AGRICULTURE I

SECTION A.

1. State **two** uses of a rotavator. 1mk

89238352. List **two** methods of controlling coffee berry disease 1mk

89238353. Identify **four** sources of agricultural information 2mks

89238354. State **two** ways of controlling Rinderpest disease 1mk

89238355. Mention **four** signs of infertility in cows 2mks

89238356. How is cannibalism controlled in poultry 2mks

89238357. List **four** maintenance of ox-cart 2mks

89238358. Mention **four** common fodder crops grown in Kenya 2mks

89238359. Name **two** diseases that attack cassava in the field 1mk

89238360. Identify **six** physical measures of pest control in crops 3mks

89238361. Differentiate between grass strips and trash lines 1mk

89238362. Name **two** categories of land tenure 1mk

89238363. Give **four** reasons why rabbits should be fed on balanced feeds 2mks

89238364. List **four** causes of poor quality concrete 2mks

89238365. Mention **four** reasons for maintaining farm buildings 2mks

89238366. Identify **four** ways of reducing the problem of ewes disowning their lambs 2mks

89238367. State **four** advantages of using certified seeds from Kenya seed company 2mks

89238368. State **two** symptoms of damping off disease in cabbages 1mk

89238369. Name **two** methods of harvesting rice 1mk

89238370. Mention **two** ways of classifying pests in crop production 1mk

89238371. Name the dual purpose sheep 1mk

89238372. Name the young of a donkey 1mk

89238373. Name **two** primary hosts for liver flukes 1mk

89238374. State **one** use of a tag applicator 1mk

SECTION B.

25. a. State **four** effects of excess Nitrogen in crops 4mks
    b. List **six** roles of organic matter in the soil 6mks
    c. Mention **three** characteristics of phosphatic fertilisers 3mks
26. a. State **three** ways of collecting semen from bulls for artificial insemination 3mks
    b. List **six** ways of carrying out pregnancy diagnosis in cows 6mks
    c. Give **four** reasons for conserving pastures 4mks
27. a. Name **three** tomatoes for fresh market 3mks
    b. State **five** reasons for pruning in crops 5mks
    c. i. Mention **four** factors to be considered when siting grain storage structures 4mks
    ii. Differentiate between seed rate and plant population 2 mks

SECTION C.

28. Explain field production of sweet potatoes from field preparation upto harvesting. 20mks.
29. a. Explain management practices that ensure maximum production of eggs in poultry 12mks
    b. Explain management practices a beef farmer would carry out to minimise effects of low rainfall 8 mks
30. a. Mention **five** characteristics of pyrethrums 5mks
    b. Explain environmental factors that affect effectiveness of agro-chemicals in crop production. 5mks
    c. i. Differentiate between land consolidation and land fragmentation and settlement. 3mks.
    ii. Explain objectives of land reforms. 7mks.

AGRICULTURE I
MARKING SCHEME.

SECTION A.

1. **Uses of a rotavator**
   - Refining seed bed / secondary tillage
   - Cultivation in clay soil / weeding in waterlogged soils.

   2 x ½ = 1 mark.

2. **Control of C.B.D.**
   - Open pruning
   - Plant resistant varieties e.g Ruiru II
   - Regular spraying with appropriate fungicides / copper fungicides / captafol

   2 x ½ = 1 mark.

3. **Sources of agri – information.**
   - Agricultural research stations
   - Neighbouring farms
   - Agricultural field days
   - Agricultural shows
   - Mass media eg. T.V, Radios
   - Agriculture extension officers
   - Farmers training centres
   - Agricultural training and education institution

- Chiefs baraza.

4 x ½ = 2 marks.

4. **Control of Rinderpest.**
   - Regular Vaccination
   - Separate sick and healthy ones
   - Imposing quarantine
   - Kill affected animals and proper disposal
   - Notify authorities of an outbreak.

   2 x ½ = 1 mark.

5. **Signs of infertility.**
   - A cow does not show heat signs
   - Abnormal discharge from vulva
   - Prolonged heat period
   - Irregular heat intervals / too short or too long heat intervals.

   4 x ½ = 2 marks.

6. **Control of cannibalism.**
   - Avoid bright light in brooder
   - Keep birds busy / hang green leaves
   - Give balanced feeds
   - Control external parasites / fleas
   - Debeak hens which peck others
   - Keep birds according to age-groups
   - Avoid overcrowding of birds / provide enough space to the birds.

   4 x ½ = 2 marks.

7. **Maintenance of Ox-cart.**
   - Lubricate moving parts regularly
   - Check tyre pressure and adjust accordingly
   - Clean it after use
   - Repair / replace any worn out / broken parts eg. yoke
   - Proper storage in a shed. **4 x ½ = 2 marks.**

8. **Common fodder crops**
   - Napier grass / elephant grass
   - Guatemala grass
   - Edible land
   - Kales
   - Manigolds
   - Lucerne / alfafa
   - Sorgum **4 x ½ = 2 marks.**

9. **Cassava diseases.**
   - Cassava mosaic
   - Brown streak
   - Bacterial bright. **2 x ½ = 1 mark.**

10. **Physical measures of pest control.**
    - Use of lethal temperature

- Drying the grains
- Irrigation / flooding the field
- Suffocation / use of airtight stores
- Physical destruction / trapping / picking and killing
- Use of electromagnetic radiation.

6 x ½ = 3 marks.

11. Grass strips uncultivated strips of grass left between cultivated strips to control soil erosion while trash lines are heaps of cup residues placed along contours in the cup field to reduce soil erosion.

1 x 2 = 2mks (mark as a whole)

12. **Categories of land tenure.**
    - Collective land tenure
    - Communal land tenure. 2mks
13. **Reasons for balanced feeding.**
    - For faster and quick growth
    - For earlier maturity
    - For good quality products
    - For increased resistance against diseases
    - For increased feed conversion

4 x ½ = 2 marks.

14. **Causes of poor quality concrete.**
    - Less water to harden it used.
    - Too much sand / too little cement / ratio of sand to cement mixture not appropriate.
    - Premature drying of concrete.
    - Size of individual aggregates / coarse sand.

x ½ = 2 marks.

15. **Reasons for maintaining farm structures.**
    - To last longer / for durability
    - For easy cleaning
    - For proper ventilation / to avoid dampness / too much heat
    - To reduce maintenance cost
    - To be more efficient in use
    - To be more secured / for security.

x ½ = 2 marks.

16. **Reducing disowning of lambs.**
    - Ensure the ewes recognises its lamb soon after lambing.
    - Proper steaming of ewe before lambing.
    - Use of lambing pens
    - Mastitis control / dry ewe therapy
    - Blind folding of ewes to activate maternal instinct.

x ½ = 2 marks.

17. **Advantages of certifield seeds.**
    - Free from pests and diseases and weeds
    - Viable / uniform germination
    - Vigorous growth / faster maturity
    - High yields
    - High quality product
    - True to type / not contaminated with other seeds
    - Reduces cost of treatment / treated with chemical.

x ½ = 2 marks.

18. **Symptoms of damping off**
    - Falling of seedlings / withering and death of seedlings
    - Cobweb like black mass of fungi making a ring on the stem base.

      x ½ = 1 mark.
19. **Methods of harvesting rice.**
    - Use of sickles
    - Use of combine harvesters.

      x ½ = 1 mark.
20. **Classification of pests.**
    - According to where they are found or attack the crop produce
    - Nature of damage caused
    - Nature of mouthparts
    - Part of the plant damaged

      x ½ = 1 mark.
21. **Dual purpose sheep.**
    - Dorper
    - Harmpshire doam
    - Dorset horn

      x ½ = 1 mark.
22. **Young of donkey**
    - foal

    1 x 1 = 1mark
23. **Primary hosts for liverflukes.**
    - Cattle
    - Sheep
    - Goats

      1 x ½ = 1 mark.
24. **Use of a tag applicator**
    - To cut and insert a tag in the ear of an animal for identification purposes.

      1 x 1 = 1 mark

SECTION B.

89238375. **a. Effects of excess nitrogen.**
- Burning / scorching of the leaves
- Weak stems and fruits
- Delayed maturity
- Excess succulency and crop lean or fall / lodging of crops

  4 x 1 = 4mks.

b. **Role of organic matter**
- Binds soil particles so improve soil structure and texture
- Reduces leaching and soil erosion
- Buffers soil PH
- Reduces toxicity of plant poisons
- Provides food and shelter to micro-organisms
- Makes phosphorous more available.
- Increases water holding capacity of soil and water infiltration
- Makes soils warm as it is dark.

  1 x 6 = 6marks.

c. **Characteristics of phosphatic part.**

- Slightly soluble in water
- Have a long residual effect
- Not liable to leaching
- Slight scorching / burning effect.

1 x 3 = 3 marks.

26. a. Collecting semens.

- Use of artificial vagina
- Recovery of semen from vagina of females soon after natural service
- By electrical stimulation of a bull to ejaculate.

1 x 3 = 3mks.

b. **Pregnancy diagnosis.**

- Noting absence of heat period after service
- Decline in milk yield
- Thick secretion from cervix
- Rise in vaginal temperature above normal
- Thick honey like secretion in the teat
- Feel method / apply pressure on right flank to the foetus.
- Rectal palpation / touching the rectism and feeling minute movements.
- Check specific gravity and PH of cervical means change drastically.

1 x 6 = 6mks.

c. **Reasons for conserving forages.**

- To provide feed in dry season
- To ensure feeding of animals throughout the year
- To conserve forage for sale
- For better and efficient utilisation of land.

1 x 4 = 4 marks.

27.a. Fresh market tomatoes

- Marglobe
- Money maker
- Hotset
- Ponderosa
- Super marmande
- Early beauty
- Hundred fold
- Best of all.

b. **Reasons for pruning.**

- To maintain appropriate crop / leaf ration for maximum yields
- To attain a regular cropping / to increase productive rate
- To control over breaking and regulate cropping
- To facilitate air circulation and light penetration.

1 x 5 = 5mks

c. i. **Siting grain stores.**

- Accessibility / nearness to road
- Security
- Space for future expansion
- Topography of the place
- Direction of prevailing wind

- Drainage of the area
- Nearness to power source
- Distance from crop field.

