

Name \_\_\_\_\_ Index No. \_\_\_\_\_

Candidate's signature \_\_\_\_\_

Date \_\_\_\_\_

**443/1**  
**AGRICULTURE**  
**PAPER 1**  
**JULY / AUGUST 2011**  
**2 HOURS**

**KANGUNDO DISTRICT FORM FOUR MULTILATERAL EXAM**  
**Kenya Certificate of Secondary Education**  
**AGRICULTURE**  
**PAPER 1**

**INSTRUCTIONS TO CANDIDATES**

1. This paper consists of three sections, A, B and C.
2. Answer ALL the questions in the spaces provided.
3. Answer ALL the questions in section A and B and ANY TWO questions in section C.

**FOR EXAMINER'S USE**

SECTION	QUESTION	TOTAL SCORE	STUDENT'S SCORE
A	1 - 13	30	
B	14 - 18	20	
C	19 - 21	40	
		90	

*This paper consists of 9 printed pages*

*Turn Over*

**SECTION A ( 30 MARKS )**

1. (a) State two physical properties of soil. ( 1 mark)

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(b) State any four characteristics of a good soil for farming. ( 2 marks )

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2. (a) State any three advantages of multiple stem pruning over single stem pruning in coffee. (1½ marks)

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(b) State any three post harvest practice of grains. (1½ marks)

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3. List four characteristics used when choosing trees for Agroforestry. ( 2 marks)

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4. (a) State any three factors that contribute to the competitive ability of weeds. (1½ marks)

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(b) State any three reasons why a farmer should control weeds. ( 1 ½ marks )

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5. Give financial documents kept by a farmer. ( 2 marks )

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6. State two means by which water can be conveyed from the place of storage to where it is needed on the farm. ( 2 marks )

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7. State three advantages of communal land tenure. ( 3 marks )

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8. State four effects of soil erosion . ( 2 marks )

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9. Name one vegetative material used to propagate each of the following crops. ( 2 marks )

- (a) Bananas \_\_\_\_\_
- (b) Pineapples \_\_\_\_\_
- (c ) Irish potatoes \_\_\_\_\_
- (d) Pyrethrum \_\_\_\_\_

10. State four sources of nitrogen in the soil. ( 2 marks )

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11. State three ways by which land as a factor of production could be made more productive. ( 3 marks )

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12. Give four farming practices that help to reduce water stress in crop. ( 2 marks )

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13. Give two factors which characterize small scale farming. ( 1 mark )

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**SECTION B ( 20 MARKS )**

14. A farmer wanted to know the causes of his low crop yield. Give four things that may be determined during the process of soil testing. ( 2 marks )

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15. Study the illustrations below and answer the questions that follow.  
A B C

(a) Name the types of grafting labelled A, B and C above. ( 3 marks )

A \_\_\_\_\_

B \_\_\_\_\_

C \_\_\_\_\_

(b) Name any two crops propagated by method C. ( 2 marks )

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(c) Give any two tools or materials used in propagating method B or C. ( 2 marks )

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16. Calculate the plant population in a 5.4 hectares plot of a bean crop planted at the spacing ( 45cm x 20cm) assume 1 plant per hole. ( 2 marks )

17. The diagrams below represents some weeds.

A B

(a) Identify weed A and B. ( 1 mark )

A \_\_\_\_\_

B \_\_\_\_\_

(b) Name two methods used to control weed A. ( 2 marks )

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(c) State two harmful effects of weed B in livestock. ( 1 mark )

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18. (a) Define land tenure. ( 1 mark)

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(b) Differentiate between  
(i) Communal land tenure and co-operative land tenure. ( 2 marks )

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(ii) Concession and state ownership. ( 2 marks )

