KENYA NATIONAL EXAMINATION COUNCIL
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TOP NATIONAL SCHOOLS

MOI GIRLS NAIROBI
AGRICULTURE
PAPER 1
MARKING SCHEME

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MOI GIRLS NAIROBI KCSE TRIAL AND PRACTICE EXAM 2016

AGRICULTURE

PAPER 1 / 443/2

MARKING SCHEME

SECTION A

1. Agriculture as an artistic practice
   - Involves the acquisition of manual skills
   - Doing of manual practices in an artistic manner e.g. construction, tiching of land, castration e.t.c.

   (2 x ½ = 1 mk)

2. Species of trees and shrubs commonly used in agro forestry
   - Gravillea robusta
   - Eucalyptus species
   - Calliandra species
   - Lenknemia species
   - Cypress species

   (4 x ¼ = 2 marks)

3. Disadvantages of communal land tenure
   - Difficult to control pests and diseases
   - Land disputes are common
   - No motivation to conserve land
   - An individual cannot use land as security for farm credit/loan.
   - Difficult to make sound farm plans
   - Difficult to control breeding

   (2x ¼ = 1)

4. Pricking out is the removal of crowded seeding in a nursery bed planting them into another nursery bed (seedling bed).
   Hardening off is exposure of seedling into the real field conditions towards transplanting e.g. removal of sande, reduced watering, e.t.c.

   Mark as whole (1 mark)

5. Types of soil water
   - Superflous water
   - Capillary water
   - Hygroscopic water (3 x ½ mk)

6. (i) Elasticity of demand is degree as responsiveness of demand to change in price.
   (ii) Elasticity of supply is the degree of responsiveness of supply to change in price.

7. Determinants of stage of harvesting
   - Purpose of crop / maturity
   - Moisture content
   - Concentration of desired chemical e.g. pyretrin in pyrethrum.
   - Weather conditions
   - Market demand /for quality purposes
   - Physiological indicators of maturity

   (2 x ½ = 1mk)

8. Forage utilization
   - Soilage/ cutting and giving to livestock
   - Silage
   - Direct grazing

- Hay

(2x ½ =lmk)

9. Improving labour productivity
   - Training labour force
   - Farm mechanization /use of more efficient tools and equipment
   - Giving incentives e.g. promotion, housing, e.t.c
   - Assigning duties according to workers ability / interest

(2 x ½ = 1 mark)

10. Role of education and technology in agriculture
   - Helps in making right decisions on farm after proper observation
   - Input application correctly and timely
   - Use of correct type of inputs
   - Proper method of fields operations / new farming practices
   - Proper record keeping

(2 x ½) = 1 mk)

11. Signs of root nodes nematode infestation
   - Abnormal cell growth resulting in formation of gall/nodule —like structures
   - Root stunting / plant stunted growth
   - Wounds in plant tissue
   - Wilting of plants

(2 x ½ = 1 mk)

12. - To prevent forking of root

(l x ½ = ½ mk)

13. - Chlorine
   - Soda ash (sodium bicarbonate)
   - Alum (Aluminium sulphate)

(2 x ½ = 1)

14. 210 kg CAN applied to 1 ha.
   100 kg CAN-21 kgN
   210 CAN=
   210kg CAN x 21 kg = 44.1 kg N
   100kg

15. Factors that discourage shifting cultivation
   - Total yield per unit area is low
   - Time wasting when a farmer is shifting and building
   - Not applicable in areas of high population density / high population increase.
   - Farmers have no incentive to develop land and conserve water and soil. (2x ½ = lmk)

16. Advantages of tissue culture
   - To recover and establish pathogen free plants
   - Used in man production of harvesting propagates
   - Its fast
   - Requires less space

(4 x ¼ = 2mks)

17. Precautions when harvesting tea
   - Leaves should not be compressed to avoid heating and turning brown
   - Keep picked tea in cool and shaded place
   - Take for processing on the day
   - Carry picked tea in a woven basket

(4 x ½ =2 mks)

18. (a) Reasons for farm budgeting

- To estimate future profitability
- To estimate capital requirement
- Seeking credit facilities from lending institutions
- submitting tender for farm tenancy or sale
- estimating and determining future taxes
- estimating labour requirements

(3x ½ =1 ½ mk)

(b) Opportunity cost is the returns from the best alternative foregone (1mk)

19. (a) — short-day
Long-day
- Day-neutral

(2x ½ = 1mk)

(b)
- rainfall
- Temperature
- Wind
- Relative humidity
- Sunshine

(4x ½ =2mks)

20. Harmful effects of weeds
- Compete with crops for nutrients, light moisture and space hence reducing yield
- Some are parasitic to crops e.g. striga to maize crop
- Lower quantities of produce e.g. blackjack lowers quality of wool
- Some are poisonous to man e.g. thorn apple
- Some act as alternate host for pest and diseases e.g. wild oat for rust
- Lower quality of pasture
- Irritate workers

(5x ½ =2 ½ mks)

21. Advantages of using certified seeds
- They are usually high yielding
- Are free from pest and disease attack/healthy
- Are free from foreign material
- Give rise to rigorously growing plants
- Have high germination percentage

(3x ½ = 1 ½ mk)

SECTION B

22. (i) marcotting / Aerial layering

(ii)
- rooting medium
- Accumulation of auxins at the point where the bark has been removed
- wrapping with a polythene sheet which maintains the soil moisture

(2x1 =2mks)

(iii) can only be done on branches that cannot bend

23. (a) Health record

(b)
- death
- Next vaccination
- Frequency of diseases

24. (a) Blight (1x ½ = ½mk)

