

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

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

Date \_\_\_\_\_

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

MAKINDU DISTRICT INTER-SECONDARY SCHOOLS EXAMINATION  
Kenya Certificate of Secondary Education  
AGRICULTURE  
PAPER 1  
JULY / AUGUST 2011  
2 HOURS

**Instructions to Candidates**

1. Write your name and index number in the spaces provided.
2. This paper contains three sections A, B and C.
3. Answer all the questions in section A and section B.
4. Answer any two questions in section C.

**FOR EXAMINER'S USE ONLY**

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 18	30	
B	19 – 22	20	
C	23 - 25	40	
TOTAL SCAORE		90	

1. Give **two** reasons why soil is important to crops. ( 1 mark )
2. State **two** factors that determine the soil colour. ( 1 mark )
3. Give **TWO** reasons that may contribute to failure of seed germination after planting in the field. ( 1 mark )
4. List down **three** macro-elements used as liming materials. (1½marks)
5. Give **four** precautions that should be taken by farmers when harvesting crops. ( 2 marks )
6. State **two** characteristics of a good root stock for grafting. ( 1 mark )
7. State **three** disadvantages of shifting cultivation. (1½marks)
8. State **four** benefits a farmer would get by having a correct plant population in the production of annual crops. (2 marks)
9. List down **five** important features of a cash sale receipts. (2½marks)
10. (a) State **four** precautions taken when making hay. ( 2 marks )  
(b) State any **two** indicators of good quality silage. (1 mark)
11. A farmer has several ploughing implements on the farm. Give *three* factors the farmer would consider in choosing one implement over the other. (1½marks)
12. Give **four** factors that affect efficiency of pesticides. ( 2 marks )
13. State **four** advantages associated with state ownership of land. ( 2 marks )

14. Give **four** advantages of PVC pipes over metal pipes in conveyance of water in the farm. ( 2 marks )
15. State **three** effects of soil pH on crop production. (1½ marks)
16. List **three** functions of plastic materials used as mulch in crop production. (1½ marks)
17. State **four** field practices which contribute to minimum tillage. (2 marks )
18. Give **TWO** symptoms of fusarium wilt on tomatoes. ( 1 mark )

### SECTION B

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

19. Study the diagram below and answer the questions beneath.

- a) State **two** reasons for carrying out the above practice. (2 marks)
- b) State **two** disadvantages associated with the above practice. (2 marks)
- c) Identify the practice illustrated above and name any one other method that can be carried out on the same crop for the same purpose. (1 mark)

20. A farmer has been advised to apply a compound fertilizer 20: 30: 20 to an Irish potatoes plot measuring 8 x 5 metres, at a rate of 200kg per hectare.

- (a) Calculate the amount of fertilizer needed for the plot. (2 marks)
- (b) What **four** informations should be contained on a fertilizer bag? (2 marks)

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

- (i) Identify the pests that mainly attack crops in large numbers. (1 mark)
- (ii) State **two** effective control measures that can be used to control the pest. (1 mark)
- (iii) Explain the damages caused by the pest on crops. (2 marks)
- (iv) Name **four** types of crops that are attacked by the pest identified in question 19 (i) above. (2 marks)

22. Study the illustrations M, N, O, P of weeds and answer the questions that follow.

- a) Identify the specimen labeled M, N, O and P. (2 marks)
- b) Identify the specimen that is poisonous to livestock and human beings. (1 mark)
- c) Identify the specimen that can lower the quality of wool or fur. (1 mark)
- d) Why is it very difficult to control specimen O. (1 mark)

**SECTION C ( 40 marks )**

*Answer any TWO questions only in this section in the spaces provided after question 25.*

23. Describe field production of tea under the following subheadings.
- (i) Land preparation (5 marks)
  - (ii) Selection and preparation of planting materials in the nursery. (8 marks)
  - (iii) Transplanting the seedlings. (7 marks)
24. (a) Explain how the following factors influence Agriculture.
- (i) Cultural and religious beliefs. (4 marks)
  - (ii) Transport and communication. (8 marks)
- (b) State **four** advantages and **four** disadvantages of using pesticides. (8 marks)
25. (a) On the basis of plant morphology, name two classes of weeds. (2 marks)
- (b) Explain the factors that contribute to competitive ability of weeds. (8 marks)
- (c) Explain the harmful effect of weeds to farmers. (10 marks)