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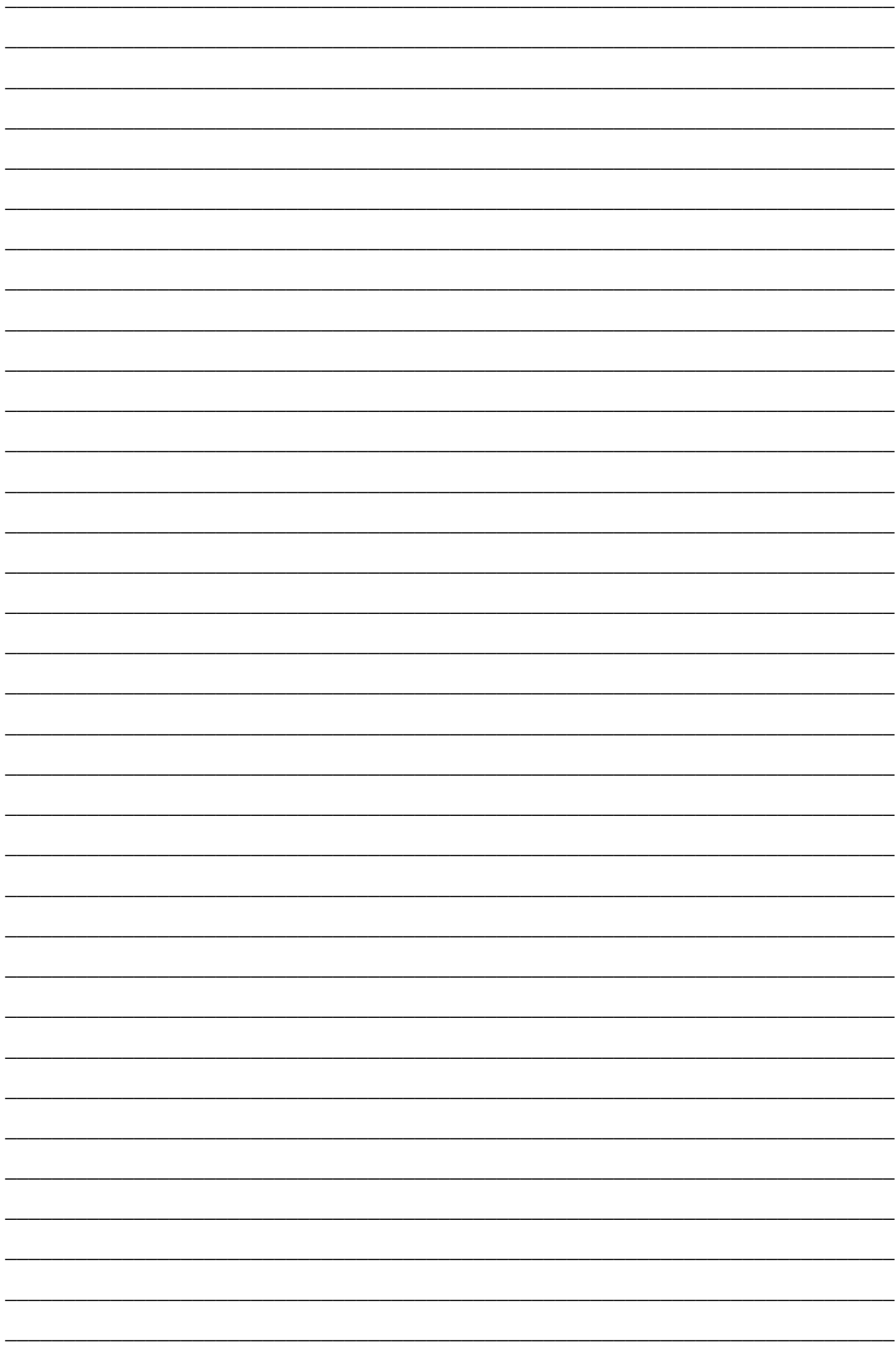
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**KANGUNDO DISTRICT FORM FOUR MULTILATERAL EXAM**  
**Kenya Certificate of Secondary Education**  
**AGRICULTURE**

