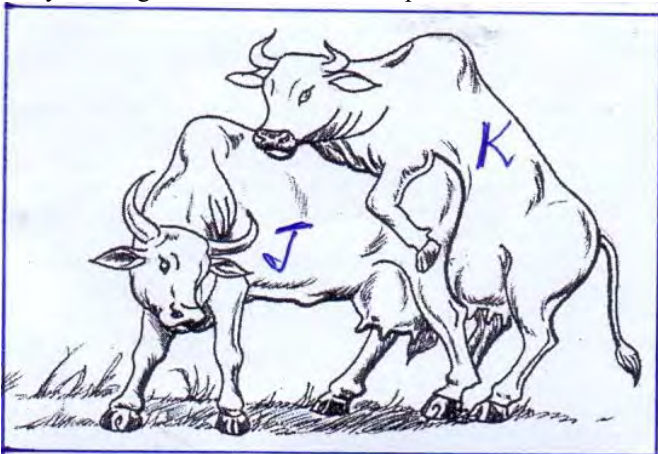
- [a] Identify the parts labeled E and F . (2 mark)
 [b] State two uses of part labeled F in a foundation structure. [2marks]
 [c] What ingredients are used to complete part G. [1mark]

22. The diagram below illustrates an internal parasite of livestock.



- [a] Identify the parasite above . [1mark.]
 [b] Name two common species of the parasite illustrated above. [2marks.]
 [c] Give two control measures of the above parasite. [2marks.]

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



- [a] Which of the above cows shows the signs of heat ? [1mark]
 [b] Give one reason to confirm your answer in [a] above. [2marks]
 [c] State two benefits of natural mating system. [1mark]
 [d] Name a disease that is easily spread by this method of mating. [2marks]

SECTION C [40MARKS]

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

24. [a] Describe six signs of farrowing in a sow . [6marks]
 [b] Explain six benefits of the Kenya top bar hive. [6marks]
 [c] Explain eight factors considered when siting farm structures. [8marks]
25. [a] Describe rinderpest disease under the following sub headings . [2marks]
 Animals affected. [1 mark]
 Causal organism. [5 marks]
 Symptoms of attack. [2 marks]
 Control measures.
- [b] Describe the digestion of food in poultry from the beak to the duodenum. [5marks]
 [c] Explain five uses of solar energy in a farm. [5marks]
26. [a] Describe the working of a two stroke cycle engine . [10marks]
 [b] Explain five factors considered when siting a fish pond. [5marks]
 [c] Explain five reasons for swarming of bees. [5marks]

KEIYO SOUTH JOINT EXAMINATION
Kenya Certificate of Secondary Education (KCSE)
443/1
AGRICULTURE
PAPER 1
Pre – mock 2016
2 HOURS.

SECTION A (30MARKS)

Answer all questions in the section in the spaces provided

1. Give **four** effects of HIV/AIDS on agricultural production and development. (2marks)
2. Give **four** roles of drainage as a method of land reclamation. (2marks)
3. Give **four** benefits of organic mulch in a field of pineapples (2marks)
4. a) Define the term opportunity cost. (½mark)
 b) Give **two** situations when opportunity cost equal to zero? (1mark)
5. Give **two** factors which affects the quality of hay. (1mark)
6. Write the following abbreviation as used in crop pests and diseases in full; (2marks)
 a) E.I.L
 b) I.P.M
7. Mention **two** reasons for grafting. (1mark)
8. Give **four** reasons for staking tomatoes. (2marks)
9. $\text{pH}[\text{H}^+]=10^{-4}$ represents pH of 4 of a soil sample. Study the pH of soil samples **A** to **E** as shown below.
 A) $\text{pH}[\text{H}^+]=10^{-3}$
 B) $\text{pH}[\text{H}^+]=10^{-2}$
 C) $\text{pH}[\text{H}^+]=10^{-6}$
 D) $\text{pH}[\text{H}^+]=10^{-11}$
 E) $\text{pH}[\text{H}^+]=10^{-9}$
 a) Arrange the pH samples **A** to **E** above from the lowest pH to the highest pH. (2½mks)
 b) Which soil sample above is ideal for planting coffee? (½mk)
10. Outline **four** functions of magnesium in crops (2 marks)
11. State **four** reasons why sub soiling should be done every fourth year of seedbed preparation (2marks).
12. State **two** reasons of earthing up the maize field (1marks)
13. Name the chemicals used to achieve the following during water treatment
 a) Coagulation of solid particles (1marks)
 b) Softening of water (1marks)
 c) Killing of pathogens (1marks)
14. State **two** reasons for drying grains before storage (1marks)
15. Give **four** reasons why seeds may fail to germinate (2marks)
16. State **three** conditions that have led to fragmentation and sub division of agricultural land in Kenya (1½ mark)
17. Give **two** appropriate methods of control of couch grass in a maize field (1marks)

SECTION B (20MARKS)

Answer all questions in this section in the spaces provided

18. Below is a list of compound fertilizers showing the proportions of N.P.K content.
 A. 20:10:0
 B. 17:17:17
 C. 0:20:0
 D. 21:0:0
 a) Which of the above fertilizers are straight fertilizers? (1mark)
 b) Calculate the filler/carrier materials in fertilizer B (2marks)
- c) If the recommendation is to apply 42kg of N/ha and the farmer owns two hectares of land, how much would it cost him to provide sulphate of ammonia (21%N) at a rate of Ksh 1,500 per 50kg bag. (3marks)