**MAKINDU DISTRICT INTER-SECONDARY SCHOOLS EXAMINATION**

**Kenya Certificate of Secondary Education**

**AGRICULTURE**

**PAPER 1**

**1. Why soil is important to crops**

- Provides anchorage to plants.
- Provides nutrients to plants.
- Provides moisture to plants.
- Provides air necessary for root respiration and for use by micro-organisms. *2 x 1/2 = 1 mark*

2. • Parent material  
• Amount of organic matter in the soil

3. • Inadequate moisture contents in the soil.  
• Attack by pests and diseases.  
• Poor storage of seeds before planting.  
• Seeds with long dormancy period not broken.  
• Deep or shallow placement of seeds during planting *2 x 1/2 = 1 mark*

4. • Calcium  
• Magnesium  
• Sulphur *1 1/2 marks*

5. • Time properly for right / appropriate stages of harvesting.  
• Produce should be handled to avoid damages.  
• Harvest during suitable weather conditions.  
• Use of suitable containers  
• Use appropriate method of harvesting. **2 marks**

6. • Health / free from pests and diseases.  
• Compatible with scion.  
• Tolerant to soil borne pests and diseases.  
• Adaptable to different soil conditions.

**7. Disadvantages of shifting cultivation**

- Total yield per unit area is low
- A lot of time wasted when shifting and building structures.
- Farmers have no incentive to develop land and conserve soil and water.
- Not possible in areas of high population. **3 x ½ = 1 ½ marks**

**8. Importance of correct plant population.**

- High yields obtained.
- Quality of the crop produced is high.
- Helps in improving soil coverage, hence reducing soil erosion and conserving water.
- Controls weeds, pests and diseases. **4 x ½ = 2 marks**

9. • Date of payment  
• Types of goods / services the payment was made.  
• Amount of money involved.  
• People involved in the transaction.  
• Signature of the person receiving money  
• Receipts serial number **2 ½ marks**

**10. (a)**

- Avoid leaves falling off.
- Protect hay from rain and damage by termites.
- Allow extra time for drying if rain falls after cutting.
- Do not bale the hay material with dew still on them.

**(b)**

- Colour remains green with little loss of nutrients.
- The scent should not be strong.
- Good texture without foreign materials.

**11. A farmer has several ploughing implements on the farm, what factors would be considered in choosing one implement over the other.**

- Condition of the land e.g. stoney, rhizomes.
- Tilt required depending on the crop to grow.
- Depth required e.g. breaking of hard pan
- Skill of the operator. **3 x ½ = 1 ½ marks**

**12. Factors affecting pesticide efficiency**

- Concentration of pesticides.
- Timing of application in relation to life cycle of pests.
- Persistence of pesticides
- Rate of application
- Mode of action.
- Weather condition. **4 x ½ = 2 marks**

13. • Reduces landless.  
• Generates income to state.  
• Opens up employment opportunities to citizens ( leases the land )  
• Helps to raise living standards. **2 marks**

14. • PVC pipes are cheaper than metallic pipes.  
 • They are easier to join together.  
 • They can resist corrosion better than metallic pipes.  
 • They have a smoother inner surface so water flows with less resistance.

**15. Effects of pH on crop production**

- Influences availability of various nutrients in the soil.
- Influences activities and availability of micro-organisms in the soil
- Determines the type of crop to grow.  $3 \times \frac{1}{2} = 1 \frac{1}{2} \text{ marks}$

**16. Functions of plastic mulches**

- Moderation of soil temperature.
- Control of weeds.
- Control of soil erosion.
- Conserves moisture.
- Retains soil fumigants  $3 \times \frac{1}{2} = 1 \frac{1}{2} \text{ mark}$

**17. Field practices which contribute to minimum tillage**

- Uprooting
- Slashing
- Cover cropping
- Application of herbicides to control weeds
- Mulching
- Timely cultivation
- Restricting cultivation to planting areas  $3 \times \frac{1}{2} = 1 \frac{1}{2} \text{ marks}$

18. • Progressive yellowing  
 • Death of tomato leaves  
 • Discolouration of vascular tissues  $2 \times \frac{1}{2} = 1 \text{ mark}$

**SECTION B**

**19. (a)**

- To encourage development of lateral branches.
- To establish a convenient plucking table  $2 \text{ marks}$

