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**KENYA NATIONAL EXAMINATION COUNCIL  
REVISION MOCK EXAMS 2016  
TOP NATIONAL SCHOOLS**

**SACHO HIGH SCHOOL  
AGRICULTURE  
PAPER 1  
MARKING SCHEME**

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# **SACHO HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016**

## **AGRICULTURE** **PAPER 1 / 443/1** **MARKING SCHEME**

1. **Factors that determine the choice of water pipes.**
  - ✓ Cost of pipes.
  - ✓ Durability
  - ✓ Availability of pipes
  - ✓ Cost of installations
  - ✓ Skills required for installations.
  - ✓ Purpose of the water.
  - ✓ Effects of pipes on the water quality. (any 4x ½ =mks)
2. **(a) Cause of blossoms endrod disease**
  - ✓ Irregular watering.
  - ✓ Calcium deficiency.
  - ✓ Too much nitrogen in early stage. (any 2x ½ =1mk)**(b) Factors that induce forking in carrots.**
  - ✓ Uses of organic manure
  - ✓ Pressure of obstacles
3. **Effects of crops diseases**
  - ✓ Decrease crop yield
  - ✓ Lowers the quality of produce
  - ✓ Harmful to man and his livestock.
  - ✓ Increase the cost of production. (any 3x ½ mks)
4. **Four classes of pesticides based on mode of action.**
  - ✓ Stomata poisons.
  - ✓ Systematic poisons.
  - ✓ Contact poisons.
  - ✓ Suffocants
  - ✓ Anti- feedants
  - ✓ Repellants (any 4x ½ =2mks)
5. **Factors that determine the quality of compost manure.**
  - ✓ Types of materials used.
  - ✓ Methods of preparation.
  - ✓ Methods of storage
  - ✓ Length of decay (any 1x ½ =1mk)
6. **Properties of the soil influenced by the soil texture.**
  - ✓ Aeration/porosity
  - ✓ Drainage
  - ✓ Water holding capacity
  - ✓ Cation exchange capacity/ Soil /ph/ availability of nutrients. (any 1x ½ =1mk)
7. **Ways of improving farm productivity.**
  - ✓ Labour supervision
  - ✓ Giving incentives
  - ✓ Training the labour force
  - ✓ Farm mechanization
  - ✓ Assigning specific tasks to workers.
  - ✓ Goods interpersonal/relationship. (any 4x ½ =1mks)
8. **Four types of financial books.**

- ✓ Ledger
  - ✓ Journal
  - ✓ Cash book
  - ✓ Inventory
- (any 4x ½ =1mrk)
9. **Over sowing-** refers to establishment of a legume pasture in an existing grass pasture.  
**Under sowing-**refers to establishment of a pasture crop under a cover crop under a cover crop usually maize.
10. (a) **Disadvantages of shifting cultivation.**
- ✓ Total yield per unit area is low.
  - ✓ Wastage of time in shifting and building structures.
  - ✓ No incentive to develop land and conserve water and soil.
  - ✓ Not practical in densely populated areas.
  - ✓ Lebellling
- (any 2x ½ =1mk)
- (b) **Activities carried out in secondary cultivation.**
- ✓ Harrowing
  - ✓ Ridging
  - ✓ Rolling
- (any 3x ½ mks)
11. **Methods of treating the seeds before planting.**
- ✓ Seed cleaning
  - ✓ Seed inoculations
  - ✓ Breaking seed dormancy
  - ✓ Seed dressing
  - ✓ Chitting
- (any 4x ½ =2mrks)
12. **Roles of trees in soil and water conservation.**
- ✓ Binding soil particles together.
  - ✓ Organic matter improves soil structure.
  - ✓ Canopy reduces impact of raindrop.
  - ✓ Roots reduce the speed of run- off water.
  - ✓ Canopy reduces the velocity of wind.
13. **Government policies that influence agricultural production**
- ✓ Heavy taxation on import to protect local industries
  - ✓ Subsidies on farm inputs
  - ✓ Quality control on imports and exports.
  - ✓ Legislative/quarantine measures of pests diseases and pest control.
- (any 4x ½ =2mks)
14. **Advantages of tenancy system in farming.**
- ✓ Land lords can lease out the land to earn income.
  - ✓ Reduces land disputes, if lease agreement is available.
  - ✓ Idle land is put into agricultural use.
- (any 4x ½ =2mks)
15. **Four sites for agroforestry trees and shrubs in the farm.**
- ✓ Landless people can lease the land for agricultural use.
  - ✓ Boundaries
  - ✓ Slopes
  - ✓ Terraces
  - ✓ Riverbanks
  - ✓ Homesteads.
- (any 4x ½ =2mks)
16. **Factors determining the competitive ability of weeds.**
- ✓ Short life cycles.
  - ✓ Production of many seeds e.g. pig weed.
  - ✓ Ability to propagate vegetatively e.g. couchgrass wandering jew.