MERU SOUTH FORM 4 JOINT EVALUATION

443/

1**AGRICULTURE****PAPER 1****SECTION A (30 MARKS)****Answer ALL questions in the spaces provided**

1. Name a vitamin deficiency that is responsible for curled toes paralysis in chicks. (1 mark)
2. List down four behavioristic activities which would indicate that the chicks in a brooder are under stress (2 marks)
3. State two advantages of timber as a construction material of farm buildings. (2 marks)
4. List down two appropriate hand tools needed to finish off the handle of a fork jembe. (1 mark)
5. Put down four qualities of good beef. (2 marks)
6. State one way by which balanced feed ration contributes to diseases control in livestock. (1 mark)
7. Give one reason why a cow suffering from milk fever should never be given medicine orally. (1 mark)
8. Outline four factors that would accelerate depreciation of farm tools. (2 marks)
9. a) What is notifiable disease? (1 mark)
b) List four notifiable diseases in Kenya. (2 marks)
10. Outline three factors that lower the quality of concrete. (1 ½ marks)
11. When is it recommended to carry out the following livestock feeding practices? (2 marks)
a) Flushing
b) Steaming up
12. Name two dual-purpose breeds of cattle. (1 mark)
13. Give the meaning of the following terms as used in livestock production. (1 ½ marks)
a) Pullet
b) Gilt
c) Steer
14. Give the use of each of the following equipment used by dairy farmers. (1 ½ marks)
a) Milk strainer
b) Milk churn
c) Strip cup
15. State four signs of broodiness in a hen. (2 marks)
16. Name the livestock disease/disease condition caused by each of the following organisms; (2 marks)
a) Salmonella gallinarum
b) Ascaris lubricoides
17. Explain the following as applied in tractor engines. (1 ½ marks)
a) Firing order
b) Compression ratio
c) Compression ignition engine
18. State two human factors that influence the quality of honey. (2 marks)

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

19. The diagram below shows a type of livestock identification method.

Diagram

- a) Give the method of identification indicated by the diagram above. (½ mark)
- b) Which is the most appropriate method of identification for animals with light skins. (½ mark)
- c) State the tool used in method in the diagram shown above. (½ mark)
- d) Write down three importances of livestock identifications. (1 ½ marks)

- e) Give one reason why programmed administration of antihelminitics in cattle is vital. (1 mark)
- f) Other than a dosing gun name two other tools used to administer antihelminitics. (1 mark)
20. The diagrams below show a variety of garden tools used for nursery bed preparation.
- a) Identify the tools labelled A, B, C and D. (2 marks)
- b) Name another tool that can be used in place of tool B. (½ mark)
- c) State three maintenance practices on tool C. (1 ½ marks)
- d) Give the best ratio of cement, sand and gravel for making deep foundations of farm buildings. (2 marks)
21. A student is in the process of determining qualities of ingredients to make a livestock ration using the feed computation method illustrated below.
- a) Name the feed computation method illustrated above. (1 mark)
- b) Determine the values of E and F. (2 marks)
- c) What will be the percentage of digestible crude protein (DCP) in the feed that the student intends to make? (1 mark)
- d) Except the method of feed computation illustrated above name one other feed computation method. (1 mark)
22. The illustration below shows an ox-drawn mouldboard plough. Study it and answer the questions that follow.
- a) Name the parts labelled G, H, J and K. (2 marks)
- b) State the use of the parts labeled L and M. (2 marks)
- c) Give two uses of the plough illustrated above. (1 mark)

SECTION C (40 MARKS)

Answer any TWO questions from the section.

23. Explain the management of broilers in a deep litter system. (20 marks)
24. a) Describe the importance of keeping farmj animals healthy. (10 marks)
- b) How does the digestion of food in pigs differ from that of ruminants. (10 marks)
25. a) Explain five care and maintenance practices carried out on a tractor battery. (10 marks)
- b) Name five components/parts of a plunge dip and state the use of each. (10 marks)

MERU SOUTH FORM 4 JOINT EVALUATION

443/2

AGRICULTURE**PAPER 2****SECTION A (30 MARKS)****Answer ALL questions in the spaces provided**

1. State two ways in which agriculture contributes directly to the development of industries. (1 mark)
2. State three reasons for processing farm produce before selling. (1 ½ marks)
3. State four disadvantages of using organic manure in crop production. (2 marks)
4. State four ways in which land reform is being implemented in Kenya. (2 marks)
5. Name six agricultural statutory boards in Kenya. (3 marks)
6. State three features considered when choosing water pipes. (1 ½ marks)
7. State four methods used for harvesting water in farm. (2 marks)
8. State four reasons for controlling weeds in pasture. (2 marks)
9. List three characteristics of intensive farming system. (1 ½ marks)
10. Give two roles of microorganisms in the soil that are beneficial to crops. (1 mark)
11. State two factors that favor surface irrigation. (1 mark)
12. Explain how each of the following leads to loss of soil fertility. (1 mark)
 - a) Leaching
 - b) Monocropping. (1 mark)
13. For each of the following micro-element stated below, give one function in plant. (1 mark)
 - a) Zinc
 - b) Boron
14. State any four problems a dairy farmer may face in marketing of milk. (2 marks)
15. State three functions of 4-K clubs in Kenya. (1 ½ marks)
16. Name two types of labour records. (1 mark)
17. Name four methods of drainage that can be used to reclaim a marshy area. (2 marks)

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

18. a) Identify the methods of tree harvesting illustrated above. (2 marks)

A

B
- b) Name three products the farmer can get after carrying out the practice illustrated above. (2 marks)
19. The diagram below show an important operation carried out during land preparation.

