

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

NZAU / MUKAA FORM 4 CLUSTER EXAMINATION
Kenya Certificate of Secondary Education
AGRICULTURE
PAPER 1
2 HOURS

INSTRUCTIONS TO CANDIDATES

- The paper consists of 3 sections
- Answer ALL the questions in section A and B and any TWO questions in sections C.
- Write your answers in the spaces provided.

EXAMINER'S USE ONLY FOR

SECTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	30	
B	20	
C	40	
TOTAL	90	

This paper consists of 12 printed pages

Turn Over

SECTION A (30 marks)

Answer all questions to this section in the spaces provided.

1. Name any two branches of horticulture. (1 mark)

2. Give two forms of employment provided by Agriculture. (1 mark)

3. What is a forage crop? (1 mark)

4. State two effects of overstocking. (2 marks)

5. State four advantages of tissue culture in crop production. (2 marks)

6. State two uses of the flood water to rice fields besides providing moisture to plants. (1 mark)

7. Give four different ways in which viral diseases may spread in a crop field. (2 marks)

8. Give four factors that determine the depth when ploughing. (2 marks)

9. State four advantages of landlordism and tenancy / lease hold. (2 marks)

10. Give any four insect pests with biting and chewing mouth parts. (2 marks)

11. State functions of chlorine and aluminium sulphate (alum) chemical used in water treatment. (2 marks)

12. Outline two ways in which Agriculture promotes industrial growth in Kenya. (2 marks)

13. State two measures that should be taken to control coffee leaf rust. (1 mark)
-
-
-
14. List any four types of terraces 4 x ½ = (2 marks)
-
-
-
-
-
15. Name three types of surface irrigation. (1 ½ marks)
-
-
-
-
16. List four methods used to drain farm land. (2 marks)
-
-
-
-
-
17. State three deficiency symptoms of magnesium in crops. (1½ marks)
-
-
-
-
18. State two possible causes of swelling of roots on roots of legumes. (1 mark)
-
-
-
19. Give two examples of variable inputs in maize production. (1 mark)
-
-
-

SECTION B (20 marks)

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

20. A group of form IV students carried out an experiment to demonstrate effects of high rainfall intensity. They took two tins of same volume and perforated equal number of holes but of different size. They poured equal volumes of water and observed as water passed through as shown below.

A Tiny holes (0.5mm diameter) B Big holes (3mm diameter)

(a) (i) Which tin showed rainfall of high intensity. (1 mark)

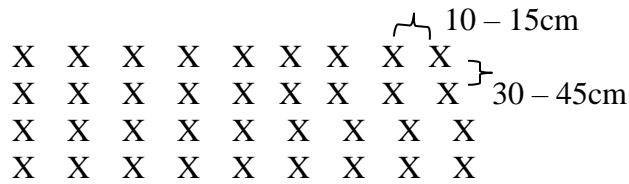
(ii) Give one reason for your answer. (1 mark)

(b) What is rainfall intensity? (1 mark)

(c) Give four negative effects of high rainfall intensity. (2 marks)

(d) State four ways in which farmers can counteract the effect of high rainfall intensity. (2 marks)

21. (a) Study the diagram below which shows spacing of crops and answer questions that follow.



(i) Name the crop likely to be spaced as shown above. (1 mark)

(ii) Give any reasons for such spacing in the crop named in 21 (a) . (2 marks)

(b) Study the diagram below and answer questions that follow.

B A

(i) Identify the structure _____ (1 mark)

(ii) Name parts labeled A and B. (2 marks)

A _____

B _____

(iii) State the importance of using part A. (1 mark)

(iv) Give two advantages of using the part labeled B in crop propagation. (2 marks)

22. The table below shows maize production in 90kg bags from varying amounts of NPK fertilizers on one hectare of land. Study it carefully and answer questions that follow.

Year	NPK fertilizer in 30kg bags	Total maize production
2002	0	5
2003	30	12
2004	60	28
2005	90	47
2006	120	59
2007	150	65
2008	180	68
2009	210	70
2010	240	70
2011	270	68

(a) Calculate the formulars marginal return / product for the year 2005. (1 mark)

(b) Calculate the average product for the year 2007. (1 mark)

(c) Assume that the average price of fertilizer over the years recorded was Ksh. 1600 per 30kg bag unit and price of maize was Ksh. 2000 per bag. Calculate the net revenue for the year 2010. (2 marks)

(c) (i) What is purchase order? (1 mark)

(ii) Mr. Mutava's Green farm ordered some items from Karunguwi wholesalers.