1 x 4 = 4mks

ii. Seed rate is the quantity of seeds planted in a given area of land while plant population is the number of plants lawns growing in a given area of land after germination.

1 X 2 = 2 marks.
(mark as a whole)

SECTION C.

28. Production of sweet potatoes.

i. **Field preparation**

- Should prepare during dry season
- Should be prepared thoroughly
- Clear the vegetation using appropriate tools eg. pangas, slashers
- Dig / plough the field to uproot all needs.
- Break the dods to medium tilth
- Dig ridges spaced 90 – 150cm apart and add some organic manure

1 x 5 = 5 mks.

ii. **Planting**

- Select vines / stem cuttings from the tips of vines of mature plants
- The cuttings are about 25 – 90cm long
- Plant when there is enough moisture in the soil / soon after onset of rains
- Cover the vines up to 2/3 of their total length
- Plant at a spacing of 30 – 60cm along the ridges between vines
- Healthy vines should be used.

1 x 6 = 6 mks.

iii. **Field operations.**

- Uproot the weeds using a panga / forked jembes
- Avoid cutting the roots
- Earth up the soil on the vines to encourage more rooting and tuber expansion.
- Uproot weeds by hands after crop establishment/ after 2 months in the field.
- Control moles by trapping, also porcupines and squirrels
- Spray with appropriate pesticide / endusulfan / fenithism to control sweet potato weevils
- Control mites using appropriate chemicals to control spread of sweet potato virus B disease.

1 x 6 = 6mks.

iv. **Harvesting**

- They are ready for harvesting 4 –5 months after planting
- Large root tubers cause the ground to crack indicating readiness
- Harvesting for food is done piecemeal using a sharpened stick or forked jembes.
- Complete harvesting is done when the root-tubers are to be marketed.

1x 3 = 3mks.

29. a. **Maximum production of eggs.**

- Provide enough space / avoid overcrowding
- Proper feeding on layers mash / ensure balanced feeding
- Provide sand / grit to aid digestion
- Provide clean rest boxes / clean shelters / observe hygiene
- Provide enough laying boxes
- Vaccinate against diseases / new castle / fowl typhoid.
- Cull poor layers.
- Frequent egg collection.
- Control external parasites with appropriate pesticides
- Avoid disturbance / proper handling
- Gradual change of routine / feeds
- Protection from extreme weather / No cold or hot conditions
- Treat sick birds with appropriate drugs
- Isolate sick birds from healthy ones
- Administer coccidiostale in feed or water
- Debeak egg eaters

1 x 12 = 12 marks.

b. **Management done by a beef farmer.**

- Conservation of forage when excess as hay / silage / standing forage
- Paddocking of pastures / rotational grazing
- Reseeding of pastures at beginning of the rains for maximum production
- Water collection and storage / construct dams / ponds / boreholes to ensure constant supply.
- Provide supplementary feeds/ concentrates during scarcity
- Irrigation of pastures to increase yield during dry season
- Planting pasture species adaptable to dry and conditions resistant to draught.
- Select breeds of beef cattle resistant to dry conditions/ hardy cattle.

(**Award for stating correct practice)**
Award for practice for explanation)
1 x 8 = 8 mks.

30. a. **Characteristics of pyrethrums.**

- Act as nerve poisons
- Have repellant effect
- Have limited persistance
- Are safer to the user
- Have a rapid knock down effect.

1 x 5 = 5mks.

b. **Environmental influence on agro-chemicals.**

- Wind – men blow the chemical away from intended crops
- Rain – may dilute or wash away the chemicals
- Soils – some may absorb and retain more chemicals than others.
- Light – may decompose some chemicals.
- Temperature – increases translocation and hence absorption of chemicals.

= 5mks.

c. i. Land consolidation is putting together under one holding different

- Land fragmentation is a situation where an individual farmer owns many separate pieces of land scattered over a wide area.
- Settlement refers to occupation of land which was previously uninhabited

(**mark as a whole) 1 x 3 = 3mks.**

ii. Objectives of land reforms

- To increase agricultural output through properland use
- To orientates agricultural production to meet market demands.
- To enhance efficient utilisation of land
- To put idle land to use
- To encourage commercial instead of subsistence production.
- To encourage conservation and improvement of land and its resources
- To settle the landless and ease population density pressure in some areas.
- To create self employment.

1 x 7 = 7mks.

AGRICULUTURE II

SECTION A .

1. What benefit do pastoralist farmers attain from camels? *(1 mark)*
2. (i) State FOUR factors influencing soil formation *(4 marks)*
   (ii) State the importance of the colour of a soil in soil forming process *(2 marks)*
3. State FOUR methods that can be used to raise production in a group of sows *(2 marks)*
4. State FOUR advantages of free-range system in poultry production *(2 marks)*
5. Give FOUR differences between indigenous and exotic cattle *(2 marks)*
6. State TWO advantages of rolling in land preparation *(1 mark)*
7. Apart from bacteria and fungi name TWO other causes of diseases in crops *(1 mark)*
8. (i) Name the primary host of tapeworm *(1 mark)*
   (ii) List TWO internal parasites that attack sheep. *(1 mark)*
9. (i) State TWO ways of controlling Nematodes *(1 mark)*
   (ii) Give TWO pests that are disease vectors in crops *(1 mark)*
10. Mention FOUR farm structures which may be found in a mixed farm. *(2 marks)*
11. What FOUR factors would one consider when choosing feedstuffs for preparing a livestock ration? *(2 marks)*
12. Why is it not necessary to have grass pasture as a livestock feed in pig production? *(1 mark)*
13. State FOUR stages of curing hides and skins. *(2 marks)*
14. State the role of Isthmus in the reproductive system of a layer *(1 mark)*
15. (i) Name the crop usually attacked by the Zebra disease. *(½ mark)*
    (ii) What is decortication? *(1 mark)*
16. State THREE importance of lime in crop production. *(11/2 marks)*
16. Name TWO characteristics that make Katumani maize variety recommended for marginal areas. *(1 mark)*
18. State FOUR ways of preventing swarming in bees. *(2 marks)*
19. State FOUR factors that contribute to the competitive ability of weeds over cultivated crops. *(2 marks)*
20. Mention any FOUR factors that affect the quality of hay. *(2 marks)*
21. How can a farmer improve soil PH in his farm? *(1 mark)*
22. State ONE reason for foot trimming in livestock. *(1 mark)*
23. State FOUR characteristics of a good wood preservative. *(2 marks)*

SECTION B

24. Mention THREE methods of classifications of herbicides. *(3 marks)*
25. State FOUR factors considered when selecting a site for a vegetable nursery bed. *(4 marks)*

26.

(i) Name the class of animal represented by the above digestive system. *(1 mark)*
(ii) Label the parts indicated by the letters. *(4 marks)*

P _____
Q _____
R _____
S _____

(iii) State one function of P and S *(2 marks)*
(iv) Give ONE reason why rabbits and donkeys are able to digest cellulose material. *(1 mark)*

27. Give a benefit for feeding colostrum to a newly born calf. *(1 mark)*
28. Name THREE soil fractions. *(3 marks)*
29. (a) State FOUR activities carried out on a site before laying a farm structure. *(2 marks)*
(b) State TWO methods commonly used in wood treatment. *(2 marks)*
(c) Give FOUR maintenance practices done on live fence. *(2 marks)*
(d) Give ONE disadvantage of using stones for building. *(1 mark)*
30. (a) State TWO advantages of chemical control on crop pests. *(2 marks)*
(b) State FOUR effects of plant diseases on crop production. *(4 marks)*
(c) List TWO diseases and TWO pests that attack bananas in the field. *(2 marks)*
31. (a) Explain the difference between risk and uncertainty. *(1 mark)*
(b) Give FOUR ways in which farmers adjust to risk and uncertainties. *(2 marks)*
(c) State FOUR crucial questions a farmer would be trying to answer when preparing a partial budget. (2 marks)

SECTION C

32.(a) Describe the production of dry beans on a piece of land that has been follow under the following headings.
(i) Ecological requirement *(5 marks)*
(ii) Land preparation and planting. *(5 marks)*
(iii) Field management *(5 marks)*
(b) (i) Give THREE causes of Blossom end rot? *(3 marks)*
(ii) What is Blossom end Rot? *(2 marks)*
33. (a) State TWO types of fences. *(2 marks)*
(b) Give the advantages of hedges *(3 marks)*
(c) Outline the maintenance of the fence. *(3 marks)*
(d) What information is found in calving records? *(3 marks)*

(e) What are aspects of wind that affect crop production? *(3 marks)*
(f) Briefly describe the effect of parasitism in livestock production. *(6 marks)*

34.(a) What characteristics make cassava an important food crop in most parts of Kenya? *(14 marks)*
(b) Name TWO diseases of cassava. *(2 marks)*
(c) State TWO symptoms of each disease named above. *(4 marks)*

AGRICULTURE II
MARKING SCHEME

1. * Milk
* Fur
* Meat
* Manure
* Transport
* Hide ***(2 x1/2 = 1)***

2.(i) * Topography / drainage
* Living organism / vegetation
* Climate - man - time
* Parent rock ***(4mks)***

(ii) * Influence soil temperature whereby dark colour soils absorb and retain more heat hence activities and survival of microbes. ***(2 mks)***

3. * Proper feeding
* Proper disease and pest control
* Proper breeding
* Proper control of worms

4. * Cannibalism and egg eating are reduced
* No need to provide grit as birds pick it from the soil
* Less feed used
* Manure is evenly spread to the runs, this helps vegetation to regenerate. ***(4x1/2 = 2)***

5.