- a) Identify the field operation illustrated above. (1 mark)
- b) State four reasons for carrying out the practice named in (a) above. (4 marks)
20. The diagram below shows a set up of an experiment to study an aspect of soil. the set up was left undisturbed for five hours. Study it and answer the questions that follows

- i) What was the aim of the experiment. (1 mark)
- ii) State one observation that was made in each of the flasks labelled C and D. (2 marks)
- iii) Give reasons for each of your observation in (ii) above. (2 marks)
21. a) The following information was extracted from Mr. Mambo's farm records for the year ending 30th June 2015. Study it and prepare a profit and loss account for the farm. (4 marks)

Rent received	10,000
egg sales	60,000
Repair of tractor	30,000
Interest on bank loan	20,000
Opening valuation	80,000
Tax paid	40,000
Closing valuation	90,000
Purchases of farm inputs	90,000
Debts received from farmer's Cooperative society	100,000
Maize sale	55,000

- b) Did the farm make a profit or loss? (1 mark)

SECTION C: (40 MARKS)

Answer any two questions from this section.

22. a) Explain the factors that should be considered when selecting a farm enterprise. (15 marks)
- b) Explain five roles of farm manager in agricultural production. (5 marks)
23. describe the establishment of kales under the following subheadings;
- a) Nursery establishment (7 marks)
- b) Nursery management (5 marks)
- c) Transporting of seedlings (8 marks)
24. a) Explain five factors that determine the correct spacing of crops. (10 marks)
- b) Discuss cultural methods of controlling crop diseases. (5 marks)
- c) Explain the role of trees in soil and water conservation. (5 marks)

KIMA JOINT EXAMINATIONS 2016

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AGRICULTURE**PAPER 1****SECTION A: (30 MARKS)****Answer all the questions in this section.**

1. State four characteristics of large scale farming system. (2 marks)
2. State four pieces of information contained in an invoice. (2 marks)
3. Name two types of credits available to farmers for agricultural use. (1 mark)
4. Differentiate between a balance sheet and a profit and loss account. (2 marks)
5. Give four benefits of rotational grazing. (2 marks)
6. State four factors that influence the extent of soil erosion in an area. (2 marks)
7. Give four functions of calcium in plants. (2 marks)
8. Give two disadvantages of landlordism and tenancy tenure system as practiced in Kenya. (2 marks)
9. Give two reasons for adding well rotten organic manure to a compost heap. (1 mark)
10. Mention four advantages of using polythene sleeves in the establishment of seedlings. (2 marks)
11. State two reasons why subsoiling is important as an operation of land preparation. (1 mark)
12. Give two reasons for proper drying of grains before storage. (1mark)
13. State two effects of siltation in dams. (1mark)
14. Give any three functions of pyrethrum board of Kenya. (1mark)
15. Outline three benefits of bolder planting in agroforestry. (1 ½ marks)
16. State four factors one should consider when designing a crop rotation programme. (2marks)
17. List three importance of tissue culture in crop propagation. (1 ½ marks)
18. State three reasons why a farmer should diversify his farm enterprises. (1 ½ marks)
19. Give four conditions of the land which make it necessary to carry out reclamation practices. (2 marks)

SECTION B: (20 MARKS)

20. Study the diagram of the silo below and answer the questions that follow.

DIAGRAM

- (a) Identify the method of ensiling in the diagram above. (1mark)
 - (b) State three precautions taken when ensiling to ensure high quality silage. (3marks)
 - (c) Give two advantages of this method of forage conservation over other methods. (2marks)
21. Below are diagrams of common weeds found in the farm. Study them carefully and answer the questions that follow.

Diagrams

- (a) Identify the weeds. (3 mks)
 - (b) Mention one harmful effect of each of the weed Q and R (1 mark)
 - (c) Give a reason why weed S is referred as a parasitic weed. (1 mk)
22. The diagram below illustrates an experiment on soil. Study it carefully and answer the questions that follow.

Diagram

- a) State the aim of the experiment. (1mk)
- b) If the volume of water illustrated in them measuring cylinders was observed after one hour, identify the soil samples labelled A and B. (½ mk)
- A..... (½ mk)
- B..... (½ mk)
- c) State two ways in which the soil structure of the soil sample labelled C above can be improved. (2 marks)
23. The diagrams below illustrates common pests in crop production. Study them carefully and answer the questions that follow. (1 mark)

DIAGRAMS

- a. Identify the pest labeled A, B and C (1 ½ mk)
- b. Classify the pests using scientific classification (1 ½ mk)
- c. State any type of damage caused by the pest labelled A in maize. (1mark)

SECTION C : (40 MARKS)

Answer any two questions from this section.

24. The table below shows the production of maize at various levels of NPK fertilizer application. Study it and answer the questions that follow.