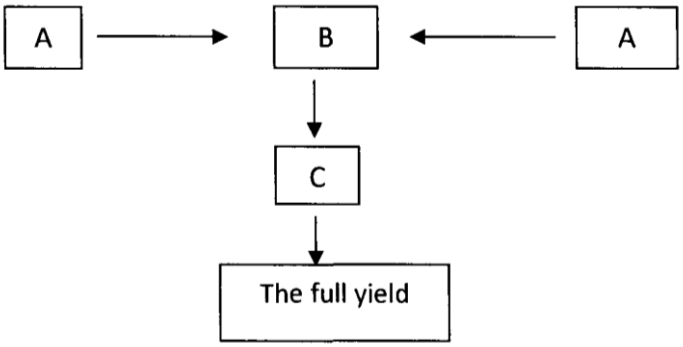
(b) phytophthora infestans

(1x1=1 mk)

(ç)
- fruits rot and fall prematurely
- Brown lesions on stems, leaves and fruits

(2x ½ =1 mk

(d) Spraying using fungicides/Bordeaux mixture (lx1 mk)



For correct arrow ½ mk for all correct arrows (1mk)

(ii) 3-6 months 1x ½ =1/2 mk

(iii) - facilitate air circulation / microbial activities
- To facilitate uniform decomposition / complete rotting
1x ½ = ½ mk

(iv) - To regulate internal temperature
- To create a moist environment for microbial activity 1 x ½ = ½ mk

(v) - Have fast growth rates
- High nitrogen content
- Capable of rotting quickly
- Capable of growing in poor conditions

25. (i) A-channel
B-embarkment/ bank 2 x ½ = 1 mk

(ii) Grass is planted on the bank 1 x ½ = ½ mk

(iii) - removal of silt
- removal of weeds and vegetable (lx1 = 1 mk)

(iv) terraces conserve soil and water by:
- Increasing water infiltration
- Trapping eroded soil behind the bank

- Reducing speed of run off
(3 x ½ = 1 ½ mk)

26. (a) To compare the porosity and water holding capacity of soil (lx1= 1 mk)

(b) A - Sandy soil
B - Loam
C-Clay

(c) - determine amount of water and air in the soil
- determine circulation of air in the soil
- influence the water-holding capacity of a soil
3 x ½ =1 ½ mk

SECTION C

27. (a) Land preparation
- Clean the land and remove the stumps
- Cultivate and harrow land to a fine tilth
- Prepare land early during dry season or before rains
- Land should be free from weeds
- Firm the seedbed using rollers before planting
- Select desirable variety of seed grass for ecological zone of the area.
(any 4x1=4mks)

Planting

- Select certified seeds or healthy seeds
- Plant/sow the seeds at the onset of rains / just before the rains or dry planting / early planting
- Apply phosphate fertilizer at planting time at appropriate rates
- Drill / broadcast seeds evenly on the seedbed
- Use recommended seed rate for variety chosen
- Drag twig / gunny bag to cover the seeds with light soil.
- Firm seedbed using rollers after sowing / planting seeds

(Any 4x1 = 4 mks)

Management

- Control weeds by uprooting / applying appropriate herbicides
- Apply nitrogenous fertilizers 6 weeks after germination in split application.
- Avoid grazing where pasture is too young
- Cut back / practice light grazing in initial phase of establishment to encourage internal growth.
- Utilize at about 6-8 wks or 1-1.5m in height

(Any 2x1 = 2 mks)

(b)

- The order of predominance of organic acids should be lactic acid, succinic acid and formic acid
- Have a PH of 4.2 or below
- Be free from moulds and Butyric acid
- Be greenish to yellow in colour not brown or black
- Have a fine texture with no slimyness
- Be from high quality forage and cut at the proper stage of growth

(any 5x1= 5mks)

(c)

- Farm produce are bulky but low in monetary value thus difficult to transport
- Most of the agricultural products are perishable e.g. milk, vegetable and fruits
- Storage problems
- lack of proper transport system since agricultural products are in rural areas and markets are situated in urban centres
- Lack of market information hence farmers are exploited by middlemen
- Seasonality — agricultural commodities are seasonal in nature and the products are only available in plenty at harvest period. Seasonality negatively affects market prices and creates shortage problems
- Changes in market — demand → plans based on today's demand may yield products sometimes later
- Limited elastic of demand since most agricultural products are food

28. (a)

- proper keeping of records
- Education to members
- Loyalty of members
- Equal rights
- Join the co-operative movements at the primary, district, national and international level
- Open membership
- A member may buy shares up to a specific maximum limit
- Any money accruing capital is distributed to members as dividends on the basis of share contribution

(b) Advantages of overhead irrigation
- water evenly distributed
- less wastage of water
- practiced on sloppy areas
- foliar feeds can be applied with irrigation reducing the labour cost
- easy to move sprinkler systems from one place to another

Disadvantages
- Expensive to install
- Encourages fungal diseases e.g. blight
- Causes soil erosion
- May require establishment windbreak
- Requires skills to maintain / expensive to maintain

. (a) Bean production

(i) Planting
- At on set of rains
- Delay planting in long rains
- Place 2 or 3 seeds/hole
- Apply DAP / phosphate fertilizer
- Seed rule is 50-60 kg/ ha or one teaspoonful per hole

(ii) Field practices
- Weeding
- Irrigation
- Pest control
- Disease control
- Gapping
- Thinning

(iii) Post harvest practices
- Drying
- Threshing
- Winnowing
- Sorting
- Dusking
- Package

(b)
- using rains
- using dams
- using ponds
- roof catchment
- use of wells
- rock catchment

(c)
- diversification — set up several and different enterprises on the farm
- Selection of more certain enterprises
- contracting
- Insurance
- Input rationing
- Flexibility in production methods
- Adopting modern methods of production