INDIGENOUS	EXOTIC
(i). Have hump	(i). No hump
(ii). Resist high temperatures	(ii) Cannot resist high temperatures
(iii) Have dew lap	(iii) No no dew lap / small
(iv) Have high tropical diseases and pests	(iv) Have low resist tropical diseases and pests
(v) Can walk for long distance in pasture search of pasture and water.	(v) Cannot walk for long distance in search of Pasture and water.
(vi) Have long calving interval	(vi) Have short calving interval ***(4 x 1/2 = 2)***

6. * To level the soil
* To turn the soil ***(2 x 1/2 = 1)***

7. * Virus
* Nutritional ***(2 x 1/2 = 1)***

8. (i) Man
(ii) - Tapeworm
- Liverfluke ***(2 x 1/2 = 1)***

9. (i) * Soil fumigation
* Use of crop rotation ***(2 x 1/2 = 1)***

(ii) * Aphid
* Whitefly ***(2 x 1/2 = 1)***

10. * Crop stores
* Crushes
* Beehive / Breeding structures
* Homestead
* Fences
* Silos
* Cribs ***(4 x 1/2 = 2)***

11. * Cost
* Availability of feeds
* Palatability
* Physiological status / health

12. * Because pigs are monogastric hence cannot digest grass / pasture. ***(1mk)***

13. * Washing
* Fleshing
* Trimming
* Salting / drying ***(4 x 1/2 = 2)***

14. * Shell membrane is added
* Addition of mineral, water and thin outer albumen. ***(1mk)***

15. (i) Sisal ***(1/2mk)***
(ii) Removal of the fleshy tissues from the fibres of sisal. ***(1mk)***

16. * To increase the soil pH.
* To supply soil nutrients
* Improve soil structure ***(3 x 1/2 = 11/2)***

17. * Require little rainfall / precipitation
* Mature faster ***(2 x 1/2 = 1)***

18. * Giving bees water during dry conditions
* Controlling pests and diseases
* Proper harvesting of honey to avoid killing bees
* Siting beehive away from the public road. ***(4 x 1/2 = 2)***

19. * Heavy feeders
* Produce a lot of seeds
* Allotophetic
* Smoothening effect
* Some are parasitic ***(4 x 1/2 = 2)***

20. * Stage of growth at which forage is harvested.
* Leaf content of the forage material
* Method of handling and curing the material
* Form in which material is fed to the animal
* Species of forage used
* Amount of foreign material in forage. ***(4 x 1/2 = 2)***

21. * Application of lime
* Use of acid fertilizers ***(1mk)***

22. * To prevent foot rot. ***(1mk)***

23. * Poisonous to destructive agent
* Permanent / stay long
* Good penetration
* Harmless to wood and metal fastener ***(4 x 1/2 = 2)***

SECTION B.

12

24. * Form e.g. granular / powder ***(3mks)***
* Time of application e.g. pre-post plant
* Mode of action e.g. systemmatic / non-systemmatic

25. * Sheltered area protected from strong wind
* Easily drained area
* Near source of water
* Should be free from stumps and roots
* Should be fertile and well drained soil ***(4 x 1 = 4)***

26. (i) Polygastric / Ruminant animal ***(1mk)***
(ii) P - Rumen
Q - Recticulum
R - Omasum
S - Absoption ***(4 mks)***
(iii) P - Digestion of cellulose
S - Abomsm of water ***(2 x 1 = 2)***
(iv) * They digest in the ceaca ***(1mk)***

27. * Impart immunity to a newly born calf.
* Has antibodies that enable the calf to resist diseases
* Clean the bowel
* Contain vitamins any ***(Any 1 x 1 = 1)***

28. * Sand
* Silt
* Clay ***(3 x 1 = 3)***

29.(a) * Clearing of bushes / grass
* Levelling
* Water drainage system around the structure to be made. ***(4 x 1/2 = 2)***

(b) * Painting with old engine oil
* Soaking in dieldrin
* Applying chemicals using pressure
* Charring
* End diffusion / sap displacement / sap stream ***(4 x 1/2 = 2)***

(c) * Prunning
* Gapping
* Weeding
* Controlling pests and diseases ***(4 x 1/2 = 2)***

(d) * Expensive to transport / buy
* Requires labour to shape them
* Requires skills / techniques when laying ***(1 x 1 = 1)***

30.(a) * It is faster in pest control than other methods
* The results of pesticides can be predicted.
* More effective ***(1 x 2 = 2)***

(b) * Lower yields / quantity
* Lower quality of crop production
* Causing poisoning to consumers
* Increase production costs ***(4 x 1/2 = 2)***

(c) * Banana diseases - Cigar end rot, Panama disease, Sigatoka ***(1 /2 x 2 = 1)***
* Banana pests - Banana weavil, Banana thrips, Nematodes ***(2 x 1 /2 = 1)***

31.(a) Risk is the difference between the expected and the actual outcome and it could be estimated while uncertainty is a situation in which the outcome cannot be estimated . ***(1mk)***

(b) * Diversification
* Selecting a more reliable enterprise
* Insurance
* Guranteed prices
* Input rationing ***(4 x 1 /2 = 2)***

(c) * What extra cost the farmer is going to incur
* What revenue is foregone as at the proposal
* What extra revenue is to be earned
* What costs are saved as a result of the proposal ***(4 x 1 /2 = 2)***

SECTION C.

BEANS

32.(a) (i) *Ecological* requirements
* Well drained loam soils
* Beans require moist soils through out growing period
* Moderate rainfall
* No rain at harvesting time
* Irrigation can be done ***(5 x 1 - 5)***

(ii)*Land Preparation*
* Clear land before onset of rains
* Cultivate land to required tilth not so fine (medium tilth)
* Seeds should be dried before planting - select seeds for planting
* Plant at the onset of rains
* Planting is done by placing 2 - 4 seeds per hole
* Spacing (30 x 15)cm
* Apply Diammoniun phosphate at rate of 200kg/ha before planting. ***(5x1=5)***

(iii) *Field Management*
* Weeding done before flowering
* Weeding done when soil is dry
* Hand weeding is done
* During dry months irrigate land
* Use furrow irrrigation
* Control of diseases such as Bacterial Halo/blight and Anthracose, planting resistant varieties.
* Pest control by use of Benomyl Copper fungicide or mancazeb
* Pests include bean aphid; bean bruchids; Spotted borer, American bollworm, Beanfly, Golden ring moth ***(5x1=5)***

(b)(i) * Too much Nitrogen
* Too dry and too wet conditions
* Calcium deficiency ***(3mks)***

(ii) Physiological diseases that occur when tomato plants are exposed to too dry and too wet conditions, calcium deficiency ***(2mks)***

33.(a) (i) Live fence e.g. (a) Hedges and growing trees (b) Electric fence

(ii) Dead fence e.g.
* Post and wire i.e. barbed wire, plain wire
* Post woven wire rail fence
* Wall fence e.g. stone break
* Trench fence ***(2mks)***

(b) * Has more aesthetic value i.e natural
* Act as a windbreak and controls soil erosion

* It is easy and cheaper to establish
* May be a source of fodder to livestock
* It can be a source of firewood. ***(3mks)***

(c) * Replace any broken / rotten post
* Any loose fence wire should be tightened appropriately
* Trim the hedge and any gaps filled, the fencing posts should be treated first with preservatives such as old engine oil, creosate or charred. ***(3mks)***

(d) * Sex of the calve
* Date of birth
* Breed of the mother / dam
* Weight
* Breed of size ***(any given 3mks)***

(e) * Strength
* Direction
* Humidity ***(3 x 1 = 3)***

(f) * Cause wounds
* Low quality
* Cause irritation
* Spread diseases
* Reduce quality of product
* Increase cost of production ***(6 x 1 = 6)***

34. (a) * It is drought resistant
* Gives good yield in poor soils
* Require less labour
* Sheds its leaves during dry season thus reduce water evaporation
* Has low nutrient requirement
* Resistant to certain pests and diseases
* Can be used as flour and boiled ***(7 x 2 = 14)***

(b) **Diseases of cassava**

(i) Cassava mosaic ***(1mks)***

Symptoms

* Leaves turn yellow
* Reduced yield
* Stunted growth
* Distorted leaves ***(2mks)***

(ii) Brown streak ***(1mks)***

Symptoms

* Old leaves develop yellow buds at veins
* Brown patches on tubers ***(2mks)***

(iii) Bacterial blight ***(1mks)***

Symptoms

* Leaves develop brown patches
* Shoot tips turn brown
* Wilting of leaves that easily fall off ***(2mks)***

AGRICULTURE III
PART I

SECTION A:

1. What is a forage crop? (1 mk)
2. List four features of a fish pond. (4 mks)

3. State two disadvantages of persistent use of pesticides in crop production. (2 mks)
4. State two reasons for seasoning timber before use. (2 mks)
5. State four disadvantages of natural mating as a method of breeding in dairy cattle. (4 mks)
6. Why should smoke be used during harvesting of honey. (2 mks)
7. State four functions of potassium in plant growth. (4 mks)
8. State four routine management practices that should be carried out in sheep production (4 mks)
9. State four ways of improving productivity of farm labour. (4 mks)
10. If you are told a newly released Kitale hybrid maize seed is H823. What does the 3 digits stand for? (1 ½ mks)
11. (a) Why are insecticides made from pyrethrum recommendable than synthetic insecticides?
    (b) (i)Pyrethrum is propagated by which means? (1 mk)
    (ii) What is cutting back in pyrethrum growing? (1 mk)
12. How does a vaccine work in the body of an animal? (2 mks)
13. State one characteristic of organic matter that enables it to perform each of the following roles in the soil.
    (i) Improvement of soil structure. (2 mks)
    (ii) Improvement of water holding capacity. (2 mks)
14. State the symptoms of attack by the sweet potato weevils. (2 mks)
15. Name two tools that may be used to dock lambs. (2 mks)

SECTION B:

16. Give four reasons why the feeding of colostrum is important in the rearing of piglets. (2 mks)
17. Give two reasons why green manures are not commonly used by small scale farmers. (2 mks)
18. When is opportunity cost said to be zero? (1 mk)
19. State two reasons for proper record keeping. (2 mks)
20. State four reasons why zero grazing is becoming increasingly popular in small scale farming in Kenya. (2 mks)
21. Name four methods of land reclamation. (2 mks)
22. State four components of cattle dip. (4 mks)
23. State two functions of ventilation in an animal house. (2 mks)
24. Mention four important crush practices in a dairy farm. (2 mks)
25. (a) Differentiate between the following. (3 mks)
    (i) Furrowing and farrowing.
    (ii) Candling and kindling.
    (iii) Undersowing and oversowing.
26. Mention four problems associated with soil erosion. (2 mks)
27. Name three sources of water in the farm. 2½ mks)
28. (a) Give two factors that may lead to longer calving interval in a dairy cow. (2 mks)
    (b) State three benefits of giving a pregnant dairy cow a special diet for 6 weeks before calving. (2½ mks)
    (c) List four signs of infertility in dairy cows. (2 mks)
29. (a) List three problems that are faced by farmers who practice mono-culture. (3 mks)
    (b) What is meant by seed inoculation? (1 mk)
30. State the main reason why sharp corners should be avoided in a brooder for chicks. (1 mk)
31. (a) Apart from reducing friction, what other functions does lubrication perform in farm machinery? (List four). (2 mks)
    (b) Give four ways through which a farmer may improve production efficiency without necessarily incurring extra cost. (2 mks)

