

NAME.....M/S.....

ADM NO.....

STREAM.....

DATE

SIGN

443/1
AGRICULTURE
PAPER 1
TIME: 2 HOURS

**MOMALICHE SCHOOLS FORM 4,MOMALICHE 3,CYCLE 8-SEP-
OCT,2021**

INSTRUCTIONS TO CANDIDATES

- Write your *name* and *index* number and school, Sign and write the date in the spaces provided above.
- This paper consists of **THREE** sections; **A, B** and **C**.
- Answer **All** the questions in section **A** and **B** in the spaces provided and any **TWO** questions from section **C** in the answer sheet provided

FOR EXAMINERS USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 - 18	30	
B	19- 23	20	
C		20	
		20	
TOTAL SCORE		90	

SECTION A(30MKS)

1. Why is ranching becoming more and more common in Kenya?

(1mk)

- Due to pressure on the high potential areas

2. State Three factors that determine depth of cultivation.

(1 ½ mks)

1. Implement available

2. The type of the soil

3. The of crop to be grown

3. What is the function of the wood ash in the preparation of compost manure?

(½ mk)

To improve the level of phosphorus and Potassium.

4. State Four ways on how Government policy influence Agricultural production.

(1mk)

- Heavy taxation of imports to protect local industries.
- Quality Control
- Subsidising the growing of locally produced goods.
- Stepping up control of disease and Parasites
- Conservation of natural resources.

5. State two types of labour records.

(1mk)

- Labour utilisation analysis
- Muster roll

6. Differentiate between a straight fertilizer and a compound fertilizer.

(2mks)

Straight fertilizers are fertilizers containing only one of the primary macro-nutrient while Compound fertilizer contain two or three of the primary macro-nutrients.

7. Give an example of a crop in which the following vegetative propagation materials are used. (2mks)

(a) Splits: Pyrethrum

(b) Slips: Pineapple

8. Name two methods of frame formation in pruning of tea. (1mk)

Formative pruning
Pegging

9. What is meant by the term changing the cycle in Coffee growing? (1mk)

Replacement of old bearing stems by suckers.

10. Give Four reasons for carrying out pruning in crops. (2mk)

- Control cropping / regulate bearing
- To facilitate picking / harvesting.
- To remove the diseased or unwanted parts.
- To ease penetration of spray.

11. State four factors affecting the efficiency of pesticides. (2mks)

- Concentration
- Timing of application
- Weather condition
- Persistence

12. List four factors that determine quality of hay. (2mks)

- Forage species
- Stage of harvesting
- Length of drying period.
- Weather conditions
- Condition of the storage structure.

13. State four factors influencing land fragmentation and sub-division.

(2mks)

Shifting cultivation
Population pressure on limited land.
Traditional system / inheritance
Accumulation of land holdings

14. Differentiate between Topping and Topdressing.

(2mks)

Topping is the cutting of stems of pasture that remains after direct grazing, while Topdressing is the addition of fertilisers to crops during the growing seasons in order to improve plant nutrition and boost yields.

15. State Four advantages of using certified seeds.

(2mks)

- High germination Percentage.
- Free from pest and diseases
- High yield
- Fast maturity

16. Define the following terms as used in Crop production.

(a) Hardening off.

(1mk)

Practice of preparing seedlings to adapt to the ecological conditions prevailing in the seed bed.

(b) Pricking out.

(1mk)

Removal of excess seedlings in a nursery bed to a seedling bed.

17. State any Four biotic factors influencing crop production.

(2mks)

Nitrogen fixing bacteria

Pest

Predators

Parasites

Pathogens

Decomposers

18. State any four methods of fertilizer application.

(2mks)

Drip method

Side dressing

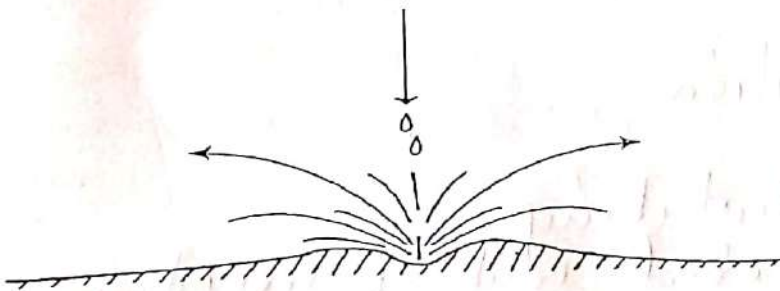
Placement method

Foliar spray

Broadcasting

SECTION B (20MKS)

19. The illustration below shows a type of soil erosion. Study it carefully and answer the questions that follow.



(a) Identify the type of erosion illustrated above.

(1mrk)

Splash / Raindrop erosion

(b) Give two soil factors that influence the rate of soil erosion.

(2mrks)

soil type / soil structure / soil texture
soil depth

(2x1=2mk)

(c) Name one agent of soil erosion.

(1mrk)

Wind

Water

(1x1=1mk)

20. The diagram below shows a method of irrigation.



(a) Name the type of irrigation shown above.

(1mk)

Drip / Trickle Irrigation

(b) Give three disadvantages of the method named in (a) above.

(3mks)

- Expensive in undertaking
- Nozzles can be blocked making irrigation inefficient.
- Pipes can be broken during weeding and land preparation.

21. The diagram shown below is a banana tissue culture



(a) What is tissue culture?