Land (ha)	Variable input (50kg bags)	NPK	Total product maize (90kg bags)	Marginal product maize 90kg bags	Average product maize 90kg bags
1	1		10	10	10
1	2		27	A	F
1	3		42	15	14
1	4		56	B	14
1	5		63	7	12.6
1	6		65	C	G
1	7		65	D	9.3
1	8		60	-5	7.5
1	9		52	E	H
1	10		42	-10	4.2

- a) Complete the above table A, B, C, D, E, F, G, H (4marks)
- b) Using the graph paper provided draw a graph of total product, marginal product and average product against variable input on the same axis and mark the zones of production. (7 marks)
- c) With a reason identify the best zone of production. (2 marks)
- d) Discuss the various ways in which farmers minimize risks in potato production. (7 marks)
25. a) Describe the methods used in preparing materials in readiness for planting. (8 marks)
- b) Explain the factors that may determine spacing of crop in the farm. (8 marks)
- c) Explain briefly the factors that influence timely planting. (4 marks)
26. a) List seven benefits of using organic matter for mulching. (7 marks)
- b) Describe the field production of nappier grass under the following sub-headings
- (i) Planting (3 marks)
- (ii) Fertilizer and manure (3 marks)
- (iii) Utilization (3 marks)
- c) Describe the procedure followed when transplanting tree seedlings from a bare root nursery bed. (4 marks)

KIMA JOINT EXAMINATIONS 2016
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AGRICULTURE
PAPER 2

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

1. Give two notifiable diseases of cattle. (1 mark)
2. Give two functions of reticulum in the process of food digestion. (1 mark)
3. State the function of a carburetor in the fuel system. (1 mark)
4. Name the structure that is used to ensure that the honey comb and brood combs are found in different chambers in the hive. (½ mark)
5. Differentiate between inbreeding and outbreeding. (2 marks)
6. Give three methods of harnessing tractor power. (½ marks)
7. Give three reasons why ewes disown lambs. (1 ½ marks)
8. Give four factors to consider when selecting goats for breeding. (2 marks)
9. State four conditions that can make a cow to withhold milk during milking. (2marks)
10. Give four predisposing factors of mastitis in cattle. (2 marks)
11. A dairy cow under zero grazing system weighs 700kg. Calculate how much dry matter it takes given that it takes 2.5kg for every 100kg live weight (show your working) (2 marks)
12. State two advantages of using wood in the construction of a farm building. (1mark)
13. Give two reasons why the walls of the dairy shed should be white washed instead of painting with oil paints. (1 mark)
14. Outline three reasons why calves should be fed on colostrums. (1 ½ marks)
15. List two groups of vitamins as applies to livestock nutrition. (1 mark)
16. Give three importance of flushing in sheep management. (½ marks)
17. State three factors that dictate livestock distribution in Kenya. (1/4 marks)
18. Give three conditions under which a farmer prefers to use an ox-cart instead of a tractor drawn trailer. (½ marks)
19. List two tools used in closed castration. (1 mark)
20. State four qualities of good creep feed. (2 marks)
21. Name three mechanical methods of controlling ticks. (1 ½ marks)

SECTION B: (20 MARKS)

Answer all questions in this section.

22. A farmer in Makueni County owns 16 million cows. In addition to feeding these animals with napier grass, the farmer prepares home mixed ratio in them. During this dry season, the farmer has decided to mix 600kg of the ratio using oats DCP 40% and simsim cake DCP 60% using the Pearsons square method.
 - i) Determine the quantities of each feed the farmer will need to make a ratio containing 20% DCP for the animals. (4 marks)
 - ii) State one factor affecting feed digestibility. (1 mark)
23. Below are illustrations of animal hooves and activity being done.

Diagrams; D E F

- i)
 - a) What activity is going on in diagram F. (1 mark)
 - b) Which of the above hooves is likely to predispose foot rot infection? (1 mark)
 - c) Name one appropriate tool for carrying out the above activity. (1 mark)
 - d) i) Other than protecting animals from foot rot give another one reason for carrying out the activity. (1 mark)
 - ii) give three reasons for seasoning timber before use. (3 marks)
24. Study the structure and answer the questions.

Diagram

- (a) Name the structure above. (1 mark)
 (b) Name the parts labeled S & T (2 marks)
25. Below is a diagram of a farm equipment. Use it to answer the questions that follow.

Diagram

- a) Identify the equipment. (1/2 mark)
 b) State the use of the equipment (1 mark)
 c) Name the parts labelled G, E and F (1marks)
 d) Identify two drawbacks in using this equipment compared to others that may be used for the same purpose. (2 marks)

SECTION C: (40 MARKS)

Answer any two questions from this section.

