



MARANDA HIGH SCHOOL

Kenya Certificate of Secondary Education
POST MOCK 1 EXAMINATIONS 2021

443/1

AGRICULTURE

Paper 1

January 2021 – TIME: 2Hours

Name: Adm No:

Class: Candidate's Signature: Date:/12/2021.

INSTRUCTIONS TO CANDIDATES

- Write your name, index number, admission number and class in the spaces provided.
- Sign and write the date in the spaces provided above.
- Answer all the questions in section A and B.
- Answer any two questions in section C.
- Answers should be written in the spaces provided.

FOR EXAMINER'S USE ONLY

Section	Question	Maximum score	Candidates score
A	1 - 19	30	
B	20 - 23	20	
C	24 - 26	20	
		20	
	Total score	90	

A
Q1-Q7
Q8-Q14
Q15-Q19
Section B
Q20-Q23
Section C

SECTION A (30MARKS)

(Answer all the questions in this section in the spaces provided)

1) What is a vegetable?

(1mark)

This is any crop that is grown and eaten fresh.

2) List three tertiary operations carried out in the farm.

(1 ½marks)

- Rolling
- Ridging
- Levelling

3) Highlight three ways through which minimum tillage is achieved.

(1 ½marks)

- Application of herbicides
- Mulching
- Timing cultivation
- Cover cropping
- Uprooting ~~is~~ ~~staying~~
- Restricting cultivation to base of the crop

4) State two disadvantages of too much nitrogen in crop production.

(1mark)

- Delayed maturity
- Lodging in cereals
- Excessive succulence

5) State four factors used in classification of inorganic fertilizers.

(2marks)

- Rainfall amount : Nutrient contained
- Rainfall intensity : Mode of application
- Rainfall reliability : Time of application
- Rainfall distribution : Effect on soil pH

6) Highlight four aspects of rainfall that affects agricultural production.

(2marks)

- Rainfall amount
- Rainfall intensity
- Rainfall reliability
- Form of rainfall
- Rainfall distribution

7) Give two changes that would indicate an improvement of labor efficiency on a farm.

(1mark)

- Able to work without supervision
- Able to meet deadlines
- Doing tasks with minimal mistakes (no)

8) State the law of substitution.

(1mark)

It states that if the output is constant, it is possible to substitute one input factor for another as long as it is cheaper than the one being substituted.

9) Outline three ways by which afforestation helps in land reclamation.

(1½marks)

- Binds soil particles/improves soil structure
- Humus improves soil fertility
- Traps eroded materials
- Wind breaker

10) Outline any four steps followed in land adjudication.

(2marks)

- i) Identification of ownership by land adjudication officers through assistance of local elders;
- ii) Measurement of size of land;
- iii) Description of land's prominent features e.g. streams;
- iv) Recording & mapping of the surveyed land;

- v) Checking of the register by land owners to certify correct entries & raise any objections
vi) settling any boundary problems;

11) State any four characteristics of trees used in agroforestry.

(2marks)

- Leguminous
- Fast growing
- Deep rooted
- Rot rapidly
- Can be used as fodder

12) List three advantages of tenancy system.

(1 1/2 marks)

- Landlords who cannot use the land can get some income after renting
- Land that would otherwise idle is put in use
- Landless can rent land from the landlords
- Ensures equitable distribution of land.
- Reduces land disputes

13) Under what conditions do opportunity cost exist as zero?

(1 1/2 marks)

- Free good
- Goods with unlimited supply

14) Apart from broadcasting as a method of fertilizer application, list four other fertilizer application methods.

(2marks)

- Hole placement
- Side dressing
- Foliar spraying
- Drip

15) Highlight three importance of tissue culture in crop propagation.

(1 ½ marks)

- Establish pathogen free plants
- mass production of propagules
- Fast & requires less space.

16) Highlight four disadvantages of using seeds as a planting material.

(2marks)

- some have long dormancy & needs special treatment.
- Due to cross pollination you may experience variation which may be undesirable
- soil born pests may damage seeds
- seeds may lose viability if stored for long.

17) State four factors affecting rooting of cuttings.

(2marks)

- Temperature
- Relative humidity
- Light intensity
- Oxygen supply
- Chemical treatment
- Leaf area

18) Explain what is meant by the following terms;

(1 ½ marks)

i) Chitting The practice of arranging Irish potatoes left in layers of 2 to 3 deep in a room with diffused light to enhance sprouting

ii) Certified seed seeds produced by reputable companies and have been proven to have 100% germination potential

iii) Seed dressing The coating of seeds with a fungicide or an insecticide or (both) to protect the seedlings from soil borne pests and diseases.

