FORM FOUR
AGRICULTURE
443/1
MARKING SCHEME

1. Give ***four*** reason why farmers are encouraged to practice organic farming ***(2mks)***
   Environmental friendly
   Organic material are easily available
   Products fetch high prices in the international market
   (4x1/2 = 2mks)

2. Name the routine filed practice done by;
   a) Removal of extra suckers in banana stool ***($^1/_2$mk)***
   Banana stool management
   b) Removal of old stems down to level of top foliage in pyrethrum ***($^1/_2$mk)***
   Cutting back in pyrethrum
   c) Removal of suckers from coffee bushes ***(1/2mk)***
   Desuckering in coffee
3. Distinguish between GDP and GNP ***(2mks)***
   GDP – Sum total of all goods and services produced by a county within one year.
   GNP – Sum total of all goods and services produced by the nationals/ citizens of a county. (mark as whole) ***(2mks)***
4. What meant by the following terms
   i) Seed inoculation –Coating legumes with right strain of nitrogen fixing bacteria(1mk)
   ii) Seed dressing – Coating seed with the right chemical to guard attack by soil borne pests & pathogens. ***(1mk)***

5. Name ***four*** types of terraces ***(2mks)***
   i. Narrow based terraces
   ii. Broad based terraces
   iii. Fanya juu terraces
   iv. Fanya chini terraces
   v. Bench Terraces
6. State ***three*** characteristics of phosphatic fertilizers ***($1^1/_2$ mk)***
   i. Sparingly soluble in water
   ii. Have a residual effect in soil
   iii. Not liable to leaching
   iv. Have a slight scorching effect
   ($1x1^1/_2$ = 2mks)
7. Explain the relationship between scarcity and choice as used in agricultural economics ***(2mks)***
   Scarcity is where production resources are limited in supply relative to demand therefore a choice has to be made which enterprise(s) to allocate the limited resources (mark as whole)

8. Outline ***four*** ways by which crop pest are classified ***(2mks)***

   i. Mode of feeding
   ii. Crops attacked
   iii. Stage of development of the pest
   iv. Stage of growth of the crop
   v. Scientific classification
   vi. Level of damage
   vii. Habitat/ where they are found

(4x½ = 2mks)

9. State ***four*** advantages of land consolidation ***(2mks)***

i. Proper supervision
ii. Reduce transport costs
iii. Control soil erosion by building soil and water conservation structures
iv. Easier access to extension services
v. Sound farm planning
vi. Saves labour spent on fetching firewood
vii. Has an aesthetic value/recreation

(4x½ = 2mks)

10. Outline ***four*** benefits derived from trees used in agroforestry ***(2mks)***

i. Source of wood fuel
ii. Used in soil and water conservation
iii. Source of livestock feeds
iv. Source of income
v. Source of fencing material
vi. Saves labour spent of fetching firewood
vii. Has an aesthetic value/ recreation

(4x½ = 2mks)

11. Give ***four*** advantages of overhead irrigation in crop production ***(2mks)***

i. Water is evenly distributed over the required area.
ii. Less wastage of water than farrow irrigation water
iii. Sprinkler system can easily be moved to another place
iv. Can be practices in sloppy grounds
v. Foliar feed fertilizers can be applied with irrigation water
vi.

12. State ***four*** practices which improve light intensity in crop production ***(2mks)***

i. Pruning
ii. Wider spacing
iii. Thinning
iv. Weeding

13. Give ***two*** factors that influence the quality of hay ***(1mk)***

Stage of harvesting
Length of drying
Species of crops
Storage conditions

b) Outline ***<u>two</u>*** other methods of conserving forage in the farm ***(1mk)***

Standing forage
Silage

(2x1/2 = 1mk)

14. Give ***four*** varieties of tomatoes grown for processing ***(2mks)***

i. Primabel
ii. San Marzano
iii. Cal J
iv. Seinz, Kenya beauty, rutgers 10xhybrid

(4x ½ = 2mks)

15. Give ***four*** harmful effects of weed on crop production ***(2mks)***

i. ***Lower crop yields***
ii. ***Lower quality of crop products***
iii. ***Some harbous pests/ disease***
iv. ***Causing organisms***
v. ***Some reduce labour efficiency***
vi. ***Increase cost of production***
vii. ***Suppress growth of crops through competition for light, space, nutrients, moisture.***
viii. ***Some have allelopathic effect to crops***
ix. ***Some are parasitic to crops.***

(4x1/2 = 2mks)

16. State ***four*** factors that influence the number of secondary cultivation in seed bed preparation ***(2mks)***

i. ***Moisture content of the soil***
ii. ***Type of soil***
iii. ***Condition of land after primary cultivation/ implement used for primary cultivation***
iv. ***Amount of organic matter on the surface***
v. ***Slope of the land/ vulnerability t soil erosion***

(4x½ = 2mks)