The order had the following items :

10 bags of dairy meal each weighing 70kg

2 large kitchen knives

20 bags of 50kg DAP fertilizer

15 bags of 10kg unga

Salt leak and 10 bales of hybrid seed maize each weighing 24kg

The farm manager sent the order on 30/1/2010. Prepare the purchase order made by Mr. Mutava.

(6 marks)

25. (a) Explain eight harmful effects of weeds. (8 marks)

(b) Describe any eight cultural methods of controlling pest in the farm.

(8 marks)

(c) Give the meaning of the following terms as used in pest control.

(i) Intergrated pest management.

(ii) Economic injury level.

(2 marks)

(d) Under what condition should a trap crop be established before the main crop?

(2 marks)

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MARKING SCHEME

1. Two branches of horticulture
 - (i) Floriculture
 - (ii) Olericulture
 - (iii) Pomoculture

2 x ½ = 1 mark

2. Forms of employment by Agriculture
 - (i) Direct employment
 - (ii) Indirect employment

2 x ½ = 1 mark

3. These are plants that grow naturally or planted by man for the purpose of feeding livestock.

(1 x 1 = 1 mark)

4. Two effects of overstocking
 - (i) Leads to very early defoliation
 - (ii) Weeds tend to invade pasture rapidly due to poor ground cover by pastures
 - (iii) Loss of soil cover leading to soil erosion
 - (iv) May lead to soil capping

2 x 1 = 2 marks

5. Advantages of tissue culture
 - (i) Maintenance of parental characters
 - (ii) There is mass production of plantlets
 - (iii) Disease free plantlets obtained
 - (iv) Plants mature early
 - (v) There is high yield

4 x ½ = 2 marks

6. Uses of water
 - (i) Control weeds
 - (ii) Control certain pests like rodents
 - (iii) Provides optimum humidity for seed formation

2 x ½ = 1 mark

7. How viral disease spread
 - (i) By sucking insects
 - (ii) By human handling crops
 - (iii) Contaminated pruning knives / secateurs
 - (iv) Use of unhealthy / contaminated cuttings

4 x ½ = 2 marks

This paper consists of 7 printed pages

Turn Over

8. Factors determining the depth of ploughing
- (i) Type of weed being controlled
 - (ii) Type of implement used
 - (iii) Soil type
 - (iv) Type of crop to be grown
- 4 x ½ = 2 marks
9. Advantages of lease hold
- (i) Landlord earns income when idle land is leased
 - (ii) Idle land is put into use
 - (iii) Landless people can lease land to farm
 - (iv) Tenants can sell surplus produce and earn income
- 4 x ½ = 2 marks
10. Insects pest biting and chewing mouth parts (2 marks)
- (i) Locusts
 - (ii) Grasshopper
 - (iii) Crickets
 - (iv) Maize stalk borer
 - (v) Army worms
 - (vi) Cut worms
 - (vii) Boll worms / caterpillar
 - (viii) Termites / ants
11. Functions of
- (a) Chlorine – Kill germs / pathogen / micro-organisms in water
 - (b) Alluminium sulphate (Allum) – Coagulates solid particles facilitating sedimentation
- 2 x 1 = 2 marks
12. How Agriculture promotes industrial growth
- (i) Provides market for industrial goods
 - (ii) Provides capital for industrial growth
 - (iii) Provides raw materials for industrial goods
- (2 x 1 = 2 marks)
13. Measures of controlling coffee leaf roset
- (i) Use of resistant varieties
 - (ii) Use of fungicides / appropriate chemicals
 - (iii) Pruning
- (2 x ½ = 1 mark)
14. Four types of terraces
- (i) Broad based
 - (ii) Narrow based
 - (iii) Bench terrace
 - (iv) Fanya juu
 - (v) Fanya chini
- (4 x ½ = 2 marks)
15. Types of surface irrigation
- (i) Flood irrigation
 - (ii) Furrow irrigation / corrugated irrigation
 - (iii) Basin irrigation
- (3 x ½ = 1 ½ marks)
16. Methods of draining farm land
- (i) Use of open ditches / canal / furrows
 - (ii) Use of underground pipes
 - (iii) Use of French drains
 - (iv) Use of cambered beds
 - (v) Sub-soiling