**MARKING SCHEME**

**SECTION A ( 30 MKS )**

1. (a) - Soil texture  
- Soil structure  
- Soil colour 2 x ½ mk = 1 mk
- (b) - With numerous nutrients / fertile soil  
- Good soil depth  
- Good soil aeration  
- Good soil capillarity  
- Good soil water holding capacity  
- Good soil pH  
- Well drained soils  
- Free from soil pests and diseases Any 4 x ½ mk = 2 mks
2. (a) - Less skills required to establish  
- Easy to prune  
- Does not allow accumulation of coffee berry disease Any 3 x ½ mk = 1 ½ mks
- (b) - Threshing / shelling  
- Drying  
- Cleaning  
- Sorting  
- Grading  
- Dusting  
- Packaging Any 3 x ½ mk = 1 ½ mks
3. - Deep rooted  
- Good leaf to stem ratio  
- Fast growth after pruning / copping or pollarding  
- Nitrogen fixing / leguminous  
- Resistant to drought / flood / adaptability  
- Shallow lateral roots  
- Light open growth Any 4 x ½ mk = 2 marks

*This paper consists of 6 printed pages*

*Turn Over*

4. (a) - Ability to produce large quantities.  
 - Weed / seeds remain viable in the soil for along time.  
 - Easy and successful dispersal mechanism of molt weeds  
 - Ability of some weeds to propagate vegetatively complete their life cycle in a short time.  
 Any 3 x ½ = 1 ½ marks

- (b) - Competition from nutrients  
 - Harbour pest and diseases  
 - Poisonous to man and livestock  
 - Reduce quality of farm produce  
 - Block water ways and channel  
 - Irrigation  
 - Some are parasite e.g string spp  
 - Some are allelopathie to crop  
 - Increase cost of production

Any 3 x ½ mks = 1 ½ maks

5. - Invoice  
 - Receipt  
 - Delivery note  
 - Purchase order (LPO)  
 - Statement

Any 2 x 1 mk = 2 mks

6. - Piping / use of pipes  
 - Use of channels  
 - Use of container

Any 2 x 1 mk = 2 mks

7. - Cheap since the farmer does not incur costs in the process of improvement.  
 - Animals from different farms meet and graze together allowing natural mating to take place.  
 - Whole community has right to own land lace profits are shared equally.  
 - No land fragmentation.

Any 3 x 1mk = 3 mks

8. - Pollution of the environment  
 - Loss of plant nutrients in soil micro-organism  
 - Siltation of dams and rivers  
 - Reduction of soil depth  
 - Destruction of farm structures

Any 4 x ½ = 2 mks

9. (a) Suckers  
 (b) Slips / crowns / suckers  
 (c) Stem tuber  
 (d) Slits

Each ½ mk x 4 = 2 mks

10. - Fixation of nitrogen by bacteria.  
 - Organic manure application.  
 - Nitrogen fixation fertilizers.  
 - Nitrogen fixation by lighting

11. - Addition of organic matter / organic manure  
 - Application of manure  
 - Irrigation  
 - Drainage  
 - Control of weeds

Any 3 x 1mk = 3 mks

12. - Irrigation  
 - Mulching  
 - Addition of organic matter  
 - Growing drought resistant crop  
 - Establishment of wind breaker  
 - Ridging  
 - Contour ploughing

Any 4 x ½ mk = 2 mks

13. - Size of the land  
 - Availability of capital  
 - Types of tools / equipments  
 - Less labour required

Any 2 x ½ mk = 1 mk

**SECTION B ( 20 MARKS )**

14. - Soil structure  
 - Soil texture  
 - Soil pH  
 - Nutrient level

Any 2 points correct = 2 mks

15. (a) A – Side grafting  
 B – Whip / tongue grafting  
 C – Budding

3 x 1mk = 3 mks

- (b) - Pear  
 - Plum  
 - Avocado  
 - Citrus ssp

Any 2 x 1mk = 2mks

- (c) - Grafting knife  
 - Grafting tape  
 - Grafting wax  
 - Water

Any 2 x 1 mk = 2 mks

16. Plant population =  $\frac{\text{Area}}{\text{Spacing}} \sqrt{\frac{1}{2}}$   
 Area = 5.4 hectares  
 1ha = 10,000m<sup>2</sup>

$$\text{Area} = 54,000\text{m}^2 \sqrt{1/2}$$

$$\text{Spacing} = \frac{45}{100} \times \frac{20}{100}$$

$$\frac{54,000\text{m}^2}{0.45 \times 0.2} = \frac{54000 \times 100 \sqrt{1/2}}{0.09 \times 100}$$