SECTION C:

32.(a)i. How is the nitrogen element lost from the soil? (5 mks)
ii. Describe the method by which nitrogen may be restored to the soil. (8 mks)
(b) (i) Describe how high quality farm yard manure could be made and stored. (5 mks)
(ii) Outline the factors which influence the quality of farmyard manure. (2 mks)
33. (a) List the factors that could make meat unfit for eating by man. (4 mks)
(b) Outline the procedure for clean milk production. (10mks)
(c) Why are goats suited to most parts of Kenya? (6 mks)
34. (a) What are the effects of endo-parasites in livestock? (5 mks)
(b) With the aid of diagrams describe briefly the life cycle of liverfluke. (5 mks)
(c) Describe foot and mouth disease under the following headings:
(i) Cause. (1 mk)
(ii) Symptoms. (2 mks)
(iii) Control measures. (2 mks)
(d) State five signs of a good layer among a flock of hens. (5 mks)

AGRICULTURE III
MARKING SCHEME

1. Plant which either grows naturally or cultivated and used for feeding livestoc (1 mk)
2. (i) Inlet (iii) Pool/tank
(ii) Spillway (iv) Fence
(iii) Outlet (any 4x1 = 4 mks)
3. - Pesticides kill beneficial insects.
- Some pests build resistance to pesticides.
- Pesticides have residual effects.
4. - To avoid warping.
- To reduce attack by pest/fungi.
5. - There is no control in breeding.
- Can cause spread of vaginitis disease.
- Wastage of sperms.
- Sperms can be used in remote areas. (4x1 = 4mks)
6. To make bees less aggressive/less active. (2 mks)
7. Mark any relevant answer correct.
8. - The feet should be trimmed regularly.
- Dipping should be regular, but should be stopped one month before lambing.
- Sheep should be vaccinated regularly.
- Sheep should be dewormed regularly. (4x1 = 4 mks)
9. - Giving incentives.
- Training labour.
- Farm mechanization.
- Labour supervision. (any 4x1 = 4 mks)
10. 8 = Altitude.
2 = Serial number.
3 = Number of crossing. (1 ½ mks)
11. (a) Easily broken down. (1 mk)
(b) (i) Splits (1 mk)
(ii) Removal of old stems upto the level of foliage. (1 mk)

12. A vaccine induce temporary antibodies which initiate the formation of antigen in balance to await the anticipated antibodies of the diseases to attack. (2 mks)
13. (i) Decomposing enhancing the breaking down of particles of soil thus the soil structure is improved. (2 mks)
    (ii) The organic matter decomposes to form the elements that are incorporated in soil, thus increasing capilarity adhesiveness of H_2O.
14. - Larvae
    - Tubers become discolored . (any two 2x1 = 2 mks)
15. - Scalpel.
    - Docking knife.

SECTION B:

16. - Impart immunity.
    - Contains necessary nutrients.
    - Faster growth.
    - Facilitate metabolism. (4 x ½ = 2 mks)
17. - Crops are harvested when green matter has been withered.
    - It is expensive. (2x1 = 2 mks)
18. When there is no choice to be made. (1mk)

19. - To follow good farm plant.
    - To assist in credit acquiring. (2x1 = 2 mks)
20. - Mark any correct relevant answer.
21. - Drainage.
    - Tse-tse fly control.
    - Reafforestation.
    - Afforestation. (4 x ½ = 2 mks)
22.(a)- Collecting pen.
    - Footbath.
    - Dipping tank.
    - Drainage race.
    - Entrance race.
    - Waste pit/tank.
    - Water source/tank. (4x1 = 4 mks)
(b) - Remove mud from hooves/clean hooves. (½ mk)
23. - Allows efficient air circulation in the house.
    - Prevents inside of the house from becoming humid.
    - Controls temperature in the house. (2x1 = 2 mks)
24. - Milking.
    - Deworming.
    - Treatment.
    - Isolation
    - AI. (4 x ½ = 2 mks)
25.(a)- Cutting/making ditches/channels on farm.
    - Giving birth in pigs. (1x1 = 1 mk)
(b) - Is observation of the inner part of the egg against strong light.
    - Is the giving birth in rabbits. (1 x 1 = 1 mk)
(c) - Less seed rate applied/establishment of pasture under an already growing crop/nurse crop
    - More seeds rate applied/establishment of a pasture legume/grass on an existing grass

pasture.
(1 x 1 = mk)

26. - Fertility is reduced.
- Useful micro-organisms are washed.
- Dams are silted.
- Plants roots exposed.
- Famine. (Any 4 x ½ = 2 mks)

27. - Dams/reservoirs.
- Boreholes.
- Tanks
- Rivers/sea
- Wells. (Any 3 x ½ = 2 ½ mks)

28.(a)- High milk production.
- Irregular heat signs.
- Poor nutrition.
- Poor health.
- Incorrect timing of service. (2x1 = 2 mks)

(b) - High quality colostrum.
- Strong heavy and health calf is obtained.
- Results in high milk yield. Gives cow enough energy for calving.
- To a customs the animals to concentrates feed.
- To stimulate development. (Any3 x ½ =2½ mks)

(c) - Absence of estrous.
- Abortion.
- Prolonged estrous.
- Irregular heat intervals.
- Conception failure after service.
- Abnormal discharge from vulva. (Any 4x½ = 2 mks)

29.(a)- Build up of pest or diseases.
- Breakdown of soil structure.
- Soil erosion may be a problem.
- Loss of soil fertility. (3x1 = 3 mks)

(b) Introducing a suitable strain of nitrogen fixing bacteria to legume seeds. (1 mk)

30. To avoid suffocation due to overcrowding/kindling of chicks in corners. (1 mk)

31.(a)- Cushions/prevents rubbing together of moving parts in machinery.
- To prevent rusting.
- Absorbs heat and traps pieces of metal, which comes from moving surfaces.
- Improves work efficiency machines.
- Reduces rate of rear and lear. (any 4x½ = 2 mks)

(b)- Use of improved or modern farming methods.
-Improved farm management.
-Mechanization of farm operations.
-Efficiency in use of labour.
-Select enterprises that can bring highest return.
-Organizing marketing activities to realize highest price. (any 4x½ = 2 mks)

32.(a)- Denitrification.
- Leaching.

- Soil erosion.
- Burning.
- Volatilization.
- Crop absorption. (any 5x1 = 5 mks)

(b) - Nirtogen fixation by root nodules bacteria and free living bacteria.
- Application of inorganic manure e.g. guano manure.
- Crop rotation/planting of legumes.

(c)(i)- Plant material is placed on concrete floor indoors.
- Animals defecate on it and mix it with urine and dung .
- Cover the heap with soil or polythene sheet to prevent leaching.
- Consolidate heap to prevent entry of water.
- Allow it to dry completely before being used. (1x5 = 5 mks)

(ii)
- Type of bedding used.
- Age of animal.
- Type of feed given to animal.
- Type of animal from which dung is obtained. (4 x ½ @ = 2 mks)

33.(a)- Animal infested by zoonotic diseases animal infested by par.
- Animal found dead due to unknown cause.
- Uninspected meat by environmental health authorities.
- Contamination e.g. feaces, flies.

(b) - Ensure that the cows are clean and healthy.
- Milking equipment this should be seamless to make them easy to clean - they should be cleaned thoroughly after each milking.
- Milking parlour/shed.
- Situated in dust free environment.
- The floor should be made of concrete to facilitate cleaning.
- Cleaned thoroughly after milking.
- Milking jelly to avoid cracking.

(iv) - Milker - should be healthy i.e. free from zoonoses.
- Should be clean always.
- Should have white coat to help in detecting dirt.
- Should have short finger nails.
- Wash his hand well with soap before milking.

(v) - Best for mastitis before milking. Using a strip cup, animals having mastitis should be milked last to avoid spread of diseases.

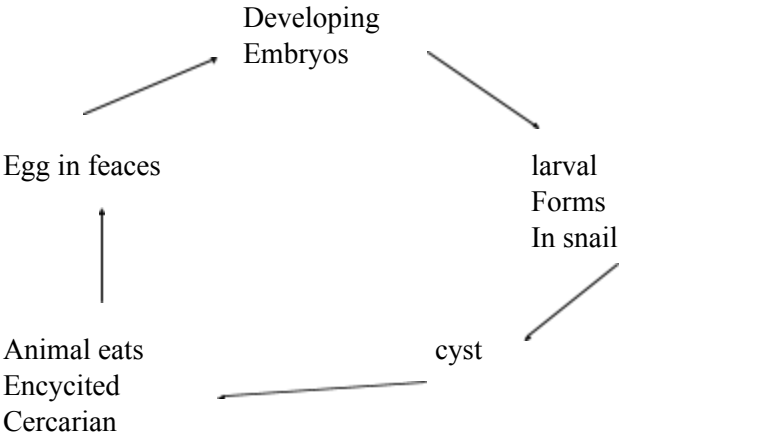
(vi) - Milk storage and handling.
- Cool milk soon after milking and store it.
- A cool place to reduce bacterial growth and multiplication.
- Filter and cover milk to.
- Remove and keep away dirt resepctively.(1mk each points x 5 = 5mks
1mk for explanation x 5 =5mks) =10 mks)

(c) - Goats are tolerant.
- Goats are drought resistant.
- They eat variety of vegetation.
- They are tolerant to heat and high temperature. (Any 3 points x 2mks = 6 mks)

34. (a) - Damage to animal organs.
- Obstruction in the alimentary canal.