**(b)**

- Its tedious practice as each branch must be pegged down.
- Require many pegs which might turn out to be expensive.
- Its time consuming.  $2 \text{ marks}$

**(c)**

- Individual hooked peg method  $\frac{1}{2} \text{ mark}$
- Use of rings and hooked stick/ use of parallel fitos and hooked stick  $\frac{1}{2} \text{ mark}$

**20. (a) 1000m<sup>2</sup> needs 200kg of fertilizer**

$$\begin{array}{l} 10,000\text{m}^2 \longrightarrow 200\text{kg} \\ 40 \longrightarrow ? \\ \frac{40 \times 200}{10,000} = 0.8 = 800\text{gm} \end{array}$$

$2 \text{ marks}$

**(b)**

- Fertilizer name
- Fertilizer grade and element in their proportion.
- Quantity in kilograms.
- Name and address of the manufacturer.  $4 \times \frac{1}{2} = 2 \text{ marks}$

**21. (i) Army worms  $1 \times 1 = 1 \text{ mark}$**

- (ii) • Dusting chemicals on the shoot – e.g. malathion, diazindu  
 • Crop rotation  
 • Flooding e.g. rice fields  $2 \times \frac{1}{2} = 1 \text{ mark}$

- (iii) Defoliation - Leaving the midribs only  
- Death of the crop **2 x 1 = 2 marks**
- (iv) Maize, rice, wheat, barley, sorghum, millets **4 x 1/2 = 2 marks**

22. (a)

- M – Datura
  - N – Black night shade (*Solanum nigrum*)
  - O- Couch grass
  - - P – Love grass **2 marks**
- (b) M – Datura **1 mark**
- (c) P – Love grass **1 mark**
- (d) It has underground rhizomes. **1 mark**

23. **Field production of tea**

(i) **Land preparation.**

- Trees are ring barked 18 months before planting.
- Trees stumps and roots removed 6 months before planting to control armillaria root rot.
- Land is dug deeply removing all perennial weeds and breaking hard pan done during dry period.
- Avoid or treat areas where there was charcoal burning because such places have high pH that affect tea.
- Construct cut off drains and terraces a steep ground.
- Establish wind break within the field a year before transplanting.

(ii) **Selection and preparation of planting**

- Planting materials are cuttings.
- Vegetative propagation materials / cuttings selected from mother plant which are high yielding, of high rooting ability are easily adapted to a wide range of ecological condition.
- Materials may be obtained from KTDA
- Selected mother plants are pruned and left to grow for 6 months.
- Shoots that grow after 6 months provide the cuttings obtained from the middle part.
- The brasn and hard bottom part and the green and soft top parts not used because
  - ✓ Bottom parts take long to root
  - ✓ Top parts tend to rot if planted.
- Slanting cut is made above the axial bud using a sharp knife.
- Each cutting should have a leaf.
- The cuttings should be placed in water until they are planted to avoid dehydration.
- Cuttings are planted in sleeves which are filled with rooting media ensuring that the leaf is not in contact with the soil.
- Sleeves are arranged to form a vegetative propagation and sleeves are watered.
- Wooden loops are erected and a polythene sheet placed at the top.
- Sleeves are watered once every 2 – 3 weeks
- Weeds should be controlled by uprooting.
- Hardening off done at 4 months in the nursery.
- Cuttings are ready for transplanting after 6 – 10 months

(iii) **Transplanting**

- Done on the onset of rainfall
- Seedlings watered before transplanting to ease removal from the sleeves to avoid damage.
- Sleeves placed in the holes taking care not to disturb the soil.
- Holes filled to about 20cm with soil and mixed with DSP 15-30 gms
- Seedlings placed at the centre of the hole and sleeves slit open to remove the seedlings
- More soil is added and firmed until the hole is completely full.
- Seedlings should be planted at the same depth as they were in the sleeves.
- Seedlings watered, mulched and shaded and conserve moisture.

24. (a) (i) **How cultural and religious beliefs influence Agriculture.** **4 marks**

- Affects what to produce and consume.
- Some communities rely on crops others on livestock production products and by-products.
- There's need to change cultural practices.

