NAME _____ INDEX NO. _____

SCHOOL _____ SIGNATURE _____

DATE _____

443/1

AGRICULTURE

PAPER 1

TIME: 2 HOURS

Revision Kits 2024

FOCUS A365

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Kenya Certificate of Secondary Education (K.C.S.E)

INSTRUCTIONS TO CANDIDATES

- Write your name, school and index number in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above.
- This paper consists of three sections: A, B and C.
- Answer **all** the questions in section **A** and **B** and **any two** questions from section **C.**
- All answers must be written in the spaces provided in this booklet.
- This paper consists of **12** printed pages.
- Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing

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SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 18	30	
B	19 – 22	20	
C		20	
		20	
	TOTAL SCORE	90	

SECTION A (30 MARKS)

Answer ALL the questions in this section in the spaces provided.

1. Give **two** factors that characterize small-scale farming. (1 mark)

2. State **two** effects of HIV/AIDS on agricultural production. (1 mark)

3. State **four** methods of treating water for domestic use. (2 marks)

4. Name the vegetative part of each of the following crops which is propagated. (2 marks)

i) Sweet potatoes

ii) Cassava

iii) Bananas

iv) Oranges

5. State **two** ways by which soil pH may affect crop production. (1 mark)

6. State **three** causes of blossom end rot in tomatoes. (1½ marks)

7. Name **two** methods of weed control in pasture. (1 mark)

8. State **four** problems that farmers are likely to face when marketing their produce. (2 marks)

9. State **four** effects of high temperature on crop production. (2 marks)

10. Name **four** suitable sites of agroforestry. (2 marks)

11. List **four** post-harvesting practices. (2 marks)

12. State **three** functions of the Coffee Board of Kenya. (1½ marks)

13. Give **four** factors determining the quality of hay. (2 marks)

14. List **four** methods of fertilizer application. (2 marks)

15. Give **four** objectives of land settlement and resettlement in Kenya. (2 marks)

16. List **four** methods used to drain farm land. (2 marks)

17. Give **three** benefits of conserving forage. (1½ marks)

18. State **three** problems facing agriculture-based women groups in Kenya. (1½ marks)

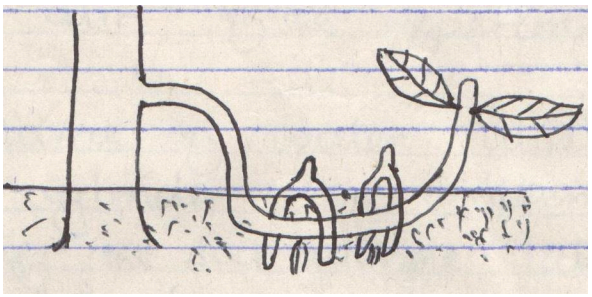
SECTION B (20 MARKS)

Answer ALL questions from this section in the spaces provided

19. a) Study the diagram below and answer the questions that follow.

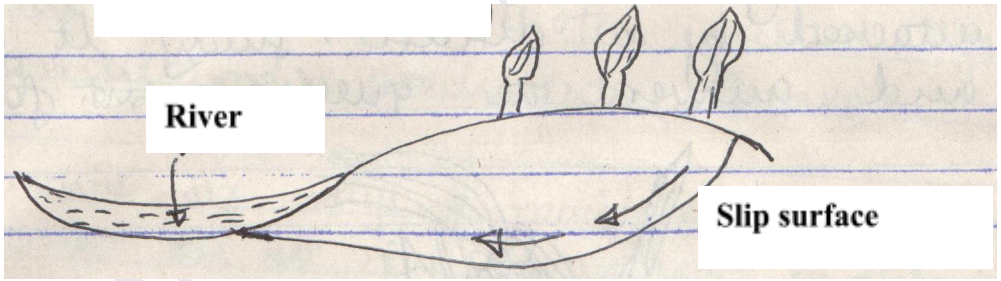
i) What is layering? (1 mark)

ii) Identify the type of layering shown below. (1 mark)