- Parasites eat food intended for use by livestock.
- Suck blood.
- Cause irritation. (Any 5x1 = 5 mks)

(b)



Drawing 2 ½ mks
Description 2 ½ mks

(c) Foot and mouth:
Causes - virus type A, C and D. (1 mk)

Symptoms:
- Blisters/wounds appear on the mouth and feet.
- Tongue ,lips, and gums are inflamed.
- Lesions appear between the skin and hoof.
- Profuse salivation.
- Animal weak and thin.
- Drops in milk production. (Any 2x1 = 2 mks)

Control:
- Vaccination.
- Quarantine.
- Kill animal affected.
- Nurse animals with wound by use of antibiotics. (Any 2x1 = 2 mks)

(d) - Signs of good layers:
- Combs and wattles are large, warm and waxy and red.
- Bright orange and alert eyes.
- Pale beak.
- The rent is oval, moist, reddish in colour and active.
- Abdomen is soft, pliable and wide.
- The space between keel and pelvic bone is wide and can fit 3-4 fingers.
- Alert and active.
- Dry and rugged feathers.
- Moulting starts late.
- Shanks are pale.
- Brooding is rare. (Any 5x1 = 5 mks)

AGRICULTURE IV

SECTION A.

1. State **four** factors that should be considered when selecting materials for constructing a dairy shed. (2mks)
2. Give **two** reasons for raising Kale seedlings in the nursery before translocating (2mks)
3. State **two** conditions that may lead to sub-division of agricultural land (1mk)
4. State **four** reasons why piglets should be weighed immediately after farrowing and weaning (2mks)
5. List **four** characteristics of clay soil (2mks)
6. Give **two** reasons why sorghum should be harvested, for making silage just before flowering stage (2mks)
7. (a) What is the duration of oestrus cycle in a cow. (1mk)
   (b) If a dairy cow is noticed to be showing first signs of heat at 6.00am. What time should it be inseminated (1mk)
8. State **three** advantages of chilting in Irish potato seeds (3mks)
9. State **four** tests a farmer would carry out in determining the quality of a fresh egg. (2mks)
10. Differentiate between Dams and well as used in water supply (2mks)
11. State any **two** characteristics symptoms of viral diseases in plants (1mk)
12. State **four** stages of curing hides (2mks)

13. Give **two** factors that influence the time of first defoliation in newly established pastures (2mks)
14. Outline **two** effects of adding organic matter to sandy soil
15. State **four** characteristics of horizon 'A' of a typical soil profile (4mks
16. Why should a farmer plant grass around a fish pond. (2mks)
17. Give **three** causes of post- harvest losses of maize to the farm. (3mks)
18. Give **two** characteristics of the head of a corriedale sheep breed. (2mks)
19. Mention **four** pests that may cause reduction in honey yield from top bar hive. (2mks)
20. Give **three** danger signs indicating breeding problems in a Friesian cow.

SECTION B

21. Give **four** factors that determine the pyrethrin content in pyrethrum (4mks)
22. Why do cereal crops dominate arable land. (3mks)
23. (a) List **four** essential components of zero grazing unit. (2mks)
    (b) State **four** reasons for practising zero grazing system. (2mks
    (c) Give two reasons for the two month dry period, the cow, requires before parturation.(2mks)
24. State **three** ways of increasing efficiency in farming. (3mks)
25. (a) State **two** reasons for maintaining livestock in good health. (2mks)
    (b) Name **two** noticeable diseases of cattle. (2mks)
    (c) State **four** measures that should be taken to prevent an out break of Newcastle disease in poultry (2mks)
26. (a) Differentiate between market and marketing. (2mks)
    (b) What is an imperfect market. (1mk)
    (c) How will the price of mangoes in the short run, be affected if the quantity of mangoes supplied in a market is increased? (1mk)
27. State any **three** advantages of vegetative propagation. (3mks)
28. State **three** factors which would be considered when siting a compost pit. (3mks)

29. State **four** factors that should be considered when planning a lay out of mixed farm. (2mks)
30. (a) Name any **three** roofing materials commonly used. (3mks)
    (b) Give **three** disadvantages of using wood fuel as a source of power.
31. (c) Name **three** examples of one point hitch implements drawn by the tractors. (3mks)

SECTION C

32. (i) Describe cattle Trypanosomiasis under the following sub headings.
33. (a) Cause and Transmission. (1mk)
    (b) Symptoms. (5mks)
    (c) Control (3mks)
    (ii) What are the causes of infertility in cows. (4mks)
    (iii) Describe the management of rabbits between mating and weaning. (3mks)
34. Describe the management practices that should be carried on a low yielding herd of dairy cattle to make it more productive. (2mks)
35. (a) What causes losses of maize during storage. (4mks)
    (b) What practices should be carried out to minimise losses of maize during storage? (6mks)
    (c) What are the functions of the National Cereals and Produce board in the marketing of maize? (10mks)

AGRICULTURE IV
MARKING SCHEME.

1. – The cost
   – Durability
   – Workability
   – Easy to clean
   – Availability
   (4 x ½ = 2mks)

2. To increase rate of germination
   – To nurse the seedlings before transplanting so that they have good establishment
   (2 x ½ = 1mk)

3. – Selling of land
   – Population increase/Pressure on land
   (2 x ½ = 1mk)

4. – To determine the food to be eaten
   – Check whether the piglets are healthy
   – To keep proper records
   – To have proper management
   (4 x ½ = 2mks)

5. – Poorly drained
   - Poorly aerated
   – Fine texture
   – Has higher amount of nutrients
   (4 x ½ = 2mks)

6. – High nutrient value
   – Succulent hence palatable
   – Higher decomposition
   (2 x 1 = 2mks)

7. (a) 19hrs (1mk)
   (b) 6.00 am + 10 hrs = 4.00 pm (1mk)

8. – Easy establishment
   – Early maturity
   – Easy germination

9. – Candling
   – Water method
   – Opening the egg
   – Observation
   (4 x ½ = 2mks)

10. A dam is a wall build across a river to prevent flow of water to form a lake. While a well is a wall/stamped across water. (2mks)

11. – Swelling
   – Mottling of leaves
   – Chlorosis of leaves

12. – Washing
   – Fleshing
   – Salting/Drying
   (4 x ½ = 2mks)

13. – The rate of growth of forage
   – The type of animal to be fed
   (2 x 1 = 2mks)

14. – Moisture content of Soil
   – Tilth of soil
   (2 x 1 = 2mks)

15. – Tap roots are formed here
   – Little humus
   – Slightly compact/Yellowish
   – Active micro – organisms
   (4 x 1 = 4mks)

16. – To prevent soil erosion/forming the soil
   – Attract insects to the pond for fish to feed on.
   (2 x 1 = 2mks)

17. – Improper or incomplete drying of grains
   - Wet heating (Placing in sacks with the maize on the floor)

– Drainage by pests e.g rodents/weavils
(3 x 1 = 3mks)

18. – Harmless
– Well wooled but free from wool blindness
(2 x 1 = 2mks)

19. – Ants – birds
– Wax – moth – Bee louse
– Hive beetle - Death head hank moth
– Pirate wasps
(4 x ½ = 2mks)

20. – Lack of heat
– Abnormal discharge from the reproduction track
– Irregular heat intervals
– Abortion
– Prolonged heat period
(3 x 1 = 3mks)

21. – Part of the plant
– Stage of flower development
– Genetic constitution
– Age of the plant
– Handling/Care during picking drying and dispatch
(4 x 1 = 4mks)

22. – They are the most important source of carbohydrate
– Harvesting of cereals is easier
– Storage and transportation are easier
– Cereals are widely adapted to various ecological zones
(3 x 1 = 3mks)

23. (a) – Sleeping cubicles
– Milking place
– Feeding and watering troughs
- Calf pens
– Loafing/exercise area
– Store

- High milk production is obtained
– Allows higher stocking rate
– Animals make maximum use of fodder without wastage
– Rapid accumulation of manure
– Minimises outbreak of diseases
- Avoids overgrazing
(4 x ½ = 2mks)

(c)
– To obtain a strong, heavy and healthy calf at birth

– To increase milk production in the next lactation
– To allow accumulation of body reserves used in the formation of colostrum

24. – Select proper/more paying enterprise
– Proper crop husbandry practices
– Proper livestock husbandry
– Mechanisation
– Adopt new techniques
– Timeliness of farm operations
(3 x 1 = 3mks)

25. (a)
– Increase quantity of livestock product
- To increase quality of livestock product
– To increase profit level
– To prevent the spread of zoonotic diseases
– To increase productive life of livestock
(2 x 1 = 2mks)

(b)
(i) Foot and Mouth disease
(ii) Anthrax
(iii) Rinder pest
(iv) Lampiy sick disease
(v) Rabies
(2 x 1 = 2mks)

(c)
– Vaccinate birds at regular interval
– Isolate affected birds/destroy affected birds
– Disinfect the house before bringing in new stock
– Impose quaratine in the farm
– Ensure proper farm hygiene
(4 x ½ mks = 2mks)

26. (a) - Market is a place where buyers and sellers meet to buy and sell goods and services, where as marketing is the performance of business activities that direct the flow of goods and services from producers to consumers (2mks)

(b) An imperfect market is a situation in which some buyers, some sellers or both have limited knowledge of goods and services offered for sale at various forces/few buyers and sellers /different, goods in to the market.