- Religious beliefs dictate consumption pattern and being more difficult to change has limited agricultural activities.  $4 \times 1 = 4 \text{ marks}$

**(ii) Transport and communication.**

- Agriculture products require cheap and efficient means of transport.
- Export products require quick means of transport.
- Bulky products require heavy means of transport e.g railway products.
- All weather roads are required to transport inputs to and from production areas.
- Perishable products require refrigerator means of transport.
- Market information and resources require electronic media.
- Communication information to farming zones should be made cheaper and affordable.
- Availability of electricity to enable use of computer so that email and internet can be used to text messages.
- Mobile phones make marketing easy: should be affordable for most farmers.

$8 \times 1 = 8 \text{ marks}$

**(b) Advantages of using pesticides**

- It is the most effective method.
- Fast method of controlling
- Results are more predictable
- Less labour  $4 \times 1 = 4 \text{ marks}$

**Disadvantages of using pesticides.**

- They are expensive hence increase cost of production.
- Pollutes the environment
- Requires skilled labour.
- Have residual effects.
- Harmful to soil useful organisms  $4 \times 1 = 4 \text{ marks}$

**25. (a) Classes and weeds on the basis of plant morphology**

- Narrow leaved weeds
- Broad leaved weeds  $1 \times 2 = 2 \text{ marks}$

**(b) Factors contributing to competitive ability of weeds**

**(i) Successful means of propagation**

- Ability to produce large quantity of seeds.
- Seeds remain viable in the soil for long.
- Seeds easily and successfully dispersed.
- Seeds have ability to propagate vegetatively.

**(ii) Excellent adaptation to the environment**

- Elaborate extensive root system for support, nutrient and water absorption
- Ability to survive under limited supply of nutrients short life cycle.
- Fast growth rate  $1 \times 8 = 8 \text{ marks}$

**(c) Harmful effects of weed to farmers**

- Compete with crops for nutrients, space, light and moisture thus reduce yield.
- Some are parasitic to cultivated crops e.g. storage maize
- Some lower the quality of Agricultural produce e.g. weed seeds – mixed up with produce.
- Mexico marigold – undesirable flavour to milk
- Devils horse whip, black jack, bristle fox total – get attached to sheep wool
- Some are poisonous to man and livestock e.g. Sodom apple, thorn apple
- Some act as alternative host for insect pests and diseases e.g. wild oat – rust disease
- Subucia wood, mallow, abution – cotton stailer
- Some are allelopathic – produce poisonous substances that may suppress growth /germination cultivated plants
- Some block irrigation channels making it difficult for water to flow freely.
- Aquatic weeds affect fishing because they block navigation and deprive fish of other aquatic animals of oxygen e.g. water hyacinth - L. Victoria and Salvinia in L. Naivasha.
- Weeds lower the quality of pasture

- Some are difficult to handle and control because they irritate e.g. Double thorn, stinging, nente, - reduce working efficiency. *1 x 10 = 10 marks*

Name \_\_\_\_\_ 6. Index No. \_\_\_\_\_

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

Date \_\_\_\_\_

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

**MAKINDU DISTRICT INTER-SECONDARY SCHOOLS EXAMINATION  
Kenya Certificate of Secondary Education  
AGRICULTURE  
PAPER 2  
JULY /AUGUST 2011  
2 HOURS**

**Instructions to Candidates**

1. Write your name and index number in the spaces provided.
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**FOR EXAMINER'S USE ONLY**

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 19	30	
B	20 – 23	20	
C	24 - 26	40	
TOTAL SCORE		90	

*This paper consists of 10 printed pages*

*Turn Over*

**SECTION A ( 30 Marks )**

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

1. Give any **two** reasons of docking in sheep rearing. (1 mark)
2. State **four** factors that are likely to influence milk let down. (2 marks)
3. Give **four** characteristics of an effective acaricide. (2 marks)
4. State **four** factors to consider when selecting / choosing building materials. (2 marks)
5. Name **three** sources of energy concentrates. (1½ marks)
6. State **four** advantages of embryo transplant. (2 marks)
7. State **four** limitations of farm mechanization. (2 marks)
8. State **four** disadvantages of electrical fence. (2 marks)
9. List **TWO** causes of soft shells in eggs. (1 mark)
10. Outline any **three** structural requirements of a deep litter system house. (1½ marks)
11. Name **two** pre-disposing factors of coccidiosis in poultry. (1 mark)
12. State **four** short term tractor services that should be carried out by the operator. (2 marks)
13. Name **three** livestock diseases transmitted by ecto parasites. (1½ marks)
14. State why farmers apply milking salv onto teats before milking and teat dip after milking. (2 marks)
15. Give **TWO** advantages of using siene nets over the hook and line when harvesting fish. (1 mark)
16. Give **two** functions of carburetor in a petrol engine. (1 mark)
17. State **two** functions of the queen in a bee hive. (1 mark)
18. State **four** factors that should be considered before computing livestock feeds. (2 marks)
19. State **three** maintenance practices carried out on a piggery unit. (1½ marks)