- (vi) Pumping
(vii) Growing certain trees e.g eucalyptus (4 x ½ = 2 marks)

17. Deficiency of magnesium
(i) Intervenal chlorosis
(ii) Curling of leaves
(iii) Poor root development
(iv) Stunted growth
(v) Thin leaves (3 x ½ = 1 ½ marks)

18. Possible causes of swelling on root of leguminous crops.
(i) Infection by nematodes / root knots
(ii) Nodulation / nodules (2 x ½ = 1 mark)

19. Examples of variable inputs in maize production. (1 mark)
(i) Maize seed
(ii) Fertilizers
(iii) Chemicals
(iv) Packing containers
(v) Causal labour (2 x ½ = 1 mark)

SECTION B (20 MARKS)

20. (a) (i) Tin showing high rainfall intensity (1 x 1 = 1 mark)
(ii) Reasons : Big holes allow more water to pass through at a given time.
(1 x 1 = 1 mark)

- (b) Rainfall intensity is the amount of rain which falls within a period of one hour.
(1 x 1 = 1 mark)

- (c) Negative effects of high rainfall intensity
(i) Splash erosion on bare land
(ii) Destruction of crops especially leaves of maize and bananas / beans flowers
(iii) High volume of run off increases erosion especially on slopes
(iv) There is little water infiltration and increased surface run-off
(4 x ½ = 2 marks)

- (d) Adjusting to high rainfall intensity
(i) Growing suitable crops which withstand heavy down pour e.g cover crops
(ii) Ensure ground is properly covered e.g by mulching, afforestation etc
(iii) Construction of cut-off drains to divert high surface run-off
(iv) Construction of check dams to trap eroded materials and hold water in valleys
(v) Growing of wind breaks (4 x ½ = 2 marks)

21. (a) (i) Provides ground cover
(ii) Proper utility of resources
(b) (i) Vegetative propagation unit (1 x 1 = 1 mark)
(ii) A – Wooden hoops
B – Polythene sleeves (bags) (2 x 1 = 2 marks)

- (iii) Uses of part A
 - To support polythene sheet to provide shade (1 x 1 = 1 mark)
- (iv) Importance of part B
 - Minimise disturbance of roots
 - Minimise watering
 - Reduce weeds
 - Easy to store seedling
 - Easy to transplant and transport (2 x 1 = 2 marks)
22. (a) Marginal product – 19 bags (1 x 1 = 1 mark)
- (b) Average revenue : $65/5$ - 13 bags (1 x 1 = 1 mark)
- (c) Net revenue = TR – TC
 = 140,000 – 12800 (1 mark)
 = 127,200.= (1 mark) (2 x 1 = 2 marks)

SECTION C (40 MARKS)

23. Field production of napier grass
- (a) Seedbed preparation
1. Clear the land
 2. Carry out primary cultivation
 3. Remove any tree stumps at perennial weeds
 4. Harrow the field to medium tilth
 5. Prepare land during dry season
 6. Make furrows / planting holes
 7. Space harrows 90cm x 50cm when using cuttings and 90-100cm x 50 when using splits (5 x 1 = 5 marks)
- (b) Planting
1. Plant at onset of rainfall
 2. Use suitable planting material as per ecology
 3. Use healthy planting material
 4. Place materials in holes / furrows at correct spacing
 5. Cover with soil
 6. Use cuttings or splits
 7. Obtain cuttings from mature stems
 8. Cutting should have 3 – 5 holes (5 x 1 = 5 marks)
- (c) Fertilizer application
1. Apply phosphoric fertilizer at planting
 2. Apply at a rate of 200kg of N.P.K 20 : 20 : 0 or 20 : 20 : 10 per hole
 3. Top dress with nitrogenous fertilizer
 4. Top dress at a rate of 100kg / ha
 5. Apply well decomposed manure before planting
 6. Apply manure at a rate of 7 – 10 ton / ha
 7. Apply organic manure after harvesting and dig it in after a year (2 x 1 = 2 marks)

(d) Weed control

1. By cultivation
2. By uprooting
3. By slashing
4. By use of suitable herbicides
5. By interplanting with legumes that cover the ground
6. Weed control is done early stages of napier establishment