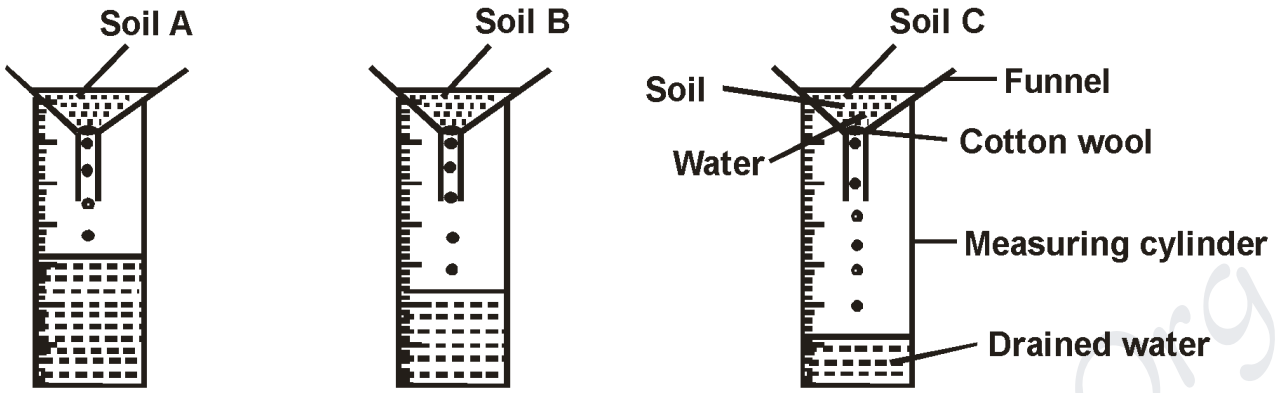
b) Give **two** advantages of tissue culture in crop production. (2 marks)

20. a) Identify the type of erosion below. (1 mark)



b) Name **four** agents of soil erosion. (4 marks)

21. The diagram below illustrates an experiment on soil. Study it carefully and answer the questions that follow.



a) State the aim of the experiment. (1 mark)

_____

_____

b) If the volume of water illustrated in the measuring cylinder was observed after one hour identify the soil sample labelled A and B.

Soil sample A. (½ mark)

_____

Soil sample B. (½ mark)

_____

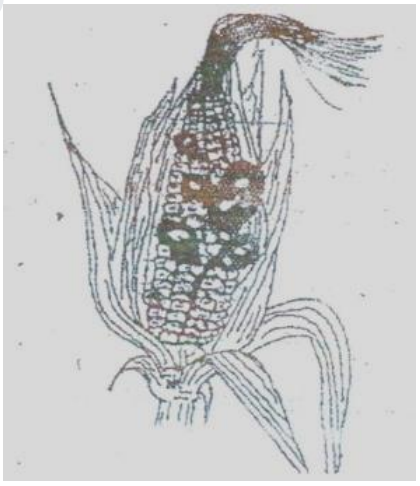
c) State **two** ways in which the soil structure of the sample labelled C above can be improved. (2 marks)

_____

_____

_____

22. The diagram below illustrates a maize cob attacked by a disease. Study it carefully and answer the questions that follow.



a) Identify the disease. (1 mark)

b) Apart from maize give **four** other crops that may be attacked by the disease. (2 marks)

c) State **four** methods of controlling the disease. (4 marks)

SECTION C (40 MARKS)

Answer any TWO questions from these sections in the spaces provided.

23. a) Explain **six** advantages of mulching in crop production. (6 marks)
    b) Explain **six** factors that should be considered when sitting on a nursery bed. (6 marks)
    c) Describe various biotic factors influencing agricultural production. (8 marks)

24. a) Outline **six** ways of maintaining soil fertility. (6 marks)
    b) Describe **four** advantages of tillage as a method of weed control. (4 marks)
    c) Give **four** types of pesticide based on their mode of action. (4 marks)
    d) Describe the steps followed in single stem pruning in coffee. (6 marks)

25. a) Give the advantages of mixed grass pasture over a pure grass pasture. (6 marks)
    b) Describe the establishment and management of grass pasture to the time it is ready for grazing under the following sub-heading:
    i) Land preparation. (3 marks)
    ii) Planting. (4 marks)
    iii)Field management practices. (7 marks)

Marking Scheme

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AGRICULTURE
PAPER 1
MARKING SCHEME

1. - Small size of land
   - Limited capital
   - Limited tools / equipment
   - Less labour is required
   - Maximum use of available labour

   Any 2 (2 x ½ = 1mk)

2.
i) Shortage of labour
ii) A lot of money is spent on treatment and hospitalization of people with HIV/AIDS
iii) Leads to low food supply and poverty due to loss of market for agricultural products
iv) Resources used in treatment of HIV and AIDS could be used in Agricultural production
v) Less time is spent o farming activities because a lot of time is spent looking after people with HIV/AIDS.

