ASUMBI GIRLS HIGH SCHOOL
TERM 2 -DECEMBER 2021
AGRICULTURE PAPER 1
MARKING SCHEME.

SECTION A

1. Intensive farming system (½ x4) 2mks
   - ✓ High yields per unit area
   - ✓ Maximum utilization of available land
   - ✓ High level of technology is used to give high yields
   - ✓ High level skills and management used

2. Compost manure (½ x4) 2mks
   - ✓ Brown in color
   - ✓ Has the smell of forest soil
   - ✓ Original nature of materials not noticeable
   - ✓ Light in weight

3. Choice of resources (½ x2) 1 mk
   - ✓ Because the resources have many alternative uses
   - ✓ Because the resources are scarce

4. Working capital are raw materials used in the production of crops and livestock e.g. seeds, feeds, fertilizer (1 mk)

5. High potential zones (½ x 2) 1mk
   - ✓ Where soils are fertile
   - ✓ Areas that receive high amount of rainfall
   - ✓ Optimum temperature

6. Available water (2 X ½) 1 mk
   Capillary water

7. GDP is the sum total of all goods and services produced using resources in a country in one year.
   GNP is the sum total of goods and services produced by citizens of a country locally and abroad.
   (2 mks) mark as a whole.

8. Pomoculture is growing of fruits crops
   Olericulture is growing of vegetable crops (2 mks) mark as a whole.

9. Leaching – nutrients are carried to the lower layers of the soil where they are not available to the crop roots . Monocropping – the crop nutrients get exhausted from the soil. (1x2) 2 mks

10. (½ x4) 2mks
    - ✓ Grass strips
    - ✓ Planting cover crops
    - ✓ Contour farming
    - ✓ Mulching
    - ✓ Afforestation

11. Reasons for earthing up the maize field (2 x ½) 1mk
    - ✓ Prevent lodging
    - ✓ Improved drainage around root zone of the plant
    - ✓ For development of prop roots for extra support

12. Reasons why seeds may fail to germinate (4 x ½) 2mks
    - ✓ Pest and disease attack
    - ✓ Long storage of seeds
    - ✓ Inadequate moisture in the soil
    - ✓ Deep placement / shallow placement in the soil
    - ✓ Immature embryos

13. Conditions that have led to fragmentation and subdivision of land (3 x ½) 1 ½ mks
    - ✓ Selling /buying a portion of one's land
    - ✓ Subdividing to heirs
    - ✓ Government settling the landless
    - ✓ Shifting cultivation

14. Appropriate methods of controlling couch grass in a maize field (2 x ½) 1mk
    - ✓ Apply appropriate herbicides
    - ✓ Deep cultivation

15. Advantage of inorganic fertilizers over organic manure (½ x3) 1 ½ mk
    - ✓ They readily release nutrients
    - ✓ Give more nutrients per unit volume
    - ✓ Fertilizer is less bulky than manure
    - ✓ Fertilizer is easier to handle than manure
    - ✓ Fertilizer requires less labour to prepare than manure

16. State 2 cabbage pests (2 x ½) 1 mk
    - ✓ cutworm
    - ✓ Aphids
    - ✓ Diamond back moth
    - ✓ Sawfly
    - ✓ Nematodes
    - ✓ Slugs

17. Distinguish between pinching out and coppicing as used in crop production (1mk*) mark as a whole.*
    - ✓ Pinching out is removal of terminal bud of a shoot while coppicing is the cutting back of Young plants at certain point to stimulate growth.