(c) The Price of mangoes go down. (1mk)

27. – Easy establishment of plant
– Maintains the present genetics
- Seedless plants can be propagated
(3 x 1= 3mks)

28. – Proximity to the farm/Crop field
- Accessibility
- Topography/Soil drainage

– Soil type
(3 x 1 = 3mks)

29. – Size of the land
– Topography of the land
– Direction of the wind
– Soil fertility
- Capital availability
(4 x ½ = 2mks)

30. (a)
– Corrugated iron sheets
– Tiles
– Asbestors
– Alluminum sheets
– Thatch/Palm leaves
– Timber/Wood shingles
(3 x 1 = 3mks)

(b)
– Leads to environmental destruction
– Air pollution
– Exhaustible
– Limited uses
– Cannot be regulated/uneconomical
(3 x 1 = 3mks)

(c) – Trailers
– Heavy harrow
– Planters ***(3 x 1 = 3mks)***

31. (a) Caused organism protozoa (1mk)
(b) Symptoms
- High temperature or fever
- Dullness
- Animal looses appetite
- Body becomes very weak
- Lachrimation
- Diarrhoea
- Milk production decreases
- Loss of hair at Tail end
- Animal has anaemia
- Abortion may occur in pregnant females

(d) **Control**
- Treat the animal with typanoccidal drug
- Control tsetse flies by bush clearing spraying
- Confinement of game animals in game parks

(ii) - Causes infertility in cows
- Damaged uterus caused by abortion
- Infection such as viginitis, brucel lossis;
- Retained placenta

- Blocked fallopian tube as a result of infection
- Lack of essential nutrients like vitamin E
- Frematin: a heifer born twin with a bull is 90% infertile

Mating

- Young females should be mated when they are 6 – 7 months old
- Old females should be mated after kindling
- Take the doe to the bucks hutch for mating
- Have one back to give does

Preparation for Kindling

- Gestation period 31 days (one month)
- Clean and put in a nest box nestling materials four days to kindling
- Place the box in the darkest corner of the hutch since the doe likes kindling where it is dark

Rearing the Kindles

- Regularly check the nest to remove sick, weak and dead babies
- Check daily to ensure that all the babies feed well
- Feed kindles on mothers milk for the 2 ½ - 3 weeks
- They allowed to stay with mother until 8th week when they are weaned

(8 x 1 = 8mks)

32. - Proper selection of the herd
– Proper disease control
– Proper pest control
– Proper housing
– Proper feeding
– Spraying animals against external parasites
– Proper recording of management activities
– Cross breeding up grading the herd
– Proper serring the dam
– Proper use of good sire
– Deworming against internal parasites

(stating 10 x 1 = 10mks, Explanation 10 x 1 = 10mks)

33. (a)
- Poor drying
– Damage by pests
– Poor processing
– Wet heating

(4 x 1 = 4mks)

b. - Drying
- Control
- Proper processing
– Dusting
– Storage in ventilated stores
– Store away from wet conditions

(6 x 1 = 6mks)

c. (i) Buy maize when harvest is high
(ii) Store maize
(iii) Sell maize when there is shortage
(iv) Import maize
(v) Export maize
(vi) Dispose maize
(vii) Advice the Minister on the proper production of maize
(ix) Control prices of maize in the market
(10 x 1 = 10mks)

AGRICULTURE V
SECTION A.

1. List **four** advantages of individual owner tenure system (2mks)
2. State **two** ways to show how check dams reduce soils erosion (1mks)
3. Identify **four** factors that contribute to competitive ability of weeds (1mk)
4. Mention **four** ways of classifying herbicides (2mks)
5. List **two** ways of controlling smut disease in the field. (1mk)
   (a) Name any **two** pests that attack bean pods in the field (1mk)
   (b) Give **four** examples of French beans/Green beans (2mks)
6. What **four** factors should a farmer consider for effective control of pests in the field (2mks)
7. List **four** ways of increasing carrying capacity of pastures (2mks)
   (a) Name any **four** livestock attacked by trypanosomiasis disease (2mks)
   (b) What organism causes Gall sickness disease in livestock (1mk)
8. State **four** signs of heat in a heifer (2mks)
9. List **four** factors that determine the number of times a seed bed is harrowed (2mks)
10. Name **four** systems of irrigation (2mks)
11. Name any **two** examples of dual purpose breeds of cattle (1mk)
12. State any **two** factors that influence the rate of leaching in soils (1mk)
13. Give any **four** information contained in a feeding record in pig production (2mks)
14. State **four** ways of modifying temperature in crop production (2mks)
15. Name **four** methods of vegetative progagation (2mks)
16. Give **two** reasons why ewes disown their lambs soon after lambing (1mk)
17. What **four** factors determine the type of fence to construct in the farm (2mk)
18. List any **two** deficiency symptoms of nitrogen in crops (1mk)
19. List any **four** examples of marking tools in a workshop (2mks)
    (a) Name the system of breeding where low grade female is mated to pure bred sire (1mk)
    (b) Give **two** classes of concentrate feedstuffs (1mk)

SECTION B

23. (a) State **four** signs of attack by Rinderpest disease (2mks)
    (b) List **three** disease predisposing factors in livestock (3mks)
    (c) (i) State **four** disadvantages of animal drawn implements (2mks)
    (ii) List **two** advantages of artificial incubation of eggs (1mk)
24. (a) Define the term pest in agriculture (1mk)
    (b) State **four** physical measures of controlling pests in the field (4mks)

(c) (i) Name **two** common viral diseases in cassava (2mks)
(ii) List **two** physiological disorders in crops (1mk)

25. (a) Give **three** uses of cement in the construction of farm structures (3mks)
(b) What **four** factors should be considered when siting a nursery bed (2mks)
(c) (i) Mention **two** farm structures used for water storage in the farm (1mk)
(ii) List four disadvantages of a cattle dip (2mks)

26. (a) State **one** function of each one of the following parts of an ox-plough
(i) Main beam
(ii) Frog
(iii) Share
(iv) Hake (2mks)
(b) Identify **three** maintenance practices done on the ox-plough (3mks)
(c) List **three** operational differences between a mould board plough and a disc plough (3mks)

27.(a) State **three** important characteristics of Hereford breed that makes it particularly suitable for beef production (3mks)

(b) What **three** major character expressions would you look for in the performance records of a dairy cow for breeding (3mks)
(c) Give the period of sexual maturity in months in each of the following livestock (2mks)
(i) Sow
(ii) Ewe

28.(a) Explain ways of improving the quality and quantity of crop yields. (13mks)
(b) Explain the effect of soil PH on crop production (7mks)

29. Describe production of maize for dry grains under the following sub-heading (20mks)
(i) Land preparation
(ii) Planting
(iii) Field operations (5mks)
(iv) Harvesting (3mks)

30. (a) Describe fowl pox disease under following sub-headings
(i) Animals attacked (1mk)
(ii) Causal organism (1mk)
(iii) Symptoms of attack by diphtheritic and cutaneous types of fowl pox (8mks)
(iv) Control measures (2mks)
(b) Explain factors that influence vices in poultry (10mks)

AGRICULTURE V
MARKING SCHEME

1. – Title deed used to secure loan credit
– Independent production plan
– Accessibility to agricultural advice
– Earn income by leasing/renting land
– High production of quality produce
– Proper supervision of land (4 x ½ = 2mks)
2. – Trap sediments/soil
– Slow down the speed of run off
– Reduce volume of run off (2 x ½ = 1mk)
3. – Produce large quantities of seeds
- Seeds have a long viability
- Propagate vegetatively

– Extensive root system
– Hardy/survive adverse weather and soil condition
– Have a short life cycle
– Gross feeders/heavy feeders (4 x ½ = 2mks)

4. – Mode of action
- Time of application
– Selectivity
– Formation/physical form of herbicide (4 x ½ = 2mks)

5. – Rogueing/uproot and burn infected crop (reject rogueing alone)
– Crop rotation
– Plant resistant varieties of maize
– Plant certified seeds
– Avoid application of infected organic manure (2 x ½ = 1mk)

6.a. – American bollworm (reject bollworm alone)
– Flower thrips (2x ½ = 1mk)

(b) – Primeur
– Long tom
– Saxa
– Master Piece
– Monel (4 x ½ = 2mks)

7. – Nature of crop damage caused
- Biology of pest/reproduction of pest/feeding habits
– Weather conditions favouring pest attack
– Whether pest has natural enemies
– Population level of pest (4 x ½ = 2mks)

8. – Irrigation
– Application of manures / fertilisers
– weed control
– Control of pests
– defoliation at right growth stage (4 x ½ = 2mks)

9.(a) – Cattle (reject cow or bull alone)
– Sheep
– Goats
– Pigs (4 x ½ = 2mks)

(b) - Protozoa – <u>Anaplasma marginale</u> (1mk)

10. – Reddening and swelling of vulva
– Heifer stands still to be mounted by others and also mounts other cows
– Clear slimy mucus discharge comes out of vulva and sticks on the tail
– rise in body temperature/above 39^{o}C
– Heifer is restless and loses appetite
– constant bellowing/mooing
(reject slight drop in milk production) (4 x ½ = 2mks)

11. – Type of crop to be planted/size f planting material
- Initial condition of land
– Time available before sowing
- Topography of land (4 x ½ = 2mks)

12. – Surface/flood/furrow/basin irrigation
– Overhead/Sprinkler
– Drip/Trickle irrigation
– Sub- surface (4 x ½ = 2mks)

13. – Sahiwal
– Red poll
– Simmental (2 x ½ = 1mk)

14. – Soil type
– Vegetation cover
– Rainfall amount and intensity
– Topography of land/slope of land (2 x ½ = 1mk)

15. – Date
- Number of pigs
– Amount of feed received
– Amount of feed used
– Type of feed
- Balance in stock
– Remarks

15. - Mulching
- Shading crops
- Irrigation / watering
- Pruning (4 x ½ = 2mks)

17. – Grafting
- Budding/bud-grafing
– Layering
– Use of storage organs
– Use of stem cuttings (4 x ½ = 2mks)

18. – Painful udder
- Poor maternal instinct
– Too weak lambs
– Low milk production (4 x ½ = 2mks)

19. – Local availability of materials
– skills available
- Purpose of the fence- climate of the area
– Topography of land
– Capital available/cost of the fence
– Preference of the farmer (4 x ½ = 2mks)

20. – Leaf chlorosis/yellowing of leaves
- Stunted growth
– Brown leaves and premature leaf fall
– Retarded flowering and fruiting
– Retarded flowering and fruiting (2 x ½ = 1mk)

21. – Scriber
- Knives
– Divider
– Pencils
– Marking gauge/mortise gauge
– Punches/centre punch/dot punch/nail punch (4 x ½ = 2mks)

22. a. - Grading up/ upgrading (1mk)
(b) – Energy/carbohydrate concentrate
– Protein concentrate

23.(a) – High body temperature/high fever
- Starring coat
– Discharges in the mouth and nose
- Watery eyes
– Diarrhoea and dysentery

– Red mucus membrane of the mouth, nose
– Emaciation
– Grinding of teeth
– Death in 2 – 10 days in acute cases but may live for 3 or more weeks in less acute cases
(4 x ½ = 2mks)

(b) – Age of animal
- Sex of the animal
– Colour of the animal
– Body conformation
– Change of climate
– Environment
– Size of the herd/flock
– Body conditions/fatigue/weakness
– Animal movements