$$= 600,000 \text{ bean plants}$$

17. (a) A – Cough grass (Digetaria Scalarum )  
 B – Thorn apple (Datura Stranonium )  
 2 x ½ mk = 1 mk
- (b) Use of herbicides  
 By tillage / mechanical / weed control 2 x 1 mk = 2 mks
- (c) Its poisonous to livestock  
 - It changes the colour of milk / tainting milk  
 2 x ½ mk = 1 mk
18. (a) Ownership and right to use land √ ( 1 mark )  
 (b) (i) Communal land tenure – community / part of it / has right to own and use land.  
 Co-operative land tenure - Members with common interests have right to own and use land.  
 (ii) Concession – individual company / corporation obtain from government right to use land for a specified period of time.  
 State ownership – government owns land that is gazetted but not registered nor adjudicated e.g forest national park.

### SECTION C

19. (a) Factors affecting spacing.
- Height – shorter crops require narrow spacing than other crops.
  - Suckering / tillering plants that tiller or produce suckers will tend to occupy a bigger area than those which do not tiller.
  - Soil fertility crops may be spaced wider if the soil is infertile.
  - Purpose of the crop. Crops can require different spacing depending on the purpose of crop (i.e) fodder require close spacing while those for human consumption require wider spacing.
  - Soil moisture – Drier areas require wider spacing than wetter areas.
  - Crop morphology – Crops that spread are widely spaced.
  - Number of seeds per hole. If more seeds are planted per hole the spacing is wider than if one or few seeds are planted per hole.
  - Pure stand / inter planted crops – Wider spacing is required for a crop to be inter planted than in pure stand.
  - Disease and pest control.
  - Mechanisation.
- (Any correct 5 x 2 = 10 mks ) If the candidate mentions or states the correct point give 1 mark )
- (b) General methods of control of pest and diseases.
- Crop rotation – Helps to break life cycle.
  - Roqueing / destroying infected crops.
  - Use of disease resistant / free materials / use of certified seed.
  - Closed seasoning – Helps to control / evade / escape disease or pest attack.

- Proper spacing / creates unfavourable micro-climate for some pathogen.
- Weed control prevents harbouring some pathogens.
- Application of appropriate chemicals to kill the pathogens.
- Use of resistant varieties / prevent attack by pathogen.
- Use of clean planting equipments to reduce the spread of the disease and pest.
- Quarantine – prevents introduction of pathogen pests in the farm.
- Heat treatment kill micro-organism.
- Pruning – creates unfavourable micro-climate for the pathogen e.g pests e.g Amtestia bug
- Destroying crop residual e.g wheat straws, stovers, stalks etc.
- Control of vectors, helps to stop spread
- Proper planting nutrition, reduces or controls deficiency diseases.

(Any correct 5 x 2 mks = 10 mks )

Award 1 mark where a point is not explained.

20. (a) Explain the harmful effects of weeds ( 8 marks )

(b) Describe the cultural methods of controlling pests. ( 12 marks )

(a) Harmful effects of weeds

- Increase cost of production.
- Reduces crop yields through competition.
- May block irrigation channels / cancels
- Lower efficiency of farm labour through injury.
- Act as alternative hosts for pests and diseases.
- Hinder farm operations e.g harvesting.
- Some weeds parasitic to crops e.g striga species.
- Some weeds have allelopathic effect

(b) Cultural methods of controlling pests.

- Timely planting / early planting.
- Crop rotation.
- Field hygiene / destroy crop residues
- Practising close season.
- Use of certified seeds / clean planting materials / seeds.
- Timely harvesting.
- Rogueing.
- Use of trap crops.
- Control of weeds / control alternative host.
- Proper spacing.
- Planting resistant varieties.
- Intercropping e.g planting maize with a crop which repels pests e.g onion.

21. (a) State and explain agricultural services offered by farmers. ( 10 marks )

(b) Explain the ways in which labour efficiency can be increased in the farm. ( 5 marks )

(c) Describe any five marketing functions carried out by a co-operative society. ( 5 marks )

Agricultural services offered to farmers :

### **Training and extension services**

Informal education given to the farmers through the field extension officers at divisional levels and chiefs barazas by the government and other non-governmental organisation.