SECTION B (20MKS)
ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED

17. The diagram below represents a method of manure preparation. Study it carefully and answer the questions that follow;
    a) Identify the Type of manure being prepared ***(1mk)***
    Compose manure
    b) Name the parts labelled E and F ***(2mks)***
    E – Dry leaves (1mk)
    F = Maize stalk (1mk)
    c) Give ***two*** disadvantages of organic manures ***(2mks)***
    i. ***Releases nutrients slowly***
    ii. ***Bulky***
    iii. ***May be a source of weeds***
    iv. ***Provide breeding grounds for pests***
    v. ***Difficult to quantity***
    vi. ***Nutrients contained***
    vii. ***Supply many nutrients to crops***

(2x1 = 2mks)

18. The diagram below illustrates a cereal crop plant and its produce, study the diagram carefully and answer the question that follow;

    a) Name ***one*** disease that attack the part labelled D in the diagram ***(1mk)***

    Head smurt

b) From which section of the produce labelled E, F and G should seed for planting be obtained? ` ***(1mk)***

D

c) Give one reason for the answer given in (B) above ***(1mk)***

For anchorage/ support (1mk)

d) State ***two*** functions of the part labelled H in the diagram ***(2mks)***

Absorption of water/ nutrients form the soil

Photosynthesis/ manufacture of plant food

19. A farmer wishes to change her enterprise form vegetable production to dairy farming. The costs she incurs on vegetables are as follows;

i) Weeding sh. 200
ii) Harvesting sh. 300
iii) Fertilizer sh. 500
iv) Seeds sh. 400

When she changes per enterprise to dairy she incurs the following costs;
Cost of buying cattle sh. 5000
Disease control – sh 200
Salary for milk person –sh 2000
Fencing – sh. 500
The revenue she gets from vegetable is sh 10,000 while in dairy she gets;
i) Milk sales sh 15,000
ii) Manure sales sh 1000

Draw a partial budget and indicate the effect of the proposed changes. ***(15mks)***

Debit (-)	**Credit (+)**
Extra cost (sh)	**Extra revenue (sh)**
Buying cattle 5,000	Sale of milk – 15,000
Disease control 200	Sales of manure – 1,000
Salary 2,000	Subtotal – 16,000
Fencing 500	
Sub total	
Revenue forgone	**Costs saved**
Vegetables 10,000	Weeding 200

Total (EC + RF = 17,700 Net worth = CR – DR 17,400 – 17, 700 300 Farmer should not replace vegetables with dairy rearing	Harvesting 300 Fertilizer 500 Seeds 400 TOTAL (ER + CS) = 17,400

20. The illustration below shows a tube of soil erosion. Study it carefully and answer the question that follow:

a) Identify the tube of erosion illustrated above; ***(1mk)***
Splash/ rain drop erosion (1x1 =1mk)

b) Give ***three*** soil factors that influence the rate of soil erosion ***(3mks)***
- ***i. Soil type***
- ***ii. Absence of corner crop***
- ***iii. Rainfall intensity***
- ***iv. Topography***

(2x1 = 2mks)

c) Name one agent of soil erosion ***(1mk)***
- ***i. Wind***
- ***ii. Human beings***
- ***iii. Animals***

(1x1 – 1mk)

SECTION C (40 MARKS)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

21. a) Describe harvesting of sugar cane ***(4mks)***
Harvest at correct age 13-22 for plantation 12-18 months for ratoon
- ***i. Take sugarcane sample for testing to determine maturity***
- ***ii. Using matches cut mature can at the base/near the ground***
- ***iii. Cut off the green tops***
- ***iv. Strip off leaves from the stem/burn the cane before harvesting***
- ***v. Deliver the cane to the factory within 48 hours/ immediately after cutting***

(4x1 = 4mks)

b) Study following information which was extracted from juhudi farm record on 31-12-95 and answer the question below;

Loans payable to bank	300,000
Five milking cows	250,000
400 layers	80,000
20 goats	30,000
Debts payable to co-operative	20,000
Buildings/ structures	60,000
Bonus payable to workers	19,000
Cattle feed in store	10,000
Animal drugs in store	4,000
Debtors receivable	18,000
Breakages to repair	30,000
Cash at hand	20,000
Cash in Bank	30,000
Spray equipment	12,000

Prepare a balance sheet for Juhudi's farm using the information above; ***(6mks)***