(c) (i) – More tedious to the operator
– Requires more than one person
– Slower/work output less
– Animal tires quickly
– Attack by diseases makes it difficult to use the animals
- A piece of land has to be set aside to grow fodder crop or develop pasture for animals
(4 x ½ = 2mks)

(ii) – Many chicks can be hatched at ones time
– It is possible to plan when to hatch chicks (2 x ½ =1mk)

23. (a) Organisms that causes damage to plants either directly or indirectly by introducing organisms which cause disease. (1mk)

(b) – Use of lethal temperature
– Drying
– Irrigation/flooding the field
- Suffocation
– Physical destruction
– Use of physical barriers
– Use of electro magnetic radiation (4 x1 = 4mks)

(c)(i)– Cassava mosiac
–Brown streak (2 x 1 = 2mks)

(ii) – Hot and cold disease in coffee
– Leaf wrinkle
– Elgon dieback in coffee
– Blossom end-rot in tomatoes
– Thick necked condition in onions (2 x ½ = 1mk)

25.(a) – Making mortar
– Making concrete
– Making concrete blocks
– Making anil (3 x 1 = 3mk)

(b) - Nearness to water source
- Slope of the land/levelness of the area
– Drainage of soil
– Nearness to mainfield
– Freedom from pests and diseases/weeds
– Shelter from winds (4 x ½ = 2mks)

(c)(i) – Ponds
- Dams/weirs
– Storage tanks (2 x ½ = 1mk)

(ii) - Expensive/high initial cost
- High labour demand/easy transmission of diseases
– Difficult to maintain the strength/ concentration of dipwash (4 x ½ = 2mks)

26.(a)(i) For attachment of all parts of the plough
(ii) For attachment of the mouldboard, share and landslide
(iii) Cuts the furrow slice horizontally
(iv) For attaching depth rod that can be adjusted before and also during ploughing (4 x ½ = 2mks)

(b) – Lubricate land wheel bearing
– Repair/replace wornout shares
– Tighten loose bolts and nuts
– For long storage with old engine oil to prevent rusting
– Store properly under a shed (reject shade) (3 x 1= 3mks)

(c) Mouldboard plough	**Disc plough**
(i) Not used in a field with obstacles/ cannot ride over stones, roots	(i) Used in a field with obstacles /rolls over roots, stones
(ii) Inverts furrow slice completely/leaves a clean field	(ii) Does not invert furrow slice completely/ leaves a rough field
(iii) Operates at uniform depth/share furrows same depth once set	(iii) Cuts at varying depths as it rides over obstacles
(iv) Rigid, easily broken by obstacles	(iv) Not easily broken by obstacles as it rides over them
(v) Requires more tractors power to pull when operating	(v) Requires less tractor power to pull it when operating

(3 x 1 = 3mks)

27.(a) Hereford
- Fairly large body/weighs 80 – 1000 kg
– Good depth and width/compact body
– Fast growth and reach market weight early
– Efficient food converter into flesh (3 x 1=3mks)

(b) - Character expressions
– Ability to milk/easy milk let-down
– Quantity of milk produced
– Butterfat content /quality of milk
– Number of calves born by the cow
– Ability to resist diseases
- Weight gain/growth rate of calf born by the cow (3 x 1 = 3mks)

(c) (i) Sow – 4 – 6months
(ii) Ewe – 8 – 12 months (2 x 1 = 2mks)

28.a – Plant appropriate feeds depending on ecology
- Planting healthy seeds/materials/certified seeds
– Early planting
– Proper seed bed preparation/correct tilth
– Weed control
– Disease control
– Pests control
– Soil and water conservation/terracing
– plant at correct spacing
– Proper seed rate
– Application of inorganic fertilisers
- Irrigation watering
– Gapping

– Thinning
– Crop rotation
– Timely harvesting (13 x 1 = 13mks)

(Award a full mark for a well explained point)

(b) – Influences availability of soil nutrients
–Influences activity of soil micro-organisms/nitrifying and nitrogen fixing bacteria
– Influences balance of different micro-organisms by influencing their competitive ability
– Influence presence of disease organisms/fungus and bacteria
– Influence soil borne pests e.g nematodes in acidic soils
– Influences the type of fertiliser to be applied whether acidic or alkaline
– Influences concentration of iron and Aluminium to injurious or toxic levels to crops
(7 x 1 = 7mks)

29. (i). **Land Preparation**
– Prepare the land early during the dry season to allow stubble to rot
– Clear the vegetation to ease tillage
– Plough/dig deep to uproot all weeds
- Break soil clods/harrow the field to medium tilth
– Dig terraces if the land is slopy/carry out soil and water conservation measures
(4 x 1= 4mks)

(ii) **Planting**
- Do dry planting in areas with short rainy seasons
- Use certified maize seeds suitable to ecological conditions
- Dig holes 2.5 cm to 10cm deep depending on soil moisture
- Space holes 23 – 30 cm x 75 – 90 cm depending on variety of maize and soil fertility/soil moisture
- Apply 1 tablespoonful/DSP fertiliser per hole/100 – 150 kg DSP per hectare
- Mix the fertiliser with the soil to prevent seed scorching
- Apply well decomposed organic manure
- Place 1 or 2 seeds per hole and cover with the soil (8 x 1= 8mks)

(iii) **Field operation**
- Thinning soon after germination when soil is moist
- Gapping/replanting soonest for uniform growth
- Uproot with a jembe/panga or use chemical herbicides eg, MCPA, 2, 4- D
- Control diseases using appropriate chemicals/uproot and burn infected crop
- Control pests using appropriate pesticides e.g maize stalk borer use dipterex/uproot and burn infected crop
- Irrigate during dry weather (5 x 1 = 5mk)

(iv) <u>Harvesting</u>
- Start 4 – 5 months after sowing depending in variety and altitude
- Done during dry weather
- Harvest when leaves and cobs dry
- Cut the stalks, remove the cobs or open the ear, break the cobs and then cut the stalks
- Put in the sun to dry, snell, winnow, dry the grains to include 12 – 13%, treat with actelic dust before storage (3 x 1 = 3mks)

30.(a) Fowl pox disease
(i) - Chicken
- Turkeys
- Pigeons

- Other birds
(Poultry alone is correct) (1 x 1= 1mks)

(ii) - Virus (1 x 1 = 1mk)

(iii) - Symptoms of attack

Dipheritheritic type

- Yellowish, raised lesions inside throat and mouth mucus membrane
- Difficulty in breathing & swallowing
- Watery discharges from the eyes and nose at early stages
- Loss of appetite
- Dullness
- Emaciation and death may occur (5 x 1 = 5mks)

(iv) **Cutaneous type**

- Injuries/lessions on combs, wattles/lessions at first are small and greyish white and later turn yellowish brown and bigger in size
- Lessions on the, vent, feet and under the wings
- Loss of appetite, emaciation and death (3 x 1 = 3mks)

(iv) Remove affected birds and kill

- Vaccinate healthy birds (2 x 1= 2mk)

(b) - Presence of broken/soft shelled eggs
- Bright lights in the nests
- Idleness
- Inadequate nest/birds lay on floor
- Incorrect feeding/lack of minerals/unbalanced feeding
- Overcrowding of birds
- presence of external parasites on combs wattles e.g. fleas
- Prolapse cloaca does not retract after the hen has laid
- Introduction of new birds in a flock causing fighting
- Keeping birds of different ages together/no age grouping
– Bright light in the brooder (10 x 1 = 10mks)

AGRICULTURE VI
SECTION A :

1. State four practices which destroy soil structure. (2mks)
2. Give the function of a creep area in a pigsty. (2mks)
3. a) State one use of each of the following farm tools:
   i) a mason trowel. (1mk)
   ii) a pair of tin snips. (1mk)
   b) Which tool would be required for each of the following operations?
      i) Cutting wool from sheep. (1mk)
      ii) Castrating piglets. (1mk)
4. Give four precautions you would take when harvesting to ensure that cotton picked is of high quality (2mks)
5. List four factors that influence herbicidal selectivity and effectiveness in weed control. (2mks)
6. a) Give four advantages of a tractor in farm mechanisation. (2mks)
   b) Outline two limitations of tractor power. (2mks)
7. Give the name of symbiotic bacteria which fixes nitrogen in the root nodules of leguminous plants (1mk)
8. Give two reasons why a rabbit may disown its young ones. (2mks)
9. a) State four types of risks and uncertainities. (3mks)
   b) Outline how the government helps farmers to overcome risk and uncertainities. (3mks)

10. a) In which ionic form is the element sulphur absorbed by plants. (1mk)
    b) i) State any three deficiency symptoms of nitrogen in crops. (3mks)
    ii) State two sources of Nitrogen in the soil for plants. (2mks)
11. a) Define the following terms:
    i) Forage crop. (1mk) ii) An Apiary. (1mk)
    b) How do you ensure proper forage utilization in livestock production . (2mks)
12. a) What is leaching. (1mk)
    b) Name two factors which increases the rate of leaching.
13. a) State one important role of the hormone testerone in male livestock. (½ mk)
    b) State three important objectives of steaming up in livestock . (1 ½ mks)

SECTION B.

14. State four factors that determine siting of a farm structure. (2mks)
15. State any four uses of crush in a farm. (2mks)
16. a) Mr. Akugo wishes to fence a straight fence 4.40 m long bourdering the school farm. Find out how many cedar posts he will require if the distance from one post to another is 2m (2mks)
    b) Mr. Akugo Applied 150kg N.P.K 25:20:15 to his one hectare of tobacco in Osogo area. Calculate how many kg of each of the fertilizer element he applied. (3mks)
17. a) State two disadvantages of serving Fresian heifers when they are less than 18 months old (2mks)
    b) List three factors that make it possible for a camel to survive in arid and semi-arid areas. (3mks)
18. a) What factors contribute to the success of a co-operative society. (3mks)
    b) State four main functions of marketing boards. (2mks)
    c) Name two channels through which marketing boards buy produce from farmers. (2mks)
19. Distinguish between passive and active acquired immunity in livestock health. (2mks)
20. Give one characteristic symptoms of attack by nematodes on roots of tomatoes. (1mk)
21. a) State three ways of increasing efficiency in farming. (3mks)
    b) List four factors which effect the profitability of egg production enterprise. (4mks)
22. a) Give two methods that can be used to improve local breeds of livestock. (2mks)
    b) State four merits of using AI in livestock breeding . (4mks)
23. State six reasons why farmers are adviced to practice mixed farming. (3mks)

SECTION C.