26. a) Give the differences between petrol and diesel engine.
 b) Outline five advantages of farm mechanization.
 c) Explain factors considered in selection of construction materials.
27. a) Discuss coccidiosis disease under the following headings :
 i) Causal organism (1 mark)
 ii) Livestock species attacked (2 marks)
 iii) Symptoms of attack (4 marks)
 iv) Control measures (3 marks)
 b) Describe the essentials of obtaining clean milk from a cow. (10 marks)
28. a) Describe the management of layers in deep litter system from the point of lay. (10 marks)
 b) Describe the lifecycle of a two host tick. (6 marks)
 c) Name four sources of power in the farm. (4 marks)

KERICHO SUB – COUNTY JOINT EXAMINATIONS 2016**443/1****AGRICULTURE****PAPER 1**

1. Give four reasons that make ranching to be regarded as a form of advanced pastoral nomadism (2 mks)
2. State four practices that can facilitate achievement of organic farming (2 mks)
3. List four factors that increase seed rate in crop production (2 mks)
4. Give the meaning of the following terms;
 - Nitrogen fixation into the soil (1 mk)
 - Phosphorous fixation in loss of soil fertility (1 mk)
5. Give four advantages of individual owner operator tenure system as practised in Kenya. (2 mks)
6. Give four features that should be considered when choosing water pipes for use on the farm (2mks)
7. List the four aspects of rainfall that affect agriculture (2 mks)
8. Give four reasons why a well drained soil is suitable for crop production (2 mks)
9. State two indicators of well rotten compost manure (1 mk)
10. Distinguish between contact herbicide and a systemic herbicide (1 mk)
11. Name four variable costs in the production of maize (2 mks)
12. What is meant by working capital (1 mk)
13. State four advantages of tractor hire services (2 mks)
14. Give four advantages of intensive fanning system. (2 mks)
15. Give four reasons for deep ploughing during primary cultivation (2 mks)
16. Give four characteristics of a good vegetable seedling for transplanting (2 mks)
17. State two benefits of Agroforestry to a maize crop (1 mk)

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

18. The diagram below shows an experiment set up using soil type G, H and J, and the observations made after 24 hours. Study the diagram and answer the questions that follow (1 mk)

Diagram

- i) State the aim of the experiment above (1mk)
 - ii) Name the three soil types G, H and J (1 ½ mk)
 - iii) What is the characteristic texture of soil types G and J (1 mk)
 - iv) State one way of improving the structure of soil type G (1 mk)
19. The diagram below illustrates a nursery practice carried out on tree seedlings before transplanting. Study it carefully then answer the questions below

Diagram

- a) Identify the practice being carried out on the diagram (1 mk)
 - b) Give three reasons why the practice is encouraged when raising seedlings (3 mks)
 - c) Give two reasons why the polythene sleeves are used in the nursery bed as shown in the diagram (2mks)
20. Study the illustration below of a tomato fruit as observed in field production.

Diagram

- i) Identify the condition illustrated above. (1 mk)
 ii) State two conditions that predispose a tomato plant to the conditions stated in (a) above (1 mk)
 iii) Suggest four possible ways of controlling the condition stated in (a) above (2 mks)
 iv) Name two categories of tomato varieties (1mk)
21. The diagram below shows a method of forage preservation

- a) Identify the structure above (1 mk)
 b) State the form in which the forage is preserved as illustrated above (1 mk)
 c) Give the role played by each of the following in the structure above
 i) Polythene sheet (1 mk)
 ii) Drainage (1 mk)
 d) Name two other methods of forage conservation (1 mk)

SECTION C (40 MARKS)

Answer any two questions in the spaces provided below.

22. a) Explain five morphological features of weeds that influence selectively of herbicides (5 mks)
 b) State five factors that contribute to competitive ability of weeds (5 mks)
 c) Explain physical methods used in control of pests in crop production (10 mks)
23. a)
 i) What is a partial budget (1/2 mk)
 ii) Mr, Owino 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 0.3 ha of maize with potatoes the following season would be worthwhile. The fertilizer rate would have increased from 2 bags per hectare for maize to 2.5 bags per hectare for potatoes, an extra 40 days of casual labour 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 prices are Kshs 1200 per bag of maize and Kshs 300 per bag of potatoes, seed costs are Kshs 1350 per 10 kg of maize and Kshs 200 per 50 kg of potatoes. DAP fertilizer costs Kshs. 1400 per 50 kg bag. Labour is paid at Kshs 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 (7 mks)
 iii) What advise would you give this farmer (1/2 mk)
 b) State different ways through which farmers may adjust to risks and uncertainties (5 mk)
 c) Explain seven biological and cultural measures used in control of soil erosion (7mks)
24. a) Describe the procedure of seed inoculation (5 mks)
 b) Discuss five negative effects of wind to crops (5 mks)
 c) Describe the production of Dry beans (Phaseolus vulgaris) under the following sub headings
 i) Varieties (3 mks)
 ii) Land preparation (3 mks)
 iii) Harvesting (4 mks)

Diagram

- a. Identify the equipment (1 mk)
 b. What is the importance of warm water in the equipment (1 mk)
 c. Describe the procedure followed when using the equipment in collecting semen (3 mks)
22. Below is an illustration of a brooder used in rearing chicks

Diagram

- a) Why should the structure above be round in shape instead of rectangular/square shaped (1 mk)
 b) For how long should chicks stay in the above structure (1/2 mk)
 c) i. Give the temperature position inside the brooder above (1/2 mark)
 ii. Give a reason for your observation in c (i) above (1mk)
 d) i. List the heat sources that can be used (1mk)
 ii. Why should a wire guard be placed round the heat source (1mk)