**SECTION B**

*Answer all the questions in the spaces provided.*

20. Study the farm tools shown below and answer the following questions  
S G M P Q W

(a) Identify the following tools labeled P, M, G, S, W, and Q

(3 marks)

(b) State the functional difference between the tools M and G. (2 marks)

21. Julius wants to mix feed for his calves, containing 20% DCP. He intends to use sorghum meal containing 8% DCP and Soya bean containing 38% DCP.

- a) Calculate using person's square the quantities of each feed Julius would require to mix 100kg of feed. (4 marks)
- b) What other feed ingredient should he add to the mixture to balance it? (1 mark)

22. Below is a diagram of a farm implement. Study the diagram and answer the questions that follow.  
Animal yoke

- a) Identify the farm implement. (1 mark)
- b) State **four** uses of the implement in a farm. (2 marks)
- c) Name **TWO** tractor drawn implements that can perform the same function. (1 mark)
- d) State **two** advantages of animal drawn implements compared to tractor drawn implements. (1 mark)

23. The illustration below represents an important routine management practice on livestock animals. Study it carefully and answer the question beneath.

- a) Identify the practice illustrated above. (1 mark)
- b) State **two** advantages of the above practice. (2 marks)
- c) Name **four** other alternative routine practices which can be carried out on livestock animals beside the one illustrated above. (2 marks)

### SECTION C

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

24. (a) Explain the importance of feeding livestock animals. (5 marks)
- (b) Describe the criteria used to cull dairy animals. (6 marks)
- (c) Explain the economic importance of parasites to livestock animals. (9 marks)
25. (a) Explain the importance of fences in a farm. (10 marks)

- (b) State the advantages of live fences. (5 marks)  
 (c) Describe the procedures of making a barbed wire fence. (5 marks)  
 26. (a) Describe the **four** strokes of an internal combustion engine. (16 marks)  
 (b) What are the advantages of a four stroke cycle engines. (4 marks)

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**AGRICULTURE**

**PAPER 2**

**JULY / AUGUST 2011**

**MAKINDU DISTRICT INTER-SECONDARY SCHOOLS EXAMINATION**

**Kenya Certificate of Secondary Education**

**AGRICULTURE**

**PAPER 2**

**JULY / AUGUST 2011**

**MARKING SCHEME**

1.
  - To facilitate mating / tupping
  - To give good fat distribution throughout the body
  - To prevent blow fly infestations
  - To prevent soiling fouling / dirtifying of wool
  - Reduce contamination of the urinary tract
  - Prevent heavy rams from injuring small ewes *2 x 1/2 = 1 mark*
  
2.
  - Familiar noise.
  - Provision of feed
  - Presence of calf
  - During washing in preparation
  - Presence of milk man *4 x 1/2 = 2 marks*
  
3. **Quality of acaricide**
  - Have the ability to kill ticks.
  - Be harmless to human and livestock.
  - Be stable.
  - Should remain effective even after contamination by dung, mud or hair. *4 x 1/2 = 2 marks*
  
4.
  - Cost
  - Durability
  - Purpose of the structure
  - Availability
  - Taste of the farmer *4 x 1/2 = 2 marks*
  
5.
  - Whole grain by wheat/ barley.
  - Sugarcane by-products – mollasses
  - Floor mill by-products
  - By-products from the breweries. *3 x 1/2 = 1 1/2 marks*
  
6. **Embryo transplant**
  - Improve performance of the offspring.
  - A cow that was not ready to produce milk is stimulated to produce.
  - High productive female can benefit many farmers
  - Easier to transport embryo's in test tube than the whole animal.
  - Embryo can be stored for long periods. *4 x 1/2 = 2 marks*

