AGRICULTURE

MARKING SCHEME

PAPER 1 (443/1)

SECTION A (30 MARKS)

1. (i) Production of fruits. (1x1=1mk)

(ii) Rearing livestock and growing crops on the same piece of land of the same time. (1x1=1mk)

2. – Leaching

-Volatilization

3. Factors that affect

(i) Seed purity;- If purity as low a higher seed rate is used.

(ii) Wider spacing results to a lower seed rate (1x1=1mk)

4. – Make store vermin proof/ use of rat guards

- Cleaning the store

- Cleaning bushes around the store
- Timely harvesting
- Store grains that are free from pests
- Dry maize to the correct moisture (4x ½ = 2mks)

5. A indication of the amount of each nutrient contained in a fertilizer. (1x1=1mk)

6. -Great incentive to farmer to conserve, improve and farm the land

- Land title deed can be used to secure loans

- Incentive to farmer for long term investment in the land
- Owner can sell/give away put / whole land (4x ½ = 2mks)

7. – Reduce impact of rain drops to control splash erosion

- Reduce speed of surface run-off hence its erosive power
- Wind break to reduce wind erosion
- Roots bind soil particles together reducing the soils erodibility
- Organic matters from leaves decay improves soil structure reducing soils erodibility
- Leaves provide mulching materials that intercept rain drops controlling splash erosion.
  (Any 4x ½ = 2mks)

8. – Mode of feeding

- Type of crop/clop attacked

- Stage of growth of crop attacked
- Scientific classification
- Mode of feeding

9. –Date of delivery

- Quality and type of goods delivered
- Delivery method
- Name/ signature of recipient of goods
- Name and signature of the person who delivers the goods
- Condition in which the goods were received
- Delivery note serial number

10. Environmental friendly/ no pollution

- It is sustainable/ conserves soil
- It is easy to carry out
- The produce fetch higher prices in the market
- Materials used are easily available/cheap
- Produce healthy products.

11. – Destroy organic matter/humus

- Destroys soil structure
- Kills useful soil organisms
- Exposes nutrients imbalance/loss of volatile nutrients
- Accumulation of some nutrients to toxic levels
- Destroys soil water/loss of soil moisture

12. – Durability

- Strength /ability to withstand pressure/thickness
- Diameter/size of the pipe
- Workability /monoeuvability of the pipe
- Colour of the pipe (4x ½ = 2mks)

13. Allows time for organic matter to decompose and form humus

- Facilitates timely for weeds to die/be dehydrated
- Allows weathering of soil clods before subsequent operations
- Minimizes competition for labour
- Allows pests and diseases causing organisms to starve and die
- Allows soil aeration/gaseous exchange
- Allows water infiltration (3x ½ = 1 ½ mks)

14. – Pests

- Decomposers
- Pathogens
- Nitrogen fixing bacteria

- Pollination
- Predictors (4x ½ = 2mks)

15. – Field management practices can be mechanized

- Easy to establish plant population
- Lower seed rate than broad casting
- Facilitates cultural practices/easy to carry out practices like spraying (accept specific practices
- Ensure proper spacing
- Ensure uniform germination of seeds.

16. To make the seed to germinate (1x1 = 1mk)

17. – Allow adequate light penetration into the plant

- Improve quality of the fruits
- Reduce incidence of pests and disease attack
- Enable effective use of chemical spray/chemical penetration into the bush
- Facilitate easy harvesting (4x ½ = 2mks)

18. –Is the point in a production process where the highest net revenue/return on invested capital is realized

or

- When the difference between total revenue and total cost is highest/ where profit is highest/ where MR = MC. (1x1=1mk) (mark as a whole)

Partial Budget

Debit (-)	Credit (+) ½
Extra costs	Cost saved
Fertilizers for potatoes Ksh 6,000x3 = Ksh 18,000 ½ Potato seeds Ksh 3,000x3 = Ksh 9,000 ½ <u>Extra Revenue</u> Maize sales = Ksh 90,000 ½	Fertilizer for maize Ksh 4,000 x3 =ksh 12,000 ½ Maize seeds Ksh 1,200 x 3 = Ksh 3.600 ½ <u>Extra Potatoes</u> Potato Sales = Ksh 120,000 ½
TOTAL 117,000	TOTAL 135,600 ½

Both totals correct ½ x1 = ½ mk

Debit (-) and credit (+) = ½ x1 = ½ mk

(b) Advice:- proposed change is worthwhile because the farmer will get a profit e.g. Ksh 18,600 (135,600 – 117,000)

20. (a) Tissue culture (1x1 =1mk)

(b) Culture medium/growth medium/nutrients medium (1x1 =1mk)

(c) – Mass production of planting materials

- Production of healthy planting materials
- Requires less space compared to conventional methods of vegetable propagation
- Production of high yielding crop varieties
- Seedlings retain the desirable genetic traits of mother plant
- Production of early maturing crop varieties. (Any 3x1 = 3mks)

21. (a) A_1 - root stock

A_2 - Scion (2x1 =2mks)

(b) A_3 - Grafting

B - (Trench) layering (2x1 =2mks)