Assets			***Liabilities***		
Fixes assets	***Ksh***	***Cts***	***Long term liabilities***	***Kshs***	***Cts***
Building and structures	***60,000***	***00***	***Loan payable bank***	***300,000***	***00***
Five cows	***250,000***	***00***	***Liabilities***		
400 layers	***80,000***	***00***	***Debts to co-op***	***20,000***	***00***
20 goats	***30,000***	***00***	***Bonus payable to workers***	***19,000***	***00***
Spray equipment	***12,000***	***00***	***Breakages and repair***		
Total	***972,000***	***00***		***30,000***	***00***
Current Assets			***Total***		
Cattle feeds in store	***10,000***	***00***	***Total liabilities***		
Animal drugs in store	***4,000***	***00***	***Capital/ net worth***	***69,000***	***00***
Debts relievable	***18,000***	***00***	***Owners' equity***	***369,000***	***00***
Cash at hand	***20,000***	***00***		***685,000***	***00***
Cash at bank	***30,000***	***00***			
Total	***82,000***	***00***			
Total Assets	***1,054,000***	***00***			
			Total	***1054000***	

Tittle – 1mk
Assets/liabilities – 1
Correct entries
Assets 1
Liabilities – 1

Totals
Assets – ½
Liabilities – ½
Net worth/owners' equity/ capital – ½
Correct value – ½

c) Describe the function of agricultural marketing ***(10mks)***

i. ***Carrying out advertising of farm products to increase of farm products to increase demand***
ii. ***Provide finances/capital to carry out agricultural activities***
iii. ***Transportation of farm produce to the areas of consumption***
iv. ***Storage of farm produce after harvest to minimize loss and as a marketing strategy***

v. Selling farm produce on behalf of farmers
vi. Packing farm produce to reduce storage space and make transportation easier.
vii. Process farm produce to provide a variety and increase their value of prolong shelf/ life
viii. Grading farm produce to provide uniform standard and cater for various consumers.
ix. Assembling farm produce form scattered areas of production for bulking & transport.
x. Protection of farm produce from damage by use of chemicals or insurance/ bearing risks.
xi. Buying farm produce from producers
xii. Gathering, analyzing and interpreting market information to determine appropriate market and price.

(10x1 = 10mks)

22. a) Describe the procedure of silage making ***(10mks)***

i. Prepare the sitto silo
ii. Cut the crop at 8-10 weeks
iii. Wilt the crop for 6-12 hours
iv. (65% - 70% moisture content
v. Chop the materials
vi. Put chopped materials into the silo while compacting every 10-12 weeks depth layer
vii. Fill the silo rapidly
viii. Ensure ensiled material are humped at the top
ix. Check temperature and adjust
x. Keep silo air and water tight with polythene sheet. On top
xi. Cover the polythene with thick layer of soil maintaining a ridge appearance
xii. Dig a trench around.

(10 x 1 = 10mks)

b) State ***five*** effects of winds in crop production ***(5mks)***

i. Increase the rate of evaporation of moisture from the soil
ii. Causing lodging in cereals and damage to crops
iii. Blowing away and bringing rain bearing clouds
iv. Acting as an agent of seed dispersal.
v. Acting as an agent of soil erosion
vi. Increasing the spread of pests & diseases.
vii. Destroying farm structures

(5x1 = 5mks)

c) Explain ***five*** physical methods of pest control ***(5mks)***

i. Use of lethal of temperature
ii. Proper drying of procedure
iii. Flooding
iv. Suffocation
v. Physical destruction of pests
vi. Use of scarecrows
vii. Use of physical barrier
viii. Use of electromagnetic
ix. Radiation

23. a) Describe the safety precautions a farmer should take when using herbicides ***(5mks)***

i. Wear protective clothing eg gloves, overalls and boots
ii. Avoid inhaling herbicides/ do not smoke/ spray along the direction of wind
iii. Read manufactures instructions and follow them strictly

iv. ***Avoid blowing/ sucking blocked nozzles***
v. ***Wash thoroughly after handling the herbicide***
vi. ***Keep the herbicide out of reach of children***
vii. ***Properly dispose of empty containers***
viii. ***Spray in calm weather***
ix. ***Wash the equipment thoroughly***

(5x1 = 5mks)

b) Explain ***five*** factors that influence rooting of cutting ***(10mks)***

i. ***Temperature***
ii. ***Warm temperature are required at root zone while coal temperatures are required at aerial part to prevent drying***
iii. ***Relative humidity***
iv. ***Rooting to reduce transpiration on rate and maintain turgidity/ reduce wilting***
v. ***Light intensity***
vi. ***Soft wood cuttings root better in high light intensity which promote photosynthesis but hardwood cuttings of well in darkness.***
vii. ***Oxygen supply – requires aerated rooting medium***
viii. ***Leaf area***
ix. ***Soft wood cutting root better when they have more leaf are to promote photosynthesis***
x. ***Chemical concentration***
xi. ***Cutting root further when treating with rooting medium***

c) Explain ***five*** ways through which farmers adjust to risks and uncertainties in farming ***(5mks)***

i. ***Diversification***
ii. ***Contracting farming***
iii. ***Insurance***
iv. ***Input rationing***
v. ***Flexibility in production methods***
vi. ***Adopting to modern methods of farming***

(1mark x 5 – for well explained point)

Stating – without explanation – no score