### **Banking Services**

This includes savings and credit schemes loans etc. Farmers can have savings or current a/c. The bank also offer advisory services on credit facilities and investments.

### **Credit Services (Loans )**

Farmers can borrow working capital and pay it with interest. Farmers may offer security items as collected against the credit.

### **Artificial Insemination (AI)**

These can be offered by the government and other private organisation. This enables farmers to breed high quality livestock.

### **Agricultural research**

This is scientific research leading to new and better production techniques in crop and livestock production. The research which is done by the government is passed to farmers.

### ***Marketing***

The farmers are facilitated to move their goods and services from their points of production to consumption or organisation such as KCC, KTDA, KPCU help farmers to market their farm produce.

### **Veterinary Services**

They are services that help farmers to keep healthy animals through control and treatment of parasites and diseases.

21. (b) Ways in which labour efficiency can be increased in a farm

- Training the labour force
- Giving incentives to employees
- Efficient supervision of labour
- Assigning specific tasks to workers
- Proper remuneration of a worker
- Provide efficient tools
- Mechanisation of some operations
- provide transport within the farm

(Any 5 x 1 = 5mks)

(c) Marketing functions carried out by a co-operative society

- Buy farmers produce/delegate buying to an approved agent
- Arrange supply of inputs
- Fix prices of farm produce in consultation with government
- Collect farm produce from areas of production to stores/factories
- Inspect the production process to ensure and maintain quality of produce
- Provide storage facilities for farmers produce
- Provide credits to farmers
- Process farm produce e.g. K.T.D.A
- Bear risks and share overhead costs
- Provide market information
- Grade and standardize farm produce
- Invest accrues profits
- Pack/package farm produce
- Advertise/promote sales of produce
- Undertake research services on techniques of production
- Regulate production to prevent undersupply of produce
- Provide technical advice on production/extension services to farmers

(Any 5 x 1 = 5mks)

Name \_\_\_\_\_ Index No. \_\_\_\_\_

Candidate's signature \_\_\_\_\_

Date \_\_\_\_\_

**443/2**  
**AGRICULTURE**  
**PAPER 2**  
**JULY / AUGUST 2011**  
**2 HOURS**

**KANGUNDO DISTRICT FORM FOUR MULTILATERAL EXAM**  
**Kenya Certificate of Secondary Education**  
**AGRICULTURE**  
**PAPER 2**

**INSTRUCTIONS TO CANDIDATES**

1. This paper consists of three sections, A, B and C.
2. Answer ALL the questions in the spaces provided.
3. Answer ALL the questions in section A and B and ANY TWO questions in section C.

**FOR EXAMINER'S USE**

SECTION	QUESTION	TOTAL SCORE	STUDENT'S SCORE
SECTION A	1 - 18	30	
SECTION B	19 - 23	20	
SECTION C	24 - 26	40	
Student's total score			

*This paper consists of 10 printed pages*

*Turn Over*



SECTION A

1. Name two bacterial diseases that affect each of the following livestock.

(a) Poultry

( 1 mk )

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(b) Cattle

( 1 mk )

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2. Name three examples of dual purpose breeds of sheep.

(1½ mks)

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3. Give four maintenance practices that may be carried out on a jack plane.

( 2 mks)

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4. State four reasons for feeding colostrums to calves soon after calving down.

( 2mks)

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5. Apart from a tractor and electricity. Name four other sources of power that may be used for doing work in the farm.

(2mks)

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6. State four factors that determine the choice of building materials for farm structures. (2mks)

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7. Give four routine management practices where handling of an animal is necessary. (2mks )

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8. Give four factors that influence the quality of honey. (2mks)

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9. Give four requirements that are needed in a deep litter house for raising layers. (2mks)

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10. List three advantages of dry cow therapy. (1½ mks)

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11. State four harmful effects of ticks in livestock. (2mks)

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12. State three reasons why rabbit keeping has become popular in Kenya. (1½ mks)

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13. State four reasons for steaming up in dairy cattle management. (2mks)

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14. Differentiate between the following tools.