7. • Lack of enough capital  
 • Un economical to small holdings  
 • Requires skilled labour which is lacking most cases  
 • Unavailability of spare parts to maintain them.  
 • Most machines cannot be used on slopping areas. **4 x 1/2 = 2 marks**

8. • Require regular charging.  
 • Expensive to construct and maintain.  
 • Less effective when it contracts vegetation.  
 • Quite dangerous to farmers. **4 x 1/2 = 2 marks**

9. **Causes of soft shells in eggs**  
 • Lack of calcium in the diet.  
 • New castle viral disease **2 x 1 = 2 marks**

10. • Well ventilated  
 • Be draught free  
 • Has litter on the floor for absorbing moisture  
 • Well drained  
 • Leak proof  
 • Should be spacious. **3 x 1/2 = 1 1/2 marks**

11. • Wet litter  
 • Unhygienic conditions **2 x 1/2 = 1 mark**

12. **Four short term tractor services**  
 • Fuel level should be checked daily before starting work.  
 • Engine oil level checked daily – use dip stick.  
 • Water level in radiator inspected daily and topped up when necessary.  
 • The level of the electrolyte checked daily.  
 • Nuts and bolts tightened daily, replace lost nuts and bolts.  
 • Fan belt tension should be checked – to defeat between 1.9cm – 2.5cm after pushing.  
 • Tyre pressure should be checked every morning before the days work **4 x 1/2 = 2 marks**

13. • East Cost fever – Heart water  
 • Anaplasmosis – Nairobi sheep disease  
 • Red water – Gall sickness **3 x 1/2 = 1 1/2 marks**

14. Milking salve softens teats to prevent cracking  
 Teat dip protects the teat from germ after milking.

15. **Advantages of siene nets over hook and line**  
 • Only marketable size fish are caught and fingerlings are returned.  
 • No injuries on the fish  
 • Large number of fish is caught

16. • Atomizes fuel into tiny droplets  
 • Regulate air  
 • Vaporizes air **2 x 1/2 = 1 mark**

17. • Lays fertile eggs  
 • Produces pheromones to keep the colony intact **2 x 1/2 = 1 mark**

18. **Computing livestock feeds**  
 • Nutritive value of the feed  
 • Palatability of the feed  
 • Cost of the feeds  
 • Availability of the feeds **4 x 1/2 = 2 marks**

19. • Change bedding materials regularly  
 • Repair broken parts  
 • Avoid dampness especially by leaking roofs  
 • Clearing regularly.  $3 \times \frac{1}{2} = 1 \frac{1}{2}$  marks

20. (a) Identify the following tools labelled.

- P – Plumb - bob  
 M – Mason/ masonry trowel  
 G – Garden trowel  
 S – Spade  
 W – Steel float.  
 Q – Pipe wrench

(b) State the functional difference between the tools M and G.

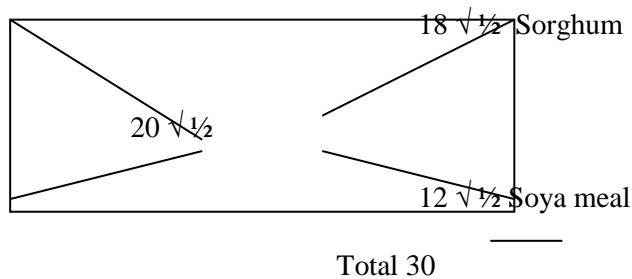
- M –Masonry trowel for building / placing mortar in between bricks.  
 G – Garden trowel for transplanting.

**SECTION B**

21. (a)

Sorghum 8%  $\sqrt{\frac{1}{2}}$

Soya meal 38 %  $\sqrt{\frac{1}{2}}$



The ratio of mixing sorghum meal and soya meal is 18: 12

The quantity of sorghum meal required in 100kg of the feed is

$$\frac{18}{30} \times 100 = 60\text{kgs} \sqrt{\frac{1}{2}}$$

**Max 4 marks**

(b) Mineral salts should be added.  $1 \times 1 = 1$  mark

22. (a) OX – Tine harrow  $1 \times 1 = 1$  mark

(b) Uses of tine harrow

- Breaking soil clods
- Collecting trash
- Leveling seedbed
- Covering seed

$4 \times \frac{1}{2} = 2$  marks

(c) Tractor drawn implements

- A spring tine harrow
- Spike tooth harrow

$2 \times \frac{1}{2} = 1$  mark

(d) Advantages of animal drawn implements over tractor

- Less expensive in initial cost.
- Less skill in maintenance comparatively / expensive.
- Can be used where land is steep unlike tractor drawn implements.
- Animal drawn implements required little skill to operate.