Any 2 (2 x ½ = 1mk)

3.
i) Boiling water
ii) Chemical treatment / chlorination/ addition of sodium salts
iii) Filtration-n
iv) Aeration
v) Storage over a period of time / sedimentation / decantation

Any (4x ½ = mks)

4.
i) Stem cutting/vine/tuber (½ mk)
ii) Stem cutting (½mk)
iii) Suckers (½mk)
iv) Bud/budwood (½mk)

(4x ½=2mks)

5.
i) Determine the availability of crop nutrients activities in the soil
ii) It determines the type of crop to be grown in a given area
iii) It influences attack of crops by pests, weeds and diseases
iv) It influence soil structure

Any (2x½= 1mk)

6.
i) Water stress/ insufficient water/ too much water
ii) Calcium deficiency
iii) Excessive nitrogen in the early stages of growth

(3x½= 1½mks)

7.
i) Timely land preparation
ii) Slashing
iii) Application of selective herbicides
iv) Uprooting of weeds

Any (2x ½=1mk)

8.
- Perishability
- Limited elasticity of demand
- Seasonality
- Lack of market information
- Bulkiness
- Changes of supply
- Storage
- Lack of efficiency in marketing
- Poor transport system
- Changes in market demand

Any (4x ½= 2mks)

9.
i) Increases evaporation hence wilting
ii) Increases rate of growth (maturity)
iii) Increases quality of some crops e.g. oranges or pineapples
iv) Increases incidences of pests and diseases.

10.
i) Farm boundaries
ii) Homestead
iii) Terraces
iv) River banks/ water catchments areas
v) Steep slopes /slopes
vi) Within pasture land

Any (4x ½=2mks)

11.
i) Threshing / shelling
ii) Drying
iii) Cleaning
iv) Sorting and grading
v) Dusting

vi) Processing
vii) Packaging
Any (4x ½=2mks)

12.
i) Planning, monitoring regulation of coffee growing.
ii) Licensing and control of coffee factories
iii) Regulation, control of quality of raw coffee
iv) Regulation of export/ import of coffee.
v) Carrying out promoting of research development in coffee production , processing technology
vi) Providing co-ordination training for any sector of coffee industry
(3x ½= 1½ mks)

13.
i) Forage species used
ii) Stage of harvesting hence leaf stem ratio
iii) Length of drying period
iv) Weather condition during drying process
v) Condition of storage structure
Any (4x ½=2mks)

14.
i) Broadcasting
ii) Placement
iii) Drip
iv) Foliar spraying
v) Side dressing / band application. Ring application
Any (4x ½=2mks)

15.
i) Settle landless citizens.
ii) To ease population pressure on land
iii) To increase agricultural productivity
iv) To improve people's standard of living
v) To create employment
Any (4x ½=2mks)

16.
i) Open ditches/ canals/ furrows/ channels
ii) French drains
iii) Pumping of water
iv) Underground pipes
v) Cumbered beds
vi) Breaking hard pan by sub soiling/ chisel ploughing
Any (4x ½=2mks)

17.
i) Provide feed during period of scarcity / distribute available forage throughout the year
ii) Ensure better proper utilization of land
iii) Can be sold for money
(3x ½=1½mks)

18.
i) Lack of managerial skills especially in accounting and book keeping
ii) Lack of technological know how to improve ways of carrying out certain agricultural activities they are involved in
iii) Lack of funding
iv) Limited access to credit facilities
v) Low level of education of women especially in rural areas
vi) Women's multiple roles and responsibilities hinder them from devoting more time to their groups.
(Any 3x ½= 1½ mks)

SECTION B (20MKS)

19.
a) i) Inducing part of a stem to produce root while still attached to the mother plant (1mk)
ii) Trench layering (1mk)
b) - Produces pathogen free plants
- Mass production of propagules
- Its fast
- Requires less space
(4x ½=2mks)

20.
a) Solifluction/ mass wasting (1mk)
b) i) Water
ii) Wind
iii) Human beings
iv) Animals
Each 1mk (4x1=4mks)

21.
a) To compare porosity/ drainage water holding capacity of different soil (1mk)
b) Soil sample **A**- Sandy soil
B- Loam soil
c) i) Adding organic matter/ manure
ii) Liming
iii) Sub soiling
iv) Draining away excess water
Any (2x 1=2mks)

22.
a) Smuts / maize/ ear smut *Any* 1 x 1 = (1mk)
b) Sugarcane, wheat, sorghum, barley, oat, millet
Any (4x ½=2mks)
c) i) Plant certified seed
ii) Crop rotation close season
iii) Field hygiene/ destroy crop residues
iv) Hot water
v) Rogueing
vi) Use of resistant
Any (4x1=4mks)