- ✓ Easy seed dispersal e.g. fleabane.
- ✓ Seeds have long viability
- ✓ Extensive rooting system
- ✓ Nutrients supply
- ✓ Some have specialized underground structure
- ✓ Some are allelopathic.

(any 3x ½ =1 ½ mks)

17. **Practices carried out to maximize the use of nitrogenous fertilizer in maize field.**

- ✓ Applied fertilizer in splits.
- ✓ Apply in moist soil
- ✓ Mulching / control of soil erosion
- ✓ Apply at appropriate stage of crop (knee-height)
- ✓ Mixing with soil
- ✓ Weed control
- ✓ Irrigation.

18. **Cultural measures of controlling maize streak.**

- ✓ Crop rotation
- ✓ Regueing
- ✓ Early planting/timely planting
- ✓ Use of certified seeds
- ✓ Field hygiene
- ✓ Closed seasons

(any 2x ½ =1mk)

**SECTION B: ( 20MARKS)**

19. (a) **Ways of inducing rooting of plantlets.**

- ✓ Use of growth regulator.
- ✓ Use of culture medium with correct nutrients
  - ✓ Correct light intensity
  - ✓ Correct temperature and relative humidity.

(any 2x ½ =1mk)

(b) **Steps followed in the development if tissue culture**

- ✓ Cutting of plants, cells on sterile jelly
- ✓ Development of callus on jelly with hormones to stimulate the growth of shoots or roots.
- ✓ Hardening of the plantlets in a greenhouse.

(any 2x ½ =1mk)

(c) **Advantages of propagating crops by tissue culture technique.**

- ✓ Mass production of propagules
- ✓ Faster methods of multiplying planting materials
- ✓ Require less space
- ✓ Pathogens free plants.
- ✓ Maintain genetic potential/ uniformity.
- ✓ Improve yields

(any 2x ½ =1mk)

20. **Partial budget.**

Debit (-)	Credit (+)
(a) Extra costs kshs.	(a) Cost saved labour costs
Tractor hire(600x6) =3,600( ½ mk)	(80 x30x6)=14,400( ½ mks)
Harvest costs	(b) Extra revenue sale of
(1200x6) = 7,600( ½ mk)	
= 10,800 (1/2 mk)	
(b) Revenue foregone	

$(800 \times 60) = 48,000 \left( \frac{1}{2} \text{ mk} \right)$ $= \underline{58,800} \left( \frac{1}{2} \text{ mk} \right)$	beans $(1200 \times 60) = 72,000 \left( \frac{1}{2} \text{ mks} \right)$ $\underline{86,400} \left( \frac{1}{2} \text{ mks} \right)$
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Advice: proposed changes is worthwhile because the farmer will get a profit of kshs. 27,600  
Profit = (cost saved extra revenue) – extra cost + revenue foregone)

(kshs.,  $86,400 - 58,800$ ) = Kshs. 27,600(1mk)

21. (a) **D** - French drains (  $\frac{1}{2}$  mk)  
**E** - Raised cambered beds (  $\frac{1}{2}$  mk)  
(b) **M** - soil (  $\frac{1}{2}$  mk)  
**N** - stones/ gravel (  $\frac{1}{2}$  mk)  
(c) Open ditches  
Underground drain pipes  
Trees with soil high transpiration rate e.g. eucalyptus  
Pumping (any 2x  $\frac{1}{2}$  mk)
22. (a) American bollworm (  $\frac{1}{2}$  )  
(b) Bore holes in tomato fruit  
(c) - Spraying with recommended insecticide  
- Crop rotation.  
(a) **F** – granular structure (  $\frac{1}{2}$  mk)  
**G** – Platy structure (  $\frac{1}{2}$  mk)  
(b) **X** - Humus with clay (  $\frac{1}{2}$  mk)  
**Y** - Air space (  $\frac{1}{2}$  mk)  
(c) Ways in which structure G influences crop production  
Impedes drainage / water infiltration  
Prevent root penetration  
Influence soil aeration (any 2x1 =2mks)
23. (a) **Activities undertaken in minimum tillage.**  
✓ Use of herbicides to control weeds  
✓ Mulching  
✓ Establishment of cover crops weeds in the field to smother weeds.  
✓ Uprooting and slashing of weeds  
✓ Selective cultivation restricting cultivation  
✓ Area when seeds are to be planted  
✓ Timing cultivation  
(b) **Qualities of a good farm manager.**  
✓ Has knowledge about specific agricultural principles, marketing and accounting  
✓ Hardworking and time conscious  
✓ Has practical farming skills  
✓ Flexible in decision making  
✓ Should be responsible/ dynamic /prudent/ competent / ambitious.(any 5x1 =5mks)  
(c) **Ways in which farmers may overcome risks and uncertainties in a farming business.**  
✓ **Diversification:** having various enterprise so that if one falls, the farmer has something to rely on.  
✓ **Contract production:** growing crops on contract with the consumer with assurance of the market.  
✓ **Input rationing:** use of inputs sparingly to avoid wastage/ incurring unnecessary expenses.  
✓ **Flexibility in production:** being able to make alternatives in farming schedules