5 x 1 = 5 marks

(e) Utilization

1. Cut and feed to ruminants
2. Cut when leaf stem ratio is high / 1 – 1.5 metres / 3 – 5 months old
3. Cut stem at 2.5 – 5cm above ground level
4. Use sharp panga
5. Cut excess foliage and conserve as silage for later use
6. Chop foliage into small pieces before feeding
7. Napier can be cut / dried and used as mulching material

3 x 1 = 3 marks

24. (a) (i) Law of demand : States that the quantity of a commodity demanded varies inversely with price 1 x 1 = 1 mark
- (ii) Factor determining demand
1. Price of substitutes
 2. Price of the commodity
 3. Price expectation
 4. Tastes and preferences
 5. Population of the area
 6. Level of income of population
 7. Advertisement
 8. Religious beliefs and customs
 9. Techniques in production 8 x 1 = 8 marks
- (b) (i) Elasticity of demand . This is the responsiveness of commodity demanded due to change of price. 1 x 1 = 1 mark
- (ii) Elasticity of demand
- $$= \frac{\text{Percentage change in Qty}}{\text{Percentage change in price}}$$
- Change in Qty $22 - 20 = 2$ bags ($\frac{1}{2}$ mark)
% change $\frac{2}{20} \times 100 = 10\%$ (1 mark)
- Change in price $1000 - 800 = 200$ (1 mark)
- $$\% \text{ ge} = \frac{200}{1000} \times 100 = 20\%$$
- (1 mark)
- Elasticity of demand $= \frac{10}{20} = 0.5$ (1 mark)
- (c) (i) A purchase order is a document used for requisition for the supply of goods / services on credit 1 x 1 = 1 mark

(ii) Purchase order from Green Farm to Karunguwi wholesalers

Green Farm Address
30/1/2010
No.

LOCAL PURCHASE ORDER
TO KARUNGUWI WHOLESALERS

Address

Please supply the following items

Item No	Particulars	Unit	Qty
1	Dairy meal	70kg bags	10
2	Kitchen knife	Large size	1
3	DAP fark	50kg bag	20
4	Unga salt leak	10kg bag	15
5	Hybrid seed maize	24kg bale	10

Ordered by _____ Sign _____

Authorized by _____ Sign _____

Farm manager

Marks awarding

Green Farm address	½ mark
Date	½ mark
Number	½ mark
Name and address of wholesaler	½ mark
18 th No. column	½ mark
Particulars column + entries	1 mark
Unit column	½ mark
Qty column + entries	1 mark
Ordered by: entry	½ mark
Authorized by entry	½ mark
Total	6 marks

25. (a) Harmful effects of weeds

- (i) Compete for nutrients
- (ii) Some are parasitic to crop
- (iii) Some lower quality of farm produce
- (iv) Some are poisonous to man and livestock
- (v) Some are alternative host for pests and diseases
- (vi) Some are allelopathic
- (vii) Some block irrigation channels
- (ix) Some have irrigation effects to the workers
- (x) Aquatic weeds block navigation and deprive aquatic animals oxygen.

8 x 1 = 8 marks

(b) Cultural methods of pest control

- (i) Timely planting
- (ii) Timely harvesting
- (iii) Proper tillage
- (iv) Closed season
- (v) Trap cropping
- (vi) Crop rotation
- (vii) Plant resistant varieties
- (viii) Field hygiene
- (ix) Destruction of alternate host
- (x) Use of clean planting materials
- (xi) Proper spacing
- (xii) Overhead and flood irrigation
- (xiii) Pruning

(8 x 1 = 8 marks)

- (c) (i) Intergrated pest management is application of more than one method in pest control

(1 x 1 = 1 mark)

- (ii) Economic injury level – Is a situation whereby the population of pest is beyond tolerant

(1 x 1 = 1 mark)

- (d) Trap crop is established before the main crop if the pest prefer the main crop than the trap crop

(2 x 1 = 2 marks)

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AGRICULTURE
PAPER 2
JULY / AUGUST 2011
TIME: 2 HOURS

NZAU / MUKAA FORM 4 CLUSTER EXAMINATION
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AGRICULTURE
PAPER 2
2 HOURS

INSTRUCTIONS TO CANDIDATES

- The paper consists of 3 sections
- Answer ALL the questions in section A and B and any TWO questions in sections C.
- Write your answers in the spaces provided.