(1mk)

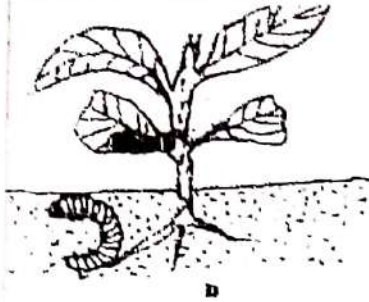
A biotechnology which is being used extensively in cloning of vegetatively propagated plants.

(b) State the sequence of three stages of tissue culture.

(3mks)

1. Establishing the aseptic culture and developing the propagule.
2. A series of sub-culturing to rapidly multiply the propagules through somatic development of embryos to produce axillary buds and roots.
3. Involves the preparation of the propagule for the establishment in the soil.

22. The diagram labeled D below shows a Kale crop invested by a pest



i) Identify the pest.

(1mk)

Cutworm

ii) What damage does the pest cause the crop?

(1mk)

Cut the stem at the base of the seedling

iii) State two methods of controlling the pest.

(2mks)

- Application of appropriate insecticide
- Field hygiene

23. The diagram below shows a weed



a) Identify the weed

Black Jack (*Bidens pilosa*)

(1mk)

b) State two reasons for controlling the weed

(2mks)

- To prevent competition for nutrients with crops
- To reduce incidences of pests

c) Name two herbicides that can be used to control the weed in a field of maize

(1mk)

- Atrazine plus Metachlor
- Alachlor plus Atrazine

SECTION C (40MKS)

24.(a) Explain four factors influencing Crop rotation.

(8mks)

i) Crop root depth — deep rooted crops should be alternated with shallow rooted crops.

ii) Crop nutrient requirement — Heavy feeders should come first in a

newly opened land.

iii) Weed control — crops associated with certain weeds should be alternated with those that are not.

iv) Soil fertility — leguminous crops should be included to improve soil fertility.

v) Soil structure — Grass ley should be included to improve soil structure.

vi) Pest control — crops of same family should not follow each other in the programme. (10mks)

(b) Explain five ways on how soil loses its fertility.

① Leaching —

② Soil erosion —

③ Monocropping —

④ Continuous Croppings —

⑤ Burning of Vegetation —

Accumulation of salts and change in soil pH (2mks)

(c) Outline two reasons for carrying out rolling in crop production.

(2mks)

- To increase seed-soil contact
- To prevent small seeds from being carried away by wind.
- To prevent soil erosion.

25.(a) What is water conservation?

(2mks)

Involves all practices carried out to protect water sources and maintain supply.

(b) Explain Eight cultural methods of soil and water conservation measures.

(8mks)

- i> Mulching — Prevent splash erosion; reduce speed of run-off to reduce erosion and increase infiltration.
- ii> Contour farming — Reduce water run-off to permit better retention of the nutrients.
- iii> Cover cropping — Prevent movement of soil and impact of rain drops; prevent soil from being baked hard by the sun against moisture and nutrient loss.
- iv> Grass strips — Reduce speed of flowing water and filter soil out.
- v> Grassed waterways — To slow speed of water and trap eroded soil against soil erosion.
- vi> Strip cropping — Crops with little cover are grown in alternating strips with those having good ground cover to control movement of soil.

(vii) Cropping systems

(viii) Afforestation and Reforestation

ix. Agroforestry

(8 X 1 = 8 mks)

(c) Outline Ten harmful effects of crop pests in crop production.

(10mks)

- Pests reduce the marketability of crop produce by lowering quality.
- Some unearth planted seeds resulting to low population.
- Destroy leaves lowering photosynthesis hence low yield.

- Some pests transmit crop diseases
- Some damage roots causing wilting.
- Some attack fruits lowering their quality.
- Some pest eg stalk borers eat growing parts causing stunted growth.
- ~~the~~ In crops where the leaf is the major product, pest lower quality and quantity through defoliation.
- Some destroy embryos of seeds lowering germination potential. (10x1=10marks)

26.(a) Describe five methods a farmer can use to get rid of water from a swampy farm. (10marks)

- i) Open ditches - dug for water to flow in by gravity.
- ii) Underground drain pipes - are perforated and laid underground for water to seep from surrounding area into the pipes.
- iii) French Drain - Ditches dug and filled with stones and gravel then covered with soil. Water from surrounding seep into the drainage.
- iv) Cambered beds - Raised bed constructed on poorly drained soils. Used in combination with ditches.
- v) Pumping - of water out of the soil.
- vi) Planting of trees - which lose a lot of water through evaporation.

(5x2=10marks)

(b) Describe the production of Tomatoes under the following sub-headings. (10mks)

(i) Land preparation. (4mks)

- Field where Solanacea family have not be grown for 3 years is selected.
 - Land is dug deep and all weeds removed.
 - Holes are dug 15cm deep at a spacing of $90 \times 60 \text{ cm}$.
 - Handful of well rotten manure and teaspoonful of D-AP fertilizer is applied.
- (4 X 1 = 4mks)

(ii) Nursery management practices (3mks)

- Weeding should be done frequently to keep the field free from weeds.
- Staking should be done to keep the tall varieties upright.
- Top dressing is done using appropriate fertilizer.
- Gapping is done to replace the dead seedlings.

(iii) Transplanting (3mks)

- It should be done on a cool day, evening or morning.
 - Nursery should be watered before lifting the seeds.
 - Only healthy and vigorously growing seedlings are transplanted.
- (3 X 1 = 3mks)