18. Four pieces of information contained in an invoice (4 x ½) 2 mks
    - ✓ People involved in the transaction
    - ✓ Invoice number (serial number)
    - ✓ Type of goods (particulars)
    - ✓ Amount of money involved
    - ✓ Terms of payment / when due

19. Advantages of tractor hire services (4 x ½) 2mks
    - ✓ Eliminates risks of owning a tractor
    - ✓ It is cheaper
    - ✓ No maintenance costs are incurred
    - ✓ One can hire several tractors depending on amount of work
    - ✓ Enables farmers who cannot afford a tractor to acquire the service

20. Ed= % change in quantity demanded
% change in price

41-30 x 100 =11 x 100 =26.82 (½ mk)
41 41

3000 – 4000 x 100 =1000 x 100 =33.33 (½ mk)
3000 3000

26.82 / 33.33 = 0.8046 (1 mk) total 2mks

SECTION B

21. (a) (6 X ½) = 3 mks

Fixed input Land	Variable input DAP in 30kg bag	Total product maize in 90 kg bag	Average product maize in 90 kg bag	Marginal product maize in 90 kg bags
1	0	2	-	-
1	1	5	**5**	**3**
1	2	14	**7**	**9**
1	3	21	**7**	**7**

(b) Two variable costs that the farmer incurred (2x1) = 2mks

- ✓ Cost of maize seeds
- ✓ Cost of fertilizer
- ✓ Cost of casual labour
- ✓ Cost of pesticide
- ✓ Cost of herbicide

22.

(a) identify the feature (1x1) 1mk

- ✓ Soil profile

(b) Name the parts (3x1) 3mks

- ✓ A -Top soil
- ✓ B -Sub soil
- ✓ C -Weathered rock / Substratum

(c) (1 x 1) 1mk

- ✓ Help to determine the type of crops to grow
- ✓ Determine nutrients availability
- ✓ Determine aeration
- ✓ Determine drainage

23. (a) Practice - root trimming / root pruning (1 mk)

(b) Reasons why practice is encouraged (1 x 2) 2 mks

- ✓ To make lifting of seedlings easy
- ✓ To minimise damage to roots of seedlings when rifting
- ✓ For faster establishment of trees
- ✓ To encourage development of short dense and strong rooting system

(c) Reasons for polythene sleeves in nursery bed (1 x 2) 2mks

- ✓ For easy transportation of seedlings
- ✓ For conservation of moisture
- ✓ Allows seedlings to stay in the nursery for long awaiting transplanting

24. (a) (i) Individual hooked pegs method (1 mk)

(ii) Ring and pegs method (1 mk)

(b) (1 x 3) 3 mks

- ✓ To train the plant so that it can have the required shape
- ✓ To remove the diseased and unwanted parts of a plant e.g broken branches
- ✓ To control cropping
- ✓ To facilitate picking
- ✓ To ease the penetration of the agrochemicals sprays
- ✓ To control pests and diseases

SECTION C

25. (a) (i)

Mr Bahati's farm balance sheet as at 31st December 2017

ASSETS (KSHS)	**LIABILITIES (KSHS)**
FIXED ASSETS	LONG TERM LIABILITIES
Tractor 350,000	Kcb loan 300,000
Land 800,000	
Tools 10,000	
Total fixed assets 1,160,000	
CURRENT ASSETS	CURRENT LIABILITIES
Cash at hand 5,000	Tax payable to Kra 2,000
Cash in bank 50,000	Bank overdraft to Jamii bank 20,000
Debts receivable from Brookside dairy ltd 15,000	Debt payable to cooperative Society 30,000
Stock in store -maize 40,000	Total Current liabilities 52,000
-beans 8,000	
Dairy cattle 60,000	
100 layers 20,000	
Total current Assets 207,000	Total Liabilities 352,000
	Net Worth 1,005,000
TOTAL 1,357,000	**TOTAL 1,357,000**

Awarding marks

- ✓ Title (Mr Bahati's farm) ½ mk
- ✓ Statement (balance sheet as at) ½ mk
- ✓ Correct Assets entries in Ksh (½ x10) 5 mks
- ✓ Correct Liabilities entries in Ksh (½ x4) 2 mks
- ✓ Correct networth computation ½ mk
- ✓ Correct balancing total entry 1 mk

(ii) Mr Bahati's farm is solvent because there is a networth of ksh 1,005,000 as at 31st December 2017 (½ mk)