EXAMINER'S USE ONLY FOR

SECTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	30	
B	20	
C	40	
TOTAL	90	

This paper consists of 12 printed pages

Turn Over

SECTION A (30 marks)

Answer all questions in this section in the spaces provided.

1. Give two methods of introducing vaccines to livestock. (1 mark)

2. Give two hormones essential in the process of milk production from a lactating cow. (1 mark)

3. Name any two tractor drawn implements which three – point hitched. (1 mark)

4. Give four requirements that are needed in a deep litter house for raising the layers. (2 marks)

5. Name the breed of poultry with a greenish sheeh. (½ mark)

6. List three methods of castrating farm animals. (1 ½ marks)

7. List two appropriate tools used for deworming of animals during routine management practices. (1 mark)

8. Give four advantages of using thatch as a roofing material in farm structures. (2 marks)

9. State four signs of heat in pigs. (2 marks)

10. State three desirable features of a rabbit hutch. (1 ½ marks)

11. (a) State four roles played by the engine oil in a tractor engine. (2 marks)

(b) Why is it important to have an ignition coil in an ignition system of a tractor engine? (1 mark)

12. State two uses of phosphorous in livestock nutrition. (1 mark)

13. What are the four factors one should consider when selecting a dairy heifer for breeding? (2 marks)

14. Give two uses of spreading polythene paper (P.V.C) on the slab of a permanent farm building. (1 mark)

15. Differentiate between a feed and a feed stuff. (1 mark)

16. State four advantage of artificial calf rearing in dairy cattle management. (2 marks)

17. State three advantages of upgrading. (1 ½ marks)

18. State four reasons for treating timber used for fencing. (2 marks)

19. Give four reasons for docking a young ram. (2 marks)

20. How does isolation help control diseases in livestock? (1 mark)

SECTION B (20 MARKS)

Answer all questions in the section in the spaces

21. Study the diagram below and answer the questions that follow.
A B C D E

(i) State the function of E. (1 mark)

(ii) State the function of the part labeled C. (1 mark)

(iii) What is role of the part labeled A. (1 mark)

(iv) Name the parts labeled A to D. (2 marks)

A _____
B _____
C _____
D _____

22. Examine the diagram below and answer the questions.

(a) Label parts (1 ½ marks)

K _____

L _____

M _____

(b) Which type of livestock breed is shown on the diagram. (1 mark)

(c) Give examples of diseases likely to attack the areas of the animal marked. (1 ½ marks)

A _____

B _____

C _____

(d) Which type of identification is done in the part labeled D? (1 mark)

23. Diagrams P and Q below show farm implements

(i) Give the source of power used in operating each of the implements. (1 mark)

P _____

Q _____

(ii) State the means by which each of the above implements is attached to its source of power. (2 marks)

P _____

Q _____

(iii) State three maintenance practices for implement P. (3 marks)

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

B C D F E Distributor

(a) Identify the system _____ (1 mark)

(b) Identify parts labeled

B _____

C _____

D _____

E _____

(2 marks)

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PAPER 2
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NZAU / MUKAA FORM 4 CLUSTER EXAMINATION
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AGRICULTURE
PAPER 2

MARKING SCHEME

- | | | |
|----|--|-------------------|
| 1. | - Through the mouth (orally)
- Through the eyes
- Through the cloaca | 2 x ½ = 1 mark |
| 2. | - Prolactin
- Oxytocin | 2 x ½ = 1 mark |
| 3. | - Disc plough
- Mould board plough
- Mowers
- Some sprayers | 2 x ½ = 1 mark |
| 4. | - Feed troughs
- Water troughs
- Perches / roosts
- Hanged vegetation
- Laying nests | 4 x ½ = 2 marks |
| 5. | Black Australop | 1 x ½ = ½ mark |
| 6. | - Closed method / use of burdizzo
- Open method / surgical method
- Caponization / use of hormones / chemicals | 3 x ½ = 1 ½ marks |
| 7. | - Drenching gun
- Bolus gun / capsule carrier
- Narrow necked bottle | 2 x ½ = 1 mark |
| 8. | - Good thermoregulation
- Sound proof to pounding rain
- Relatively cheap
- Easily available in some areas
- Requires less skill / easy to work with | 4 x ½ = 2 marks |