SECTION C: 40 MARKS**Answer any TWO questions from this section**

23. a) Describe the principle of operation of a four stroke (four-cycle) petrol engine (10mks)
 b) Explain the functions of water in livestock's body (5mks)
 c) Discuss the predisposing factors of livestock diseases (5mks)
24. a) Describe the lifecycle of roundworm (*Ascaris* sp) (10mks)
 b) Describe the process of egg formation in poultry (10mks)
25. a) Discuss parts of a spray race (10mks)
 b) Explain limitations of animal drawn implement (5mks)
 c) Discuss Newcastle disease under the following sub-headings
 i) Causal agent (1/2 mk)
 ii) Symptoms of the disease (3mks)
 iii) Control measures (1 ½ mk)

LONDIANI SUB – COUNTY JOINT EXAMINATIONS 2016**443/1****AGRICULTURE****PAPER 1****SECTION A (30MARKS)***Answer All the questions in the spaces provided.*

1. What is a micro catchment ? (½ mk)
2. Give any four methods of draining excess water in the farm (2mks)
3. Name two diseases of cabbages (1 mk)
4. Give four reasons for earthing up some crops. (2mks)
5. Give four reasons for pruning crops. (2mks)
6. Give four factors affecting the quality of farmyard manure. (2mks)
7. Give four factors that determine the quality of silage. (2mks)
8. Give four advantages of owning a title deed. (2mks)
9. How can a farmer increase light intensity in the field of crops. (2mks)
10. Outline four edaphic factors which influence agriculture. (2mks)
11. Give three advantages of timely land preparation. (1 ½ Mks)
12. Differentiate between thinning and pricking out. (1 mk)
13. Give two sources of sulphur element in soil. (1 mks)
14. State any four factors which may lead to change in demand of a given commodity. (2mks)
15. State any three details contained in a delivery note. (1 ½ mks)
16. Outline any four problems farmers face when marketing their products. (2mks)
17. Name three sites for agro forestry trees. (1 ½ Mks)
18. Give any two sources of credit to farmers (1 mk)
19. Give two reasons for testing soil in the farm. (1 mk)

SECTION B (20marks)*Answer All the questions in this section.*

- 20 Use the diagram below to answer the questions that follow.

Diagram

- a) Identify the above practice used in tomato production.
 - b) Give any four reasons for carrying out the above practice.
 - c) Name any other two methods of training crops in crop production. (1mk)
21. Below are photographs of some common weeds. Use them to answer the questions that follow.

Diagram

- a) Identify weeds labeled.
 - K (1 mk)
 - L (1 mk)
 - b) Give problems associated with the weeds above.
 - K (1 mk)
 - L (1 mk)
22. The diagrams below show different types of soil structures. Use them to answer questions that follow.

Diagram

- a) Identify soil structures.
 K (1 mk)
 L (1 mk)
- b) In which position in the soil profile is structure K found. (1 mk)
- c) Give reason why the above soil structure K is not good for crop production. (2mks)
23. Below is an illustration showing a method of layering. Use it to answer questions that follow.

Diagram

- a) Identify the method of layering above. (1 mk)
- b) Give the procedure for carrying out the above practice. (3mks)
- c) Name two other methods of layering. (2mks)

SECTION C (40 marks)

Answer any two questions.

24. a. Explain the terms risks and uncertainties in farming (2 mks)
- b. State the various risks and uncertainties farmers face in farming (12 mks)
- c. Explain various ways in which farmers adjust to risks and uncertainties in farming (6mks)
25. a) Discuss production of maize under the following sub headings.
- i) Land preparation. (5mks)
- ii) Field practices. (7mks)
- iii) Harvesting (3mks)
- b) State any five post harvest practices done on maize after harvesting. (5mks)
26. a) Describe the environmental conditions that may lead to low crop yields (8mks)
- b) Discuss the benefits a farmer is likely to get by using vegetative propagation in production of Oranges (10mks)
- c) Describe the procedure for harvesting coffee (2mks)

LONDIANI SUB – COUNTY JOINT EXAMINATIONS 2016

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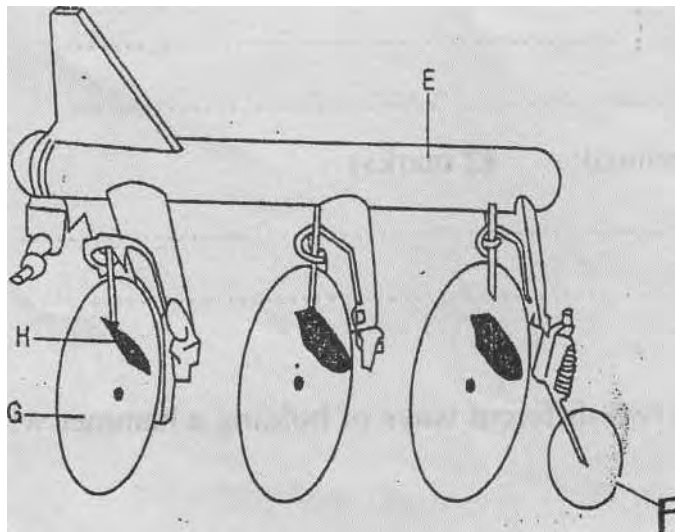
PAPER 2

SECTION A (30 MARKS)