(b) Reasons for raising seedlings in a nursery (5x1) 5mks

- ✓ It facilitates production of many seedlings in a small area
- ✓ Routine management practices are easily and timely carried out in the nursery bed than seedbed
- ✓ It makes it possible to provide the best conditions for growth
- ✓ It facilitates the planting of small seeds which develop into strong seedlings that are easily transplanted
- ✓ It ensures transplanting of only healthy seedlings and vigorously growing
- ✓ It facilitates transplanting of seedlings that are already established thus reducing the period taken in the field
- ✓ Excess seedlings from the nursery may be sold –source of income

(c) Explain five farming practices that destroy soil structure (5x1) 5mks

- ✓ Monocropping
- ✓ Burning of vegetation
- ✓ Cultivating up and down the slope
- ✓ Overstocking
- ✓ Deforestation
- ✓ Continous cropping

26. (a) Ways though which soil looses fertility (5x2) 10 mks

- ✓ Leaching – As water infiltrates into the soil it moves together with dissolved soluble minerals to lower horizon beyond the reach of many plant roots.
- ✓ Soil Erosion – Carrying away of top soil rich in nutrients by agents – the fertile soil will be deposited elsewhere
- ✓ Monocropping – the crop grown will use the same nutrients till exhausted leaving out other nutrients, remain unused
- ✓ Continous cropping on the same piece of land over a long period of time exhaust all the nutrients
- ✓ Burning of the vegetation – burning destroys organic matter leading to destruction of soil structure
- ✓ Accumulation of salts that lead to salinity. This change in PH leads to loss of soil fertility
- ✓ Change in soil PH – increase or decrease in soil PH as a result of use of different fertilizers affects the activity of soil microorganisms as well as availability of soil nutrients.

(b) Describe field production of Napier elephant grass under the following subheadings

(i) Seed bed production (6x1) 6mks

- ✓ Practice early seedbed preparation during the dry period
- ✓ Clear all the vegetation / stumps
- ✓ Carry out primary tillage
- ✓ Dig deeply to remove all weeds / perennial weeds

- ✓ Carry out secondary tillage
- ✓ Seedbed should have a medium tilth
- ✓ Prepare furrow / holes for planting
- ✓ Spacing between furrows 90 – 100 cm for cutting / 90 – 100 cm x 50 cm for splits

(ii) Utilization (4x1) 4mks

- ✓ Cut and feed it to ruminants
- ✓ Defoliate / cut at the right stage of growth /3-5 months old when stems are 1-1.5 m high
- ✓ Cut the stems at 2.5 -5cm above the ground surface
- ✓ Use sharp panga for cutting
- ✓ Conserve excess as silage
- ✓ Chop napier grass into small pieces before feeding

27. (a) Problems in agricultural marketing

- ✓ Bulkiness of produce
  -solution establishment of agro-based industries
- ✓ Poor storage of produce
  -Establishment of large scale storage
- ✓ Seasonality of crops leading to fluctuation of supply
  -Storage facilities to store buffer stock
- ✓ Perishability of farm produce
  -Store crops and process produce
- ✓ Lack of adequate market information
  -proper education and extension services
- ✓ Change in market demand
  -contracting
- ✓ Poor transport system
  -improvement of roads and infrastructure and formation of cooperatives
- ✓ Competition from cheap imports due to liberalisation
  -Harmonization of taxes and international trade agreements

Stating problem 1x5 =5mks
Stating solution 1x5=5mks

(b) Factors considered when choosing seedrate (5x1) 5mks

- ✓ Seed purity – pure seed have high germination percentage therefore less seed required
- ✓ Germination percentage – less seed is used when its germination is high
- ✓ Spacing – at closer spacing more seeds are used than at wider spacing
- ✓ Number of seeds per hole – when two or more seeds are planted per hole, higher seed rate is required than when only one seed is planted per hole
- ✓ Purpose of the crop – A crop to be used for silage making is spaced more closely than one meant for grain production therefore increasing the seed rate

(c) Five importance of drainage as a land reclamation method (5 mks)

- ✓ To increase soil volume
- ✓ To raise soil temperature
- ✓ To increase soil aeration by removing excess water
- ✓ To reduce soil erosion
- ✓ To remove toxic substances
- ✓ To increase microbial activities.