24.a) Describe the management practices involved in rearing of a day-old chicks upto the age of 8 weeks (16mks)
    b) Explain the management practices livestock farmers should adopt to reduce the problem of feed shortage during drought. (4mks)
25. The transaction below shows Mrs.Odhiambo's financial position in farm business for the year 1997. Use this information to answer the question that follow:
    - Milk sales - sh 8,000.00
    - Purchase of farm tools - sh 1,000.00
    - Sales of goats - sh 500.00
    - Constraction of zero grazing unit- sh 10,000.00
    - Closing valuation - sh 16,000.00
    - Depreciation of machinery - sh 800.00
    - Interest payable - sh 750.00
    - Purchase of pesticides - sh 300.00
    - Veterinary bills - sh 400.00
    - Sales of cabbage - sh 750.00

- Wages - sh 4800.00
- Sales of one heifer - sh 9400.00
- Opening valuation - s h12,000.00
- Tea sales - sh 4,700.00

i) Prepare the profit and loss account of Mrs.Odhiambo's farm. (15mks)

ii) What percentage profit or loss did Mrs. Odhiambo make during the year 1997. (5mks)

26 a) State the principles involved in planning a crop rotation programme. (6mks)

b) Describe field management praticises involved in coffee production. (24mks)

AGRICULTURE VI
MARKING SCHEME

1. - Over cultivation
   - Burning of land
   - Monocropping / monoculture / failure to practice crop rotation
   - Wriking soil when it is wet
   - Repeating use of heavy machinery for cultivation
2. - Where special feed is provided to piglets (creep feed).
   - Heat / warmth is provided to piglets to prevent chilling.
   - Prevent mother pig from crashing the piglets.
   - Ultraviolet rays from bulb assist in synthesis of vitamin D under the skin.

3.a)i) For applying mortar / concrete on walls / floors. ii) For cutting metals.

b)i) Pair of shears. ii) A scapel.

4. - Picking should be done every week to ensure no foreign materials.
   - Avoiding picking when it is wet.
   - Picking is done manually.
5. - Active ingredient.
   - The type of herbicide.
   - Time of application.

6.a)- Quick rate of work
   - Better burial of weeds during ploughing
   - Efficient work
   - Less labour demanding
   - Can be used to transport farm produce
   - Operation done in line
   - Does ploughing, planting and harvesting
   - P.T.O shaft can be used for irrigation, sprinkling water etc.

b) - Can only work in flat surfaces
   - Needs frequent repair and maintenance
   - Initial capital for purchase is high
   - Requires technical know how to operate
   - Only confined to large scale farms

7. - Rhizobium
8. - Poor feeding of the mother rabbit.
   - Touching kindles with strong / bad smelling substances.
   - When the doe is frightened or disturbed after kindling.

9.a) - Weather changes.
   - Out break of pests and diseases.
   - Natural calamities e.g earth quakes.
   - Obsolenscence (become out of date) i.e machinery.
   - New production techniques.

- Changing prices of commodities.
- Low or high yields of production.
- Theft cases – sickness / injury.
- Fire out breaks death.

b) - Weather forecast.
- Provision of extension service and advice to farmers.
- Adjusting future prices of commodities from the farm and giving farmers in advances.
- Stabilization of prices of certain farm produce so that they don't flactuate.
- Provision of loans to farmers to improve production.
- Provision of research on animals and plants e.g hybrids diseases etc.
- Provision and subsidisation of agricultural inputs.

10. a) SO_4^{-2} (Sulphate ion).
b) i) - Yellowish green colour / chlorosis.
- Stunted growth.
- Premature drying of leaves.
- Defoliation / falling of leaves.

ii) - Inorganic manure
- Organic manure
- Nitrogen fixation
- Fresh organic matter

11.a) i) - Is any plant established naturally or artificially for feeding livestock.
(ii) - Site for beehive / bee keeping.

b) - Better forage management.
- Use of high yielding / performing animal.
- Conservation of forage.

12. a) - Loss of plant nutrients through percolation into deeper layer of soil by water.
b) - High rainfall / excess irrigation water.
- Solubility of mineral salts.
- Rate of soil structure / infiltration / texture drainage.

13.a) - Necessitates sperm production.
b)- Provide sufficient nourishment for the development of the foetus and the expectant mother.
- Helps to prevent pregnancy to xermical (twin lamb disease).
- Result in strong healthy lamb at birth.
- Promotes udder development and better milk following lambing.
- Enhances muscle reserve build up in ewes.

SECTION B

14. - Topography
- Soil
- Direction of wind
- Relationship to other structures
- Accessibility
- Size of the farm

15. - Used when castrating male animals.
- Used when carrying out livestock treatment.
- Used to restrain animals during artificial insemination.
- Used to restrain animals during weighing.

16.a) - 3 cedar posts.

b) - N.P.K total ratio = 60
- Nitrogen = 62.50 Kg
- Phosphate = 50Kg
- Potassium = 37.5Kg

17.a) - Stunted growth
- Low milk yields

b) - Presence of hump where fats are stored
- Presence of dehydrating tissues
- Resistance to drought
- Ability to drink large amounts of water

18.a) - Sound economic base / finance
- Loyalty of members
- Good leadership
- Effective control of funds
- Education of members on their rights and obligations

b) - Carry out efficient marketing of farm products
- Provide loans to farmers
- Keep prices stable
- Control quality and quantity of products

19.- Passive immunity is one passed from the mother to the child while active immunity is acquired after a previous developing antibodies against the disease.

20. - Presence of root knots.
- Wilting.

21.a) - Select proper / more paying enterprises.
- Proper crop husbandry practices.
- Improve farm management.
- Mechanization of farm operation
- Adopt new technique of production
- Time line of farm operation

b) - Laying percentage
- Price of culled birds
- Replacement cost
- Casual labour

22.a) - Cross breading
- Up – grading.

b) - Eliminate the risk of expenses.
- It is possible to use sire on smaller cows without any physical injury.
- Permits the use of proven sires beyond the economy lease of an average farmer.
- It makes it easy to control in breeding.

23. - To maintain soil fertility.
- To reduce / spread risks
- To maximise revenue / incure
- To obtain balance diet for the family
- Crop residues are feed to livestock
- Income is obtained through out the year

SECTION C.

24.a) - Litter should be provided for to provide warmth as well as absorbing moisture.
- Fresh air – Holes for ventilation should be made on the walls of the brooder to allow gaseous exchange.
- Heat source – A wire should be around heat source to prevent chicks from burning.
- The correct temperatures should be:
  32 – 35°C 1st week
  29.7 – 32.2°C 2nd week
  26.6 – 29.7°C 3rd week
- Source of heat should be removed in the fourth week gradually to avoid stress.
- Light – provide light in the brooder for the chicks to see food (dim light).
- Feeders – provide clean feeders which should be cleaned every morning.
- Waterers – provide waters which should clean have pointed tips to avoid water being dirty.
- Avoid sharp corners as these encourages overcrowding causing suffocation.
- Feed chick and duck marsh at recommended ratio depending on the number of chicks.
- Vaccinate chicks with Newcastle vaccine.

b) - Conserve excess feed during plenty in form of silage or hay.
- Ensure selective stock disposal when drought is approaching.
- Provide crop residues to livestock.
- Irrigation of pastures.
- Give supplementary feed to livestock.
- Plant drought tolerant fodder crops.

25. - Profit and loss account for Mrs Odhiambo's farm for 1997.
- Profit and Loss account.
- Profit and loss of Mrs Odhiambos farm for 1997

Sales and reciepts	Shs cts	Pur**chases and expenses**	Shs
Closing valuation	16,000 00	Opening valuation	12,000
Milk Sales	8,000 00	Purchases of farm tools	1000
Sales of goats	500 00	Consts of zero unit	10,000
Sales of cabbages	750 00	Depr of machinery	800
Sales of heifer	9,400 00	Interest payable	750
Sales of tea	4,700 00	Purchase of pesticides	300
		Veterinary bills	400
		Wages	4,800
		Profit	9,300
	39,350		**39,350**

Mrs Odhiambo started her operations at a farm value Shs. 12,000 and therefore this is the base. The farm made a profit of Shs 9,300. The percentage profit is therefore

$$\frac{9,300}{12,000} \times 100 = 77.5\%$$

26.a) – Shallow rooters should alternate with deep rooters.
- Crop attacked by the same pests and disease should not follow each other.
- Crops with high nutrient requirement should come first in a newly ploughed land.
- Legumes should be included in the programme to increase nitrogen content of soil.
- Fallow period / grass should be included in the rotation to build soil structure.
- Crops which are hard to weed should alternate with those that are easy to weed.

b) - Proper weed control to reduce competition for nutrients and water.
- To improve coffee yield and quality.

METHODS

- Cultural e.g mulching
- Mechanical e.g slashing
- Chemical use of herbicides
- Mulching
- Mulch should not be in contact with coffee stem

  Reason:
- Preserve soil moistures
- Suppress weeds
- Supplies nutrients when it decomposes
- Reduce soil erosion

Pest s and diseases

Coffee pests:

- Leaf miner
- Control spray with recommended insecticide
- Antesia bug
- Proper pruning
- Spray with recommended pesticide

Coffee disease:

- CBD
- Proper prunning
- Planting resistant cultivers
- Spray with recommended fungicide

Coffee leaf rust:

- Plant resistant varieties
- Time by application of fungicide

Prunning

- Single stem
- Multiple stem
- Change of cycle

Reasons For Prunning

- To improve yields and quality of coffee
- To assist in disease and pest control
- To open the crop to light and air
- To avoid die-back of primaries and roots

Fertilizer and manure applications:

- Phosphate fertilizers – Applied at planting time to supply phosphorous for proper root growth and development

- Nitrogenous fertilizer – The crop should be top dressed when soil is moist.
  Reason:- To supply nitrogen required for vegetation growth, flowering and fruiting.

- Manure(compost) application:- Apply in planting holes.
  Reason: - To improve soil structure.

- To supply nutrients.
- To increase activity of micro-organism.