1. Name **four** light breeds of poultry. (2marks)
2. State three ways used to improve production of indigenous cattle. (1 ½ marks)
3. Name five systems of a tractor engine. (2½ marks)
4. State **four** disadvantages of natural mating as a method of breeding in dairy cattle. (2marks)
5. State three factors affecting maintenance requirements of a livestock (1 ½ marks)
6. Give **two** signs that indicate a cow has died of anthrax. (1 mark)
7. Differentiate between “Flushing” and “Steaming up” in livestock management. (2marks)
8. Give four characteristics of a good vaccine. (2mark)
9. List three uses of green house in the farm. (1½ mark)
10. Give two livestock diseases controlled through artificial insemination. (1 mark)
11. State **two** reasons why walls of a dairy shed should be white washed instead of painting. (1 mark)
12. Give two reasons why the afterbirth is removed immediately the sow farrows. (1mark)
13. Give four characteristics of clean milk. (2marks)
14. a) Name two common diseases that attack bees in a colony. (1 mark)
- b) Name the equipment used to make the bees less aggressive during harvesting of honey. (½ marks)
15. Differentiate between contemporary and progeny testing. (2 marks)
16. List **four** functions of the rumen in the digestion of feed in ruminants. (2 marks)
17. List any four farm structures that are necessary for holding dairy animals. (2 marks)
18. Outline three causes of infertility in dairy cattle. (1½ marks)

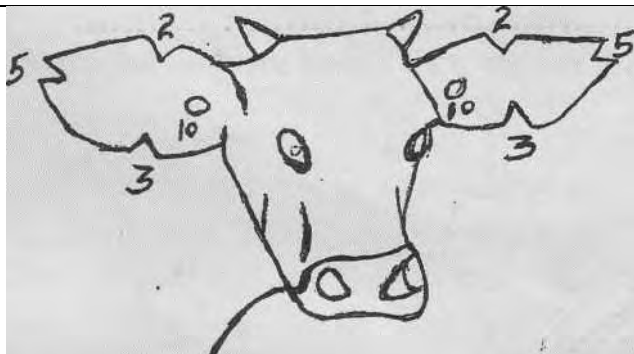
SECTION B: (20 marks)*Answer ALL the questions in this section in the spaces provided.*

19. Study the illustration below and answer questions that follow



- (i) Identify the implement illustrated above. (1mark)
 - (ii) Name the parts labeled E, F, G and H. (2marks)
 - (iii) State two ways in which the depth of ploughing can be increased when using the implement above. (2marks)
20. Study the diagram below then answer the questions that follow.

Diagram



- (i) Name the type of identification above. (1 mark)
- (ii) Give the identification number of the animal illustrated in the diagram above. (1 mark)
- (iii) Using diagrams illustrate how you can identify animals **Nos 24 and 36** using the above method. (2marks)

Animal No. 24

Animal No. 36

- b) If a sow was successfully served on 27th September, 2006, state the date she is likely to have farrowed. (1 mark)

SECTION O (40 MARKS)

Answer any TWO questions from this section.

23. a) State and explain the control measures of livestock diseases. (14marks)
b) Give six harmful effects of liver flukes in cattle rearing. (6marks)
24. a) Describe the procedure of constructing a barbed wire fence. (5marks)
b) Describe factors considered when siting a rabbit hutch. (5marks)
c) Describe the management of sow during farrowing. (10marks)
25. a) Outline ten daily maintenance practices that should be carried out on a farm tractor (10marks)
b) Describe the body conformation features of beef cattle (4marks)
c) Outline six causes of stress to a flock of layers. (6marks)

NTIMA COUNTY JOINT EXAMINATIONS 2016**443/1****AGRICULTURE****PAPER 1****SECTION 30 MARKS****(ANSWER ALL QUESTIONS)**

1. State two ways by which Agriculture contributes to Employment (1 mk)
2. Name two methods of farming considered outdated (1mk)
3. State three benefits of good soil structure in crop production (1 ½ mks)
4. State two effects of HIV/AIDS on Agricultural Production (1mk)
5. State the conditions under which the opportunity cost is zero in a farming enterprise (2mks)
6. Name two types of labour records (1mk)
7. State four ways of improving farm labour productivity (2 mks)
8. Name four types of financial documents. (2mks)
9. Distinguish between oversowing and undersowing as used in pasture establishment (1mk)
10. Give four government policies that influence agricultural production (2mks)
11. State two advantages of tenancy system in farming (1mk)
12. Explain two advantages of biological control of pests in crops (1mk)
13. Name two categories of tomato varieties grown in Kenya (1mk)
14. a) Define the term elasticity of demand as used in agricultural economics (2 mks)
- b) State four factors that affect elasticity of demand (2 mks)
15. Name the form of soil water that is available to crops (1 mk)
16. State three factors that have direct influence on soil formation (1 ½ mks)
17. List four characteristics of crops grown for green manure (2 mks)
18. List four advantages of timely harvesting of crops (2 mks)
19. State two advantages of intercropping (1 mk)
20. State two deficiency symptoms of potassium in crops (1 mk)

SECTION B (20 MKS)**Answer all the questions in this space provided**

21. The diagram below shows a Kale seedling attacked by a pest

Diagram

- (a) Identify the pest (1mk)
 - (b) What damage does the pest cause to the crops? (1 mk)
 - (c) State one method of controlling the pest (1mk)
 - (d) Name two insect pests other than the one identified in (a) above that attack kale in the field (2mks)
22. The diagram below shows a banana tissue culture. Study it and answer the questions that follow