This paper consists of 6 printed pages

Turn Over

9. - Restlessness
 - Frequent urination
 - Swelling and reddening of vulva

 - Frequent mounting of others
 - Slimy discharge from the vulva
 - Respond positively to riding test 4 x ½ = 2 marks
10. - Spaceous
 - Raised above ground
 - Draught free
 - Easy to clean
 - Leak proof
 - Safe from predators and pests 3 x ½ = 1 ½ marks
11. (a) - Prevents metal engine parts from rusting
 - Promotes free movement of engine parts thus reducing friction
 - Traps foreign materials e.g soot, dirt and dust
 - Lowers engine temperature by conducting away excess heat.
 - Helps sealing compression between the piston and cylinder. 4 x ½ = 2 marks
- (b) Change the low voltage from the battery to high voltage required in the spark plug in the petro engine. 1 x 1 = 1 mark
12. - Bone formation
 - Milk production
 - Egg formation 2 x ½ = 1 mark
13. - Size of the animal
 - Condition of health
 - Age
 - Performance
 - Temperature
 - Fertility e.g frematins
 - Body conformation 4 x ½ = 2 marks
14. - Prevent termites from raising to damage the floor
 - Prevent moisture from raising up
 - Prevent coldness from ascending the floor surface 2 x 1 = 1 mark
15. Feedstuff is a food material containing one or more nutrients while feed is a mixture of several feedstuff which supply required nutrients to the animals. (mark as a whole)
1 x 1 = 1 mark
16. - Allows for maintenance of high standard hygiene
 - Accurate records of milk yield can be easily maintained.
 - Cows continue to produce milk even in the absence of their calves
 - There is probability of farmer selling more milk thereby maximizing profits
4 x ½ = 2 marks

17. - Enable farmers to improve low grade stock using pure breed bulls.
 - Method is used to replace one breed by another
 - It is more economical to upgrade the local breeds rather than purchasing pure breeds
 - Resulting breeds are more tolerant to harsh environments and have high resistance to diseases.
 3 x ½ = 1 ½ marks
18. - Prevent warping
 - Prevent roffing / damage by fungi
 - Reduce damage by insects
 - Enable timber to achieve its maximum strength
 4 x ½ = 2 marks
19. - Fat distribution throughout the body
 - Prevent blowflies
 - Keep rear part of animal clean
 - Avoid fooling of wool
 4 x ½ = 2 marks
20. Prevent spread of diseases to healthy animals.
 1 x 1 = 1 mark

SECTION B

21. (i) E – Secretion of the shell
 - Shell pigmentation
- (ii) C - Addition of thick albumen
 1 x 1 = 1 mark
- (iii) A - Secret hormone / oestrogen
 - Release the yolk
 1 x 1 = 1 mark
- (iv) A – Ovary
 B – Funnel (infundibulum)
 C – Magnum
 D – Isthmus
 4 x ½ = 2 marks
22. (a) K – Muzzle
 L – Tail switch
 M – Hock
 3 x ½ = 1 ½ marks
- (b) Dairy cattle breed
 1 x 1 = 1 mark
- (c) A – Mastitis
 B – Foot rot
 C – Brucellosis / contagious abortion / vaginitis
 3 x ½ = 1 ½ marks
- (d) - Ear notching
 - Ear tagging
 1 x 1 = 1 mark
23. (i) P – Animal power
 Q – Tractor
 2 x ½ = 1 mark
- (ii) P – Harness
 Q – Draw bar
 2 x 1 = 2 marks

- (iii) - Check tyre pressure
- Grease moving parts
- Tighten loose nuts and bolts (Reject nuts alone)
- Repair / replace broken parts
- Check condition of harness and repair it if necessary
- Clean implement after use
- Keep implement under shed

24. (a) Electrical system 1 x 1 = 1 mark

- (b) B – Battery
- C – Ignition
- D – Starter motor
- E – Ignition coil 4 x ½ = 2 marks

(c) Releases sparks which ignites the air – fuel mixture in combustion chamber. 1 x 1 = 1 mark

SECTION C (40 MARKS)

25. (a) (i) Predisposing factors
- Dampness and chilly conditions in animal house.
 - Overfeeding calf with milk, feeding calf with very cold milk or irregular feeding programme
 - Lack of sufficient colostrum hence lacks antibodies for immunity
 - Abrupt temp changes which causes stress
 - Deficient of vitamin A. 3 x 1 = 3 marks