19) State any three significance of nursery in crop production.

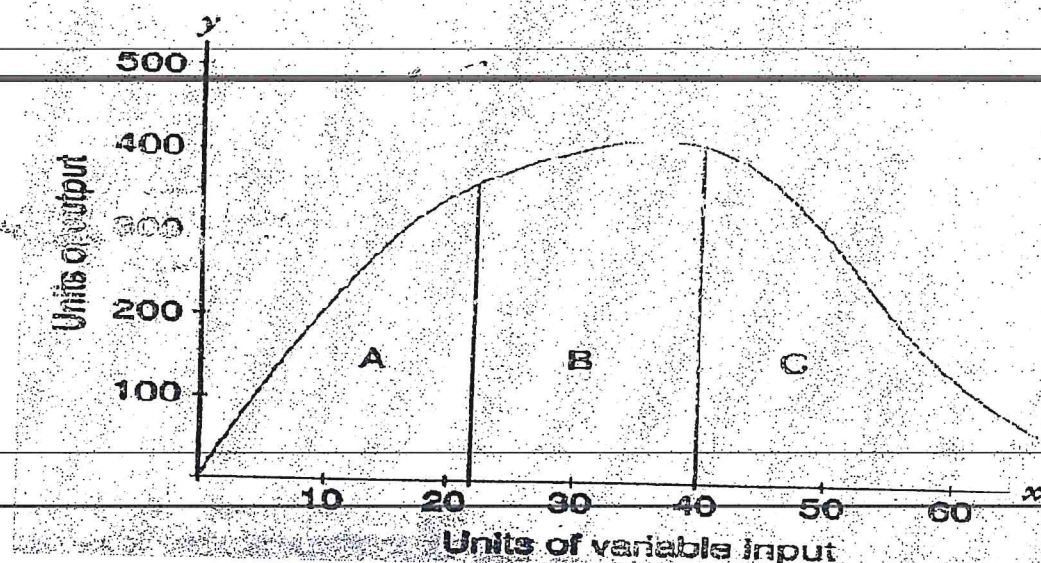
(1 ½ marks)

- Production of many seedlings in a small space
- Routine mgt practices are easily & timely carried out
- Facilitates the planting of small seeds
- Ensures transplanting of only healthy & vigorously growing seedling
- Reduces the period the seedlings take in the seed bed

SECTION B (20MARKS)

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

20) The diagram below shows a graphical representation of an economic law.



i) Name the law depicted by the curve above.

(1mark)

The law of diminishing returns

ii) Explain what is happening in each of the zones marked A, B and C.

(3marks)

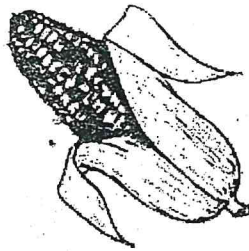
Zone A

A - The resources are under utilised
- Irrational zone of production.

Zone B - Resources are maximally utilised
- Rational zone of production

Zone C - Excessive use of resources leading to decline in production.

21) The diagram below show a maize cob which has been attacked by a certain disease. Study it and answer the questions that follow.



i) Identify the disease.

(1mark)

Smut

ii) Name the causal organism of the disease.

(1mark)

Fungi ~~accept~~. *Ustilago species*.

iii) State two cultural method of controlling the disease.

(2marks)

- Field hygiene

- use of certified seeds

- crop rotation

22) Mr. Kioko has 5ha of arable land, 1.5ha of which is under maize, 1.0 ha under rice, 0.5 ha under fodder crop and the rest either under improved hay or natural grass. He wishes to know whether replacing 0.5 ha of maize with Irish potato the following season would be worthwhile. The fertilizer rate would have to be increased from 2bags per ha for maize to 3.0 ha bags per ha for Irish potato and extra 30 man-days of casual labor per ha would be necessary as a result of the change. Average yields of maize and Irish potato are 60 and 90 bags per ha respectively. The prices are Ksh. 1500 per bag of maize and Ksh. 400 per bag of Irish potatoes. Seed costs are Ksh.

1450 per 5kg of maize and ksh. 150 per 50kg of Irish potatoes. D.A.P Fertilizer costs 1250 per 50kg bag. Labour is paid at ksh.150 per man-day. He would require 10bags of Irish potato seed and 1.5 bag of maize seed to cover 0.5 ha.

Draw up the partial budget and indicate the effect of the change.