Diagram

- a) Name two ways of inducing the rooting of plantlets (2mks)
 b) Outline three steps followed in the development of tissue culture (3mks)
 c) State one advantage of propagating crops by use of tissue culture technique (1mk)
23. The diagram below illustrates a physical method that is used to control soil erosion. Study it carefully and answer the questions that follow

Diagram

- a) Name the physical soil erosion control method illustrated by the diagram above (1 mk)
 b) Name the part labelled D on the diagram (1mk)
 c) State four places where water from the structure named in (a) above is discharged (2 mks)
24. A farmer has 16 hectares of land. About 6 ha are under permanent pasture. He plans to grow 6, ha of beans. In the previous seasons, he hired casual workers at the rate of 80 man days per hectare. The cost was Kshs. 30 per man day. This season he intends to hire a tractor to open the land at a cost of kshs. 600 per hectare. He thinks that using a tractor will increase bean production from 800 to 1200 kg/ha. Harvesting will cost Kshs. 6 per kg of bean & seeds and the price of beans will be Kshs.60/kg Draw up a partial budget to show whether the change would be worthwhile (5 mks)

SECTION C (40 MKS)

Answer any two questions in this section in the spaces provided

25. a) Outline five activities that may be undertaken in minimum tillage (5 mks)
 b) State the qualities of a good farm manager (5 mks)
 c) Explain five ways in which farmers may overcome risks and uncertainties in a farming business (10 mks)
26. a) Explain five ways through which soil loses fertility (5 mks)
 b) Explain five factors that determine the quality of farm yard manure (5 mks)
 c) Describe the field production of sorghum under the following sub-headings
 (i) Seedbed preparation (5mks)
 (ii) Planting (5 mks)
27. a) Describe the problems facing Agricultural co-operative societies in Kenya (10 mks)
 b) Discuss the classification of pesticides according to their mode of action (10 mks)

NTIMA COUNTY JOINT EXAMINATIONS 2016**443/2****AGRICULTURE****PAPER 2****SECTION A (30 MARKS)****Answer ALL questions in this section in the spaces provided**

1. List four factors that may dispose an animal to a certain disease (2 mks)
2. Give four reasons why dehorning is done in livestock (2 mks)
3. Give the distinguishing colour for each of the following breeds of livestock
 - (a) Chinchilla (1 mk)
 - (b) Toggenburg goat (1 mk)
4. Differentiate between the following tools
 - (a) Bastard file and rasp file (2 mks)
 - (b) Copying saw and hacksaw (2 mks)
5. State four factors that would contribute to the depreciation of a farm equipment (2mks)
6. Name the intermediate host of liver fluke (1 mk)
7. State two methods of lambing management (2 mks)
8. State four parts on the chicken which are frequently attacked by fleas (2 mks)
9. What are the functions of a clutch in a tractor ? (2 mks)
10. Name two intensive rearing systems of poultry (1 mk)
11. Name two methods commonly used in identifying sheep (2 mks)
12. State two characteristics of the African wild bee which makes it better in bee keeping than the European bee type (2mks)
13. Give three reasons why harvesting honey at night is discouraged (3mks)
14. Name four components of power transmission system in a tractor (2mks)
15. Give two examples Gf feed additives in livestock nutrition (1mk)

SECTION C: (20 MARKS)

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

Diagram

- (a) Identify the implement (1mk)
- (b) What is the function of the depth rod (1mk)
- (c) What are the disadvantages of using the implement (3mks)
17. i) Using the Pearson's square method compute a 2000 kg ration with 20% DCP from maize which contains 10% DCP and cotton seed cake containing 45% DCP Show your working (4mks)
- ii) A boar gained 70 kg of live weight after eating 280 kg of pig finisher meal over a period of time. Calculate the feed conversion ratio (2mks)
18. Study the ground plan of the zero grazing unit shown in the diagram below and answer the questions that follow.

Diagram

- (a) Indicate the location of the following parts of a zero grazing unit using roman numbers on the diagram.
- (i) Store
 - (ii) Calf pen
 - (iii) Walking area
 - (iv) Food and water trough area (2mks)
- (b) What type of a calf pen is in the zero grazing (1 mk)
- (c) State two structural requirements of a calf pen (2mks)
19. Study the table below and fill in the missing words (4mks)

	Description	Cattle	Pigs	Poultry	Sheep
(i)	Young from birth or hatching to weaning	(a)	(b)	Chick	Lamb
(ii)	Young female before first parturition /laying	(c)	Gilt	(d)	(e)
(iii)	Mature male for breeding	Bull	(f)	(g)	(h)

SECTION C (40 MARKS)

Answer any TWO questions in the spaces provided

20. a) Describe concisely the life cycle of a three-host tick (7mks)
- b) Discuss tick control methods (6mks)
- c) State four characteristics of effective acaricides (4mks)
- d) Give three methods of applying acaricides on livestock (3mks)
21. a) Describe hand milking of a dairy cow (10 mks)
- b) Explain the practices observed in clean milk production (8 mks)
- c) Name two milking equipments. (2 mks)
22. a) Describe the stocking of fish into a fish pond (3mks)
- b) Describe the feeding of fish in a fish pond (6 mks)
- c) Give five practices carried out on fish before preservation (5mks)
- d) State six management practices in fish rearing (6mks)