(a) Tenon saw and rip saw. (1mk )

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(b) Drenching gun and bolw gun. ( 1 mk )

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15. State two factors that contribute to depreciation of farm tools and equipment. ( 1mk )

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16. Name the hormone responsible for milk let down. ( ½ mk )

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17. Give two reasons why walls of a dairy shed should be white –washed, instead of painting with water or oil paint. ( 1 mk )

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18. Name two livestock diseases that are caused by viruses. ( 1 mk )

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**SECTION B ( 20 marks )**

19. Study the diagram below of a farm structure and answer the questions that follow.  
A B C

(a) Identify the parts labelled A, B and C. (1½ mks)

A \_\_\_\_\_  
B \_\_\_\_\_  
C \_\_\_\_\_

(b) Name two chemical preservatives that can be used to treat the wooden parts of the above structure against fungi and insect attack. ( 2 mks )

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(c) Give the ratio of cement, sand and ballast used when constructing the foundation. ( 1 mk )

20. Prepare 100kg pig ration of DCP of 16% using a cereal balancer of 10% cotton seed cake of 28% DCP. (Show your working) ( 4 mks )

21. The diagram below shows a tractor drawn implement.

(a) Name the implement \_\_\_\_\_ ( 1 mk )

(b) Give two uses of the implement shown above. ( 2mks )

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(c) State three maintainance practices carried out on the above implement. ( 3mks )

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22. Study the diagram below and answer the questions that follow.  
Card board Spot light

(a) Identify the activity being illustrated above. ( ½ mk )

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(b) State three abnormal conditions that would necessitate the use of the above equipment in agricultural production. ( 3 mks )

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23. Given below is an illustration of a ram's hoof. Study it carefully and answer the questions that follow.

(a) What routine management practice should be carried out on the hoof shown above. ( 1 mk )

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(b) Give two reasons for performing the management practice in (a) above. ( 1 mk )

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**KANGUNDO DISTRICT FORM FOUR MULTILATERAL EXAM**  
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**AGRICULTURE**  
**PAPER 2**

**MARKING SCHEME**

**SECTION A**

1. (a) - Bacillary white diarrhoea / pullorum disease of poultry  
- Fowl typhoid 2 x ½ = 1 mk
- (b) - Anthrax  
- Brucellosis / contagious abortion  
- Black quarter  
- Foot rot  
- Calf pneumonia 2 x ½ = 1 mk
2. - Romney marsh  
- Corriedale  
- Hampshire down 3 x ½ = 1 ½ mks
3. - Knob or handle should be replaced when broken.  
- Check and replace any worn out part.  
- Replace plane iron and cap iron when worn out.  
- Sharpen the cutting edge of the plane on an oil stone when blunt.  
- Lay the plane on its side on the work bench when not in use.  
- Clean the blade after use. 4 x ½ = 2 mks
4. - Colostrum is easily digested.  
- Colostrum has high nutritive value.  
- Colostrum has a laxative effect.  
- Colostrum contains antibodies which give calves resistance to diseases Any 4 points x ½ = 2 mks
5. - Wind power.  
- Water power  
- Human power  
- Biogas  
- Wood fuel  
- Charcoal / kerosene 4 x ½ = 2 mks

*This paper consists of 6 printed papers*

*Turn Over*

6. - Environmental conditions  
 - Availability of materials  
 - Cost of materials  
 - Availability of skilled labour  
 - Durability of material  
 - Aesthetic value  
 4 x ½ = 2 mks
7. - When administering treatment  
 - When inspecting the animal for abnormalities / signs  
 - When spraying / hand – dressing to control external parasites.  
 - When carrying out practices as dehorning, castration etc.  
 - When milking  
 - When harnessing  
 4 x ½ = 2 mks
8. - Presence of impurities  
 - Source of nectar  
 - Stage of ripening  
 - Method of harvesting  
 - Method of extraction  
 - Season of the year  
 - Type of container  
 4 x ½ = 4 mks
9. - Feed troughs  
 - Perches  
 - Laying nests  
 - Water troughs  
 4 x ½ = 2 mks
10. - Reduces chances of mastitis occurrence in the next lactation.  
 - Regenerates damaged milk tissue.  
 - Enhances quality and quantity of milk production.  
 - Has a higher cure rate than lactational treatment.  
 - Reduces risk of milk contamination.  
 Any 3 x ½ = 1 ½ mks
11. - Transmit disease causing organisms.  
 - Cause anaemia due to the sucking of blood.  
 - Cause damage to the skin in lowering the quality.  
 - Cause irritation / allergy  
 4 x ½ = 2 mks
12. - They are hardy  
 - Have low food requirement  
 - Cheaper source of proteins  
 3 x ½ = 1 ½ mks
13. - Helps build up energy for parturition  
 - Ensures birth of a health calf.  
 - Provides nutrients for good foetal growth.  
 - Promotes good health of the mother.  
 - Ensures high milk production after birth.  
 4 x ½ = 2 mks