(7marks)

Mr. Kioko's Partial budget

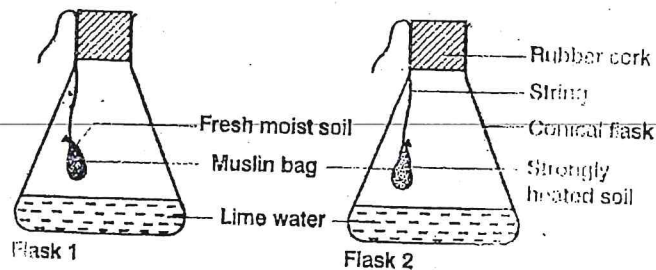
Debit

Credit

Extra Costs	Extra revenue
2. ~~1~~ ¹⁵ bags of fert. @ 1250/- = 2,500	4 ~~5~~ ^{12.5} bags @ 400/- = 18,000
Labour ~~30~~ ¹⁵ mandays @ 150 = 2,250	
1 ~~3~~ ^{1.5} bags of seed @ ~~150~~ ¹⁰⁰⁰ 150 = 1,500	
Sub total 6,250	Sub total 18,000
Revenue foregone	Costs saved
30 bags of maize @ 1500 = 45,000	2 bags ^{12.5} @ 1250 = 12,500
	seeds 2 bags @ 1450 = 2,900
Total 51,250	Total 22,150
(Extra revenue + cost saved) - (Extra cost + revenue foregone)	
22,150 - 51,250	

- 29,100 the change is not worthwhile

23) The diagram below shows an experiment that was carried out by form one students. Study it carefully and answer the questions that follow.



i) What was the aim of the experiment?

(1mark)

Show the presence of living organisms in the soil.

ii) What observation did the students make in the two flasks at the end of the experiment? (2marks)

Flask 1 - Lime water form white ppt (milky)
Flask 2 Lime water remain clear

iii) Give a reason for the observation made in flask 1. (1mark)

The living organisms in the soil produced CO_2 (g). that turned Lime water milky

SECTION C (40MARKS)

Answer any two questions from this section

24) Describe the factors that determine the quality of Farm Yard Manure. (5marks)

i) Explain why green manure is not commonly used by farmers. (4marks)

ii) Explain the soil conservation measures that can be used to conserve soil on a sloping farm land. (8marks)

iii) State three ways by which soil pH influences soil fertility. (3marks)

25) i) State and explain the agricultural support services available to farmer. (10marks)

ii) Explain the various ways a farmer may adjust to risk and uncertainties. (8marks)

iii) State two factors that influences the market forces. (2marks)

26) i) State and explain five causes of land fragmentation in Kenya since independence. (10marks)

ii) Give reasons for the success of settlement schemes in Kenya after independence. (5marks)

iii) State the contribution of settlement schemes to agricultural development. (5marks)

24) Type of animal used - Non ruminants have a better quality manure

- Type of food eaten - The higher the quality of food the higher the quality of manure

- Type of litter

- Method of storage - should be stored in

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a leak proof roof & concrete floors to avoid leaching.

- Age of farm yard manure - well rotten manure has higher nutrient content.

1 x 5 = 5 marks

- i. - most crops used are food crops
 - Green manure crops might use most of the soil moisture
 - most of the nutrients might be used by micro-organisms
 - Takes time for the green manure crop to decompose.

1X4 = 4 MARKS.

- (ii) - Grass strips / Rill strips
- cover cropping
 - contour farming
 - mulching
 - cropping system / crop rotation / intercropping
 - strip cropping
 - grassed / vegetated waterways
 - Afforestation / reforestation
 - Trash line / stone line
 - Bunds
 - cut off drains / diversion ditches
 - Terraces

1X8 MARKS = 8 MARKS.

- (iii) - Affects activities & population of beneficial soil living organism
- Affects availability of certain nutrients to crops.
 - Each crop has a specific pH range which it grows.

1X3 = 3 MARKS.

- 25(i) - Adjusting to risks and uncertainty
- Diversification

- selecting more certain enterprises
- contracting
- insurance
- input rationing
- Flexibility in production

State 1X4
Explain 1X4

- Extension and

(iii) - Demand

- Supply

26(a)(i) - Shifting Cultivation

- Accumulation of land holdings by e.g. squatting
- Buying / selling of land
- Inheritance
- Population pressure - force an individual to buy small parcels in different places.

state 1X5 marks

explain 1X5 marks

(ii) - High population on the reserves

- Adequate economic incentives given to farmers

- Most settlers came from far distance from scheme
- Most settlers had enough capital
- Most settlers were disciplined & determined to initiate sound agriculture & extra effort.

(iii) - To ease population from over populated area

- Increase agricultural production
- Creation of employment
- Formed set back barrier e.g. Lambwe valley

- To transfer land from white settlers to Africans
- To settle former employees of European farms
- maintain the production levels achieved ~~for~~ by former white settlers / Earning country foreign