$4 \times \frac{1}{2} = 2$  marks

23. (a) Use of neck straps and chain for identification  $1$  mark

(b)

- Does not injure the animal's body.
- Easy to carry out as it does not require skilled labour force
- Suitable for your animals.
- Easy identification helps farmers keep accurate record of individual animal.

$2 \times 1 = 2$  marks

(c)

- Branding
  - Tattooing
  - Ear notching
  - Ear tagging
- 4x1/2 = 2 marks*

24. (a)

- Rapid growth
  - Resist diseases attack
  - Maintain production quality and quantity
  - Increase fertility rate
  - Produce healthy young ones
  - Build up body reserve
- 5x1=5 marks*

(b)

- Performance level
  - Physical deforming irregular teats
  - Difficult milkers
  - Physical appearance / body conformation
  - Age-old
  - Health – frequency of illness
  - Prolificacy / calling interval
  - Maturity rate
- 9 marks*

(c)

- Suck blood from host leading to anaemia conditions
- Lower production
- Weaken animals : susceptible to diseases
- Lower quality of products
- Make them unfit for human consumption
- Expensive to control
- Causes diarrhea / constipation
- Causes irritation / scratching
- Physical obstruction may lead to death
- Transmit diseases
- General emaciation

25. (a) **Importance of fences**

- Control animals movement and people preventing unnecessary paths in the farm
  - Keeps intruders away, thieves, and trespassers.
  - Acts as windbreaks
  - Prevents animals from attacking crops hence facilitates mixed farming.
  - Helps to divide pasture land into paddocks.
  - Enhances control of diseases and parasites by restricting livestock movement to other farms
  - Acts as security to the homestead and farm animals
  - Marks boundaries
  - Isolate sick animals from the rest
  - Helps in controlling animal breeding
- 10 x 1 = 10 marks*

(b) **Advantages of live fences**

- Are cheap and easy to establish since seedlings can easily be raised in a nursery bed.
- Acts as windbreaks.
- Have aesthetic value.
- Help in controlling soil erosion – roots holds soil firmly.
- Branches after pruning are used as fuel.
- Leaves / other vegetative parts forms humus after rotting as organic matter.

- Some have medical value
- Acts as livestock feed.  $5 \times 1 = 5 \text{ marks}$

**(c) Procedure in constructing barbed fence**

- Locate fencing boundaries
- Clear fencing area / fence line
- Mark places for gates, strainer and passes.
- Dig rat post holes
- Fix posts in holes.
- Fix wires – starting with lower strands.
- Using wire strainers and other tools.  $5 \times 1 = 5 \text{ marks}$

**26. Operation of four strokes of an internal combustion engine.**

**(a) Induction stroke**

- Starts when piston is up.
- Inlet valve is open.
- Piston moves down the cylinder
- Fresh petrol vapour and air mixture get into the cylinder  $4 \times 1 = 4 \text{ marks}$

**(b) Compression stroke**

- Starts when the piston is down
- Inlets valve is closed, also exhaust valve is closed
- The piston moves up the cylinder.
- Fresh fuel mixture is compressed  $4 \times 1 = 4 \text{ marks}$

**(c) Power stroke**

- Fresh air – fuel mixture is fully compressed.
- Both valves closed.
- A spark is produced at the spark plug.
- Air fuel mixture ignites and explodes
- Pressure created forces the piston down the cylinder  $4 \times 1 = 4 \text{ marks}$

**(d) Exhaust stroke**

- Starts when piston is down.
- Piston moves up the cylinder
- Inlet valve closed while exhaust valve is open.
- Gases from the burnt air – fuel mixture are expelled through the exhaust valve  $4 \times 1 = 4 \text{ marks}$

**(e) Advantages of a four stroke cycle engine**

- Produces high power and can do heavy work.
- Have efficient fuel and oil utilization
- Performs a wide range of farm operations.
- The engines are efficiently cooled with water and are large in size.
- Exhaust gases are efficiently expelled from the cylinders.  $4 \times 1 = 4 \text{ marks}$