SECTION C

23.

a)

i) prevents water evaporation thus maintaining moisture in the soil for crop use

ii) act as an insulator thus modifies/ regulate soil temperature

iii) controls soil erosion by reducing the speed of running water intercepting rain drops and increasing the rate of infiltration

iv) controls the weeds by suppressing their growth

v) organic materials are decomposed by soil micro-organism resulting into humus that improves soil structure and water holding capacity.

vi) organic materials improve soil fertility by releasing nutrients after decomposition

Any 6 x 1 = 6mks

b)

i) Nearness to water source – for easy watering

ii) Topography on gentle slope to prevent flood and erosion

iii) Type of soil: well drained deep and fertile

iv) Security – well protected from theft ad destruction by animals

v) Well sheltered place wind breaks are necessary to prevent strong winds

vi) Previous cropping avoid areas where the same crop species had been planted to avoid buildup of pest/ diseases.

Stating ½ mk

Explanation ½ mk

Total 6 mks

c) *Pest*

- Feed on plant parts
- Transmit crop diseases
- Injure plant exposing the plant to secondary infection
- Increase cost of production

Parasite

- Suck blood from animals
- Cause irritation
- Increase cost of production

Decomposer

- Break down plant and animals materials to form manure

Pathogen

- Cause diseases in livestock
- Reduce quality and quantity of agricultural products

Predators

- Kill and feed on other animals
- Some reduce pest population

Pollinators

- Helps in pollination of crops.

Nitrogen fixing bacteria

- Convert nitrogen from air into nitrates for plant use

Stating -1 mk each

Explanation 1mk each

(4x2=8mks)

24.

a)

- Controlling soil erosion
- Through crop rotation
- Controlling/ moderating soil PH
- Proper drainage
- Controlling weeds
- Inter cropping/ mixed cropping
- Use of manure
- Use of inorganic fertilizers

Any (6x1=6mks)

b)

- Cheap hence good for small scale farmers
- Earthing up is done during tillage and this encourages root growth
- Incorporates crop residue into the soil
- Opens up soil hence allows water infiltration

(4x1=4mks)

c)

- Stomach poisons
- Contact poisons
- Anti feedants
- Systemic poison
- Suffocants
- Repellants

Any (4x1=4mks)

d)

- Do capping at a height of 53cm to stimulate development of strong/ lateral branches
- Select a strong shoot allow it to grow vertically
- Do second copying when the crop is 114cm high
- Select a strong shoot and allow it to grow vertically
- Third copying is done when the crop is 168cm high
- Maintain coffee bush between 150-180cm.

(procedure must be followed. 6x1=6mks)

25.

- Is more palatable than pure grass
- Farmer has security against total loss due to attack by pest/ diseases or bad weather

- Mixed pasture yields more per unit area of land than pure grass pasture
- It is more nutritious / has a higher nutritive value than pure grass pasture
- Mixed pasture makes maximum use of soil nutrients because of different nutrient requirement
- Mixed pasture has better weed control effect than pure grass pasture
- Increases soil fertility because of nitrogen fixation
- There is economy in use of fertilizers in mixed pasture
- There is better distribution of growth i.e a mixture of early late maturing species can be include in the mixture

(6x1=6mks)

b)

i) Land preparation

- Clear land and remove stumps
- Cultivate and harrow land to a fine tilth
- Prepare land early during dry season before rains
- Ensure that land is free from weeds
- Firm the seedbed using rollers before planting
- Select desirable variety of seed grass for the ecological zone of the area.

Any (3x1=3mks)

ii) Planting

- Use certified seeds/healthy seeds
- Plant/row the seeds at the onset of rains just before rains. During planting/ early planting.
- Apply phosphatic fertilizer at planting time at appropriate rates
- Drill or broadcast the seeds evenly on the seedbed
- Use recommended seed rate for the variety chosen
- Use twigs or gunny bags to cover the seeds
- Lightly cover the soil or plant 3-5 times the diameter of seed depth
- Firm the seed using rollers after sowing /planting

Any (4x1=4mks)

iii) Field management practices

- Control weeds by uprooting/ applying appropriate selective herbicides
- Apply nitrogenous fertilizers about 6 weeks after germinating in split application.
- Avoid grazing when pasture is too young
- Irrigate in dry season
- Cut back/ practice light grazing in initial place of establishment to encourage lateral growth
- Control pest e.g moles
- Use the correct stocking rate to avoid overgrazing

(7x1=7mks)