(c) -Mangoes

- Oranges
- Avocadoes (1x1 =1mk)

22. (a) To compare porosity /drainage and infiltration/ water holding capacity of different soils. (1x1 = 1mk)

(b) A – Sandy soil)

B – Loamy soil (2x1=2mks)

(c) Improve soil structure of soil sample C

- Adding organic matter/manure
- Liming
- Sub soiling
- Draining away excess water (2x 1 =2mks)

SECTION C (40 MARKS)

Answer any questions in this section in the spaces

23. (a) Activities that may encourage soil erosion

- Over cultivation of land to fine hith /over pulverization
- Continuous cropping without giving the land a rest

- Burning of vegetation
- Farming on step land/ploughing along the slope
- Deforestation
- Ploughing along river banks
- Cultivating when the soil is very dry and wet
- Over grazing/over stocking
- Over flooding/ application of large amount of water at a high rate (Any 8x1=8mks)

(b) (i) How ill health (HIV & AIDS) limits agriculture production

- Shortage of labour
- Lack of motivation to invest in agriculture
- Increased cost of living leading to low investment in agriculture
- Government and NGOs are spending a lot of time and resources controlling the disease instead of investing in agriculture.
- Low food supply and poverty leads to increases crimes. (4x1 =4mks)

(ii) How Government policy improves agriculture

- Impose laws to regulate production and sale of agricultural produce to ensure sustainability.
- Providing subsides on agricultural inputs and market agricultural products
- Construction of bulky handling and storage facilities for agricultural products.
- Funding/carry out research into new and improved agricultural productin technologies
- Facilitates conservation of soil and water
- Ensures control of parasites/diseases/weed is done effectively
- Provision of extension services. Any (4x4 =4mks)

(iii) Low level of education and technology

- Improper timing of routine practices
- Lack of agricultural skills
- Inappropriate decision making eg disease observations
- Delayed adoption of new and improved production technologies
- Lack of knowledge to apply correct type and amount
- Inability to collect market information. (Any 4x1=4mks)

24. (a) Quality of hay.

- State of growth at harvesting time
- Species of the forage crop used
- Duration of storage
- Solid fertility where the crop was grown
- Weather conditions during dry
- Length of drying period
- Pests/disease attack on the crop
- Method of storage. (4x1 = 4mks)

(b) Roles of a farm manager

- Short term planning-quick decisions to avoid losses when there is an urgent activity
- Long term planning - studies and makes decisions on future plans and operations on the farm
- Information gathering – collects information relevant to the farm enterprises
- Budgeting - estimates future income and expenditure as proposed in the farm plan
- Companying standards of the farm/enterprises with the set standards and making appropriate adjustment
- Detect weaknesses and constraints and find ways of overcoming them
- Keeps up to date records and uses them in daily running of the farm.
- Implements farm decisions
- Guides and supervises implementation of the farm plan
- Compares performance of the farm with those of similar farms.
- Makes predictions of the farm business
- Is the accounting officer on all financial transactions of the farm
- Takes responsibilities for decisions made
- Bearing risks (Any 10x1 = 10 mks)

(c) - Leaves are picked selectively for the highest quality

- Pluck top 2 leaves and the bud for fine plucking/3 leaves and bud for coarse plucking
- Use a plucking at 5-7 days interval in rains/ 10-14 day in dry /cold periods
- Put plucked leaves in woven baskets to facilitate air circulation/prevent fermentation
- Do not compress the leaves in this baskets to prevent heating up/blowing
- Put plucked tea in cool and shaded plane
- Deliver to the factory on the same day

(Any 6x1 = 6mks)

23. (a) (i) Crop rotation- breaks life cycle of pasturages.

(ii) Rogueing/ destroying infected crops- prevents further spread.

(iii) Close season-breaks life cycle of patrogens/ disease vectors.

(iv) Early planting/ timely planting – Enable crop to establish faster before attack.

(v) Pruning - crates unfavorable micro-climate for some pathogens to survive.

(vi) Proper spacing - minimizes disease spread in some crops.

(vii) Planting disease free / clean planting materials/ certified seeds prevents introduction of pathogens into field.

(viii) Use of resistant varieties – they have natural disease resistant ability.

(ix) Proper plant nutrition – prevents deficiency diseases/ enables establishment of vigorously growing crops that resist disease attack.

(x) Proper seed bed preparation – exposes pathogens to unfavorable conditions/sun heat that kill them.

(xi) Heat treatment of planting materials – kill pathogens.

(xii) Proper drying of cereals – prevents of aflatoxins attack.

(b) – Self savings.

- Credit facilitates/loan.

- Grants/donations.

- Inheritance. (4x1 = 4mks)

(c) (i) – Prevents rotting of grains.

- Prevents attack by strong pests/ weevils.

- Prevents germination/sprouting of grains. (Any 2x1 = 2mks)

(ii) – Clean the store thoroughly / properly to remove elirt/ previous crop residues that may harbor pests.

- Repair/ replace broken parts to avoid loss of grains.
- Dust with appropriate chemicals to control storage pests.
- Clear vegetation around the store to keep off vermin/rats. (4x 1 =4mks)