14. (a) Tenon saw is used for cutting small sections in wood such as joints while rip saw is used to cut timber along the grains.  
NB: Mark as a whole  $1 \times 1 = 1$
- (b) Drenching gun is used for administering liquid drugs orally while bolus gun is used for administering medicine in tablet form orally to livestock.  
NB: Mark as a whole,  $1 \times 1 = 1$  mk
15. - Wear and tear.  
- Poor care and maintenance / storage .  
- Misuse of tools.  
- Low quality of the tools.
16. - Oxytocin  $1 \times \frac{1}{2} = \frac{1}{2}$  mk
17. - To avoid poisoning by chemicals or lead that may be in the paint e.g heavy metals.  $1 \times 1 = 1$ mk
18. - Rinder pest  
- Fowl pox  
- New castle disease  
- African swine fever  
- Gumboro disease  $2 \times \frac{1}{2} = 1$  mk

### SECTION B

19. (a) A – Cross tie  
B – Strut  
C – Rafter  $3 \times \frac{1}{2} = 1 \frac{1}{2}$  mks
- (b) - Old engine oil  
- Creosote  
- Tanex  
- Copper sulphate  
- Tar  
- Sodium dichromate  $2 \times 1 = 2$  mks
- (c) 1 : 2 : 3  $1 \times 1 = 1$  mk

20. Cotton seed  
28% cake

16

6 parts cotton seed cake

Cereal balancer 10%  $\frac{12}{18}$  parts cereal balancer

18 Total parts  $\sqrt{1}$  mk

Quantity of cereal balancer  $\frac{12}{18} \times 100\text{kg}$   
= 66.7kg  $\sqrt{1}$  mk

Quantity of cotton seed cake =  $\frac{6}{18} \times 100\text{kg}$   
= 33.3kg  $\sqrt{1}$  mk

21. (a) – Spike toothed harrow. 1 x 1 = 1 mk
- (b) - Level the seedbed.  
 - Break the soil clods.  
 - Stir the soil.  
 - Destroy weeds.  
 - Incorporating fertilizers into the soil.  
 - Removing trash from the soil / field 2 x 1 = 2 mks
- (c) - Worn out parts should be replaced.  
 - Clean after work.  
 - Tighten loose nuts and bolts.  
 - Oiling of unpainted parts for storage. 3 x 1 = 3 mks
22. (a) Egg candling 1 x ½ = ½ mk
- (b) - Presence of blood spots.  
 - Presence of meat spots.  
 - Double yolk. 3 x 1 = 3 mks
23. (a) Hoof trimming 1 x 1 = 1 mk
- (b) - To control foot rot disease.  
 - To facilitate easy movement.  
 - To prevent injury to the ewe during mating / tugging 2 x ½ = 1 mk

### **SECTION C**

24. (a) - Parasites lower yield and quality of livestock production.
- Some are vectors of livestock diseases.
  - Pests reduce pasture and fodder available for livestock.
  - Others like termites destroy animals structures.
  - Pathogens such as protozoa, bacteria and viruses cause disease.
  - Predators such as lions, jackals, hyenas and mongoose predate on live livestock in the fields and their houses. Birds predate on fish.
  - Nitrogen fixing bacteria convert nitrogen to nitrates which subsequently improves protein content and hence the palability of forage. Crops.
  - Decomposers break down organic matter to release nutrients for use by pasture and fodder crops.
  - Weed chokes pastures on which animals feed. Others lower the quality of pasture grasses and livestock products.
  - Denitrifying bacteria converts nitrates to nitrogen which reduces the protein content and palatability of forage crops
- |                             |                       |
|-----------------------------|-----------------------|
| - Mention the biotic factor | 5 x 1 = 5 mks         |
| - Description of effect     | <u>5 x 1 = 5 mks</u>  |
|                             | <u>Total = 10 mks</u> |
- (b) (i) Temperature  
 Thermo-comfort zone – Every animal survives well at a particular range of temperature. Temperature below or above the comfort zones cause heat stress and change in metabolic rate.