- (ii) - White or yellow diarrhoea with a pungent smell
- Sunken eyes due to weakness caused by dehydration
- Loss of appetite
- Undigested milk curd and mucus with blood spots in animal faeces
- Dullness
- Sudden death if no treatment 5 x 1 = 5 marks

- (iii) - Avoid dampness on the floor of animal houses / cleanliness
- Use clean disinfected fingers in bucket feeding
- Maintain regular feeding intervals
- Observe hygiene during parturition
- Proper feeding of milk at right temperature
- Avoid overcrowding in animal house 4 x 1 = 4 marks

- (b) - Temporary store for food
- Food is churned, mixed and softened with water
- Micro-organism act on cellulose fermenting it
- Digestion of cellulose to produce volatile fatty acids e.g a cetic, propionic, botylic etc
- Fats are broken down to fatty acids and glycerol
- Proteins are split by micro-organisms into peptides and aminoacids
- Synthesis of essential amino acids from nitrogen compounds e.g urea
- Synthesis of vitamin B complex and vitamin K
- Gases such as methane, carbon (IV) oxide and hydrogen are belched.
- Volatile fatty acids are absorbed in the rumen 8 x 1 = 8 marks

26. (a) (i) Level of engine oil should be checked daily by use of dip stick. Add more oil if level is low
(ii) Fuel level should be checked at the start of every day's work and added if necessary
(iii) Water level in the radiator should be checked and if possible topped up.
(iv) Level of electrolyte should be checked daily. If it drops below the recommended, top up with distilled water
(v) Loose nuts and bolts should be tightened daily. Replace lost ones.
(vi) Grease should be applied in moving parts by use of grease gun through the nipples.
(vii) Large sediments from sediment bowl should be removed
(viii) Tyre pressure should be checked every morning before days work by use of pressure gauge
(ix) Check the fan belt tension and tighten if loose
(x) Break shaft bearing should be greased. Ensure the break fluid level is maintained at recommended level.
(xi) Check air cleaner to ensure it is functioning
(xii) Open and remove from fuel filters

10 x 1 = 10 marks)

- (b) (i) Beam – Provide attachment for all other parts
- Add weight for better plough penetration
(ii) Disc – Cut, turn and invert the furrow slices
(iii) Scrappers – Removes wet soil from the disc
- Aid in turning and inverting of the furrow slices
(iv) Standard / hangers – Connects disc to plough beam
- Facilitates movement of disc due to presence of hubs
(v) Furrow wheel – Ride over dead furrow counteracting thrust created by disc thus balance the implement
- Adjust depth of ploughing

Award ½ mark for part and ½ mark for function.

5 x 1 = 5 marks

(c) Limitations of human power in the farm

- (i) Human may fall sick and may take long to recover or may die.
(ii) Humans require proper feeding to give high work output
(iii) Slower than animals and tractor
(iv) Work output may be retarded by weather conditions e.g too hot or too cold conditions
(v) Human power is expensive especially skilled labour
(vi) Human may engage in malpractices e.g stealing assets or crop and livestock products
(vii) Work output may be affected by stress or mental disturbance
(viii) Human beings get tired hence slow working rate.

5 x 1 = 5 marks

27. (a) (i) Udder cloths / towels – for washing and drying the udder
(ii) Filtering pads – For straining milk
(iii) Milking jelly – Prevent cracking of teats
(iv) Warm water – Washing udder
- Stimulate milk let down
(v) Strip cup – For detecting mastitis
(vi) Milking pails / bucket – For holding milk as milking takes place
(vii) Milk churns / milk cans – hold milk during transport and storage
(viii) Milking machine – For machine milking
(ix) Milking stool – Sitting while milking

(x) Weighing scale – Weighing milk

(xi) Coolers / refrigerators – Prevent bacterial multiplication in milk

½ mark for material and ½ mark for function.

10 x 1 = 10 marks

- (b)
- Ensure hen is completely broody
 - Provide spacious nesting box for ease of movement
 - Ensure nesting box is dark inside to discourage cannibalism and egg eating
 - Place clean and dry nesting materials
 - Place nesting box in a well ventilated place
 - Provide adequate number of eggs depending on body size of hen preferably in the evening
 - Provide bird with balanced food and clean water
 - Allow bird to move out occasionally to exercise feed and scratch
 - Dust bird regularly to control external parasites
 - Ensure eggs are not unrefereed with either touching or turning

(Mark as a whole)

10 x 1 = 10 marks