- ✓ **Selecting more certain enterprises:** embarking on enterprise with less risk.
  - ✓ **Insurance:** insuring the enterprise that in case
  - ✓ **Adopting modern methods of farming i.e :** irrigation crop rotation & animal husbandry practice.
  - ✓ **Use of government price stabilization policies.** (any 5x2 =10mks)
24. (a) **Functions of agricultural marketing**
- ✓ **Processing:** processing raw materials to add value, utility and improves shelf life.
  - ✓ **Transportation:** provide transport of agricultural products from farmers to the market
  - ✓ **Financing :** provide capital to carry out agricultural activities
  - ✓ **Advertising:** advertise farm products in order to increase demand
  - ✓ **Buying:** getting from farmers/ producers
  - ✓ **Gathering market information:** to determine the appropriate market and price.
  - ✓ **Selling:** sell on behalf of the farmer
  - ✓ **Insurance:** bearing risk by protecting from damage.
  - ✓ **Standardization / grading:** putting into grades so as to provide uniform standards and cater for various consumers.
  - ✓ **Packing:** pack the farm produce storage space and make transport and selling easier.
  - ✓ **Storage:** store farm produce after harvest in order to minimize losses/ store a marketing strategy/ to ensure continuous supply.
  - ✓ Displaying the produce for consumers to buy. (any 5x2=10mks)
- (b) **Types of water erosion.**
- ✓ **Splash /raindrop:** results from impact of raindrops on the soil.
  - ✓ **Sheet erosion ;** - uniform removal of soil in thin layers from a flat or gently sloping land.
  - ✓ **Rillerosion:** removal of soil from small but well defined channels.
  - ✓ **Gully erosion:** - an advanced stage of rill erosion characterized by deep long ditches made by running water . (any 4x1 =4mks)
- (c) **Nursery preparation and establishment in price production.**
- ✓ Measure out an area of 18.5m enough to produce materials for one hectare.
  - ✓ Clear plough and harrow to a fine tilth.
  - ✓ Construct bunds around the nursery to retain water.
  - ✓ Prepare channels to facilitate watering and drainage
  - ✓ Flood the nursery to depth of 10cm
  - ✓ Puddle the field to obtained fine mud
  - ✓ Seeds are pre- germinated soaking in water in a bag for 24hours
  - ✓ Remove the seed and cover with grass for 24-48 hours to allow sprouting
  - ✓ Broadcast sprouted seed at a rate of 45kg/ha.
  - ✓ Seedlings are allowed to grow to a height of 15cm before transplanting.
- (any 6x1=6mks)
25. (a) **Factors influencing the demand of agricultural products.**
- ✓ **Price of related goods:** demand of commodity increase with an increase in the price of a substitute
  - ✓ **Population:** the higher the population the higher the demand.
  - ✓ **Income:** income determine the purchasing power of buyers thus demand increases
  - ✓ **Preferences and faster:** consumers will buy more for what they liked/ preferred and low demand for what is substituted for.

- ✓ **Price expectation:** demand for a certain good goes up if its price is expected to go up in future.
- ✓ **Advertisement:** create awareness / increase sales hence increase in demand.
- ✓ **Belief, customs and taboos :** -may forbid consumption of certain items e.g. fork for Muslims.
- ✓ **Level of taxation:** highly taxed goods have price resulting to low demand.
- ✓ **Future expectation:** fear of future shortage increase of commodities. **(any 5x2=10)**

**(b) Methods of pasture conservation and utilization**

- ✓ **Hay making** i.e dried forage.
- ✓ **Silage making:** - anaerobic fermenting of succulent fodders.
- ✓ **Standing forage:** set a side for seasons feeds
- ✓ **Pad docking:** rotational grazing
- ✓ Strip grazing
- ✓ Tethering
- ✓ Continuous grazing – pasture not allowed any resting period
- ✓ Zero grazing: defoliation and feed directly to animals.

**(c) Reasons for raising vegetable seedling through nursery**

- ✓ Many seedlings are produced in a small area
- ✓ Easier to carry out management practices
- ✓ Enables establishment of tiny seeds to become strong seedlings before transplanting
- ✓ To provide optimum conditions for growth
- ✓ Allows transplanting of seedlings that are strong and healthy
- ✓ Reduce time taken by crop in the field
- ✓ Extra seedlings can be sold to earn income. **(any 5x2=10mks)**