- (ii) Growth rate  
At higher ambient temperatures , the livestock appetite is depressed, the feed intake is reduced and consequently the animal grows slowly.
- (iii) Milk production  
High ambient temperature decrease both the quality and quantity of milk produced by exotic livestock.
- (iv) Reproduction.  
High ambient temperature affects the reproduction of livestock. Spermatogenesis is adversely affected by high temperature. High temperatures delays puberty in animals.
- (v) Sunburn and photosensitivity disorders  
Non-pigmented skin is less desirable in the tropics since it is more susceptible to sunburn and photosensitivity disorder.
- (vi) Rainfall  
Feed availability – Rainfall and temperature influence the quality and quantity of feeds, particularly natural pastures.
- (vii) Distribution of pests and diseases  
Climate influence the distribution of major pests, diseases and vectors e.g Tsetse fly in bushy areas, worms and foot rot disease in permanently wet areas, pneumonia in damp areas.
- (viii) Light  
Reproduction (breeding ) in temperate areas, sheep and goats can be made to breed at abnormal times of the year by artificial reducing the day length.
- (ix) Seasonal births  
Livestock born during the day season will reach puberty late and vice versa.
- (x) Egg production – Long days stimulate egg formation.
- (xi) Growth rate  
Artificial provision of extra lighting for intensively managed livestock like poultry result in increase in productivity. There is food maximum consumption and growth rate when chicks are reared in continuous light.

10 x 1 = 10

25. (a) - Eggs hatch on the ground into larvae
- Larvae climb onto first host where they feed on blood and become engorged.
  - The engorged larvae moults into nymphs
  - The nymph feed on blood of the same host and become engorged, they drop to the ground.
  - They moult to adult ticks, while on the ground.
  - The emerging ticks climb onto a second host, feed on blood, mate and females drop off to the ground to lay eggs.

( 6 x 1 = 6 mks )

NB: Correct procedure must be followed.

(b) Operational differences between disc and mould board plough

Mould board	Disc plough
1. Inverts furrow slices completely	1. Doesn't invert furrow slices completely
2. Cannot be used on soils with obstacles	2. Can be used on soils with obstacles
3. Operates on uniform depth	3. Operates on varying depth
4. Easily broken by obstacles	4. Not easily broken by obstacles
5. Use more tractor power to pull	5. Use less tractor power to pull
6. Fewer secondary operations are needed	6. More secondary operations are needed

6 x 1 = 6 marks

- (c)
- When the queen is sick or infertile
  - Due to damage of brood combs
  - When there is shortage of food and water
  - Due to poor ventilation in the bee hive
  - Due to overcrowding
  - Due to attack of parasites and diseases
  - Bad smell, coming from nearby
  - The hive is damp
  - Direct sunshine enters the hive
  - Too high temperature in the hive.

8 x 1 = 8 marks

- 26.
- Construct or acquire a brooder
  - Clean the brooder
  - Disinfect the brooder
  - Ensure proper ventilation of the brooder
  - Brooder should be spacious and rounded / with round guards
  - Spread litter on the floor
  - Spread news papers on the litter
  - Make adequate feed / water trough available
  - Ensure sufficient light supply and ensure it works
  - Acquire or buy duck mash / chick mash
  - Acquire chemicals for emergency e.g glucose, antibiotics
  - Warm the brooder before the chicks arrive
  - Check the chicks for weakness
  - Give glucose solution / agricultural trickle to the weak chicks.
  - Feed the chick from the floor
  - Ensure the chicks are feeding and drinking water.
  - Clean the food containers and water regularly.
  - Ensure adequate warmth of the brooder
  - Provide the heat source by providing a heat guard.
  - Vaccinate against disease / give preventive medicine.

Any 20 point x 1 = 20 marks