**MINCKS GROUP OF SCHOOLS**

**FORM FOUR**

**AGRICULTURE**

**FORM FOUR**

**443/1**

**END OF TERM TWO 2022**

**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)***

1. Name the routine filed practice done by;

a) Removal of extra suckers in banana stool ***(1/2mk)***

***Banana stool management***

b) Removal of old stems down to level of top foliage in pyrethrum ***(1/2mk)***

**Cutting back in pyrethrum**

c) Removal of suckers from coffee bushes ***(1/2mk)***

**Desuckering in coffee**

1. 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)***

1. 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)***

1. Name ***four*** types of terraces ***(2mks)***
2. ***Narrow based terraces***
3. ***Broad based terraces***
4. ***Fanya juu terraces***
5. ***Fanya chini terraces***
6. ***Bench Terraces***
7. State ***three*** characteristics of phosphatic fertilizers ***(11/2 mk)***
8. ***Sparingly soluble in water***
9. ***Have a residual effect in soil***
10. ***Not liable to leaching***
11. ***Have a slight scorching effect***

***(1x11/2 = 2mks)***

1. 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)***

1. Outline ***four*** ways by which crop pest are classified ***(2mks)***
2. ***Mode of feeding***
3. ***Crops attacked***
4. ***Stage of development of the pest***
5. ***Stage of growth of the crop***
6. ***Scientific classification***
7. ***Level of damage***
8. ***Habitat/ where they are found***

***(4x1/2 = 2mks)***

1. State ***four*** advantages of land consolidation ***(2mks)***
2. ***Proper supervision***
3. ***Reduce transport costs***
4. ***Control soil erosion by building soil and water conservation structures***
5. ***Easier access to extension services***
6. ***Sound farm planning***
7. ***Saves labour spent on fetching firewood***
8. ***Has an aesthetic value/recreation***

***(4x1/2 = 2mks)***

1. Outline ***four*** benefits derived from trees used in agroforestry ***(2mks)***
2. ***Source of wood fuel***
3. ***Used in soil and water conservation***
4. ***Source of livestock feeds***
5. ***Source of income***
6. ***Source of fencing material***
7. ***Saves labour spent of fetching firewood***
8. ***Has an aesthetic value/ recreation***

 ***(4x1/2 = 2mks)***

1. Give ***four*** advantages of overhead irrigation in crop production ***(2mks)***
2. ***Water is evenly distributed over the required area.***
3. ***Less wastage of water than farrow irrigation water***
4. ***Sprinkler system can easily be moved to another place***
5. ***Can be practices in sloppy grounds***
6. ***Foliar feed fertilizers can be applied with irrigation water***
7. State ***four*** practices which improve light intensity in crop production ***(2mks)***
8. ***Pruning***
9. ***Wider spacing***
10. ***Thinning***
11. ***Weeding***
12. Give ***two*** factors that influence the quality of hay ***(1mk)***

***Stage of harvesting***

***Length of drying***

***Species of crops***

***Storage conditions***

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

***Standing forage***

***Silage***

***(2x1/2 = 1mk)***

1. Give ***four*** varieties of tomatoes grown for processing ***(2mks)***
2. ***Primabel***
3. ***San Marzano***
4. ***Cal J***
5. ***Seinz, Kenya beauty, rutgers 10xhybrid***

***(4x ½ = 2mks)***

1. Give ***four*** harmful effects of weed on crop production ***(2mks)***
2. ***Lower crop yields***
3. ***Lower quality of crop products***
4. ***Some harbous pests/ disease***
5. ***Causing organisms***
6. ***Some reduce labour efficiency***
7. ***Increase cost of production***
8. ***Suppress growth of crops through competition for light, space, nutrients, moisture.***
9. ***Some have allelopathic effect to crops***
10. ***Some are parasitic to crops.***

***(4x1/2 = 2mks)***

1. State ***four*** factors that influence the number of secondary cultivation in seed bed preparation ***(2mks)***
2. ***Moisture content of the soil***
3. ***Type of soil***
4. ***Condition of land after primary cultivation/ implement used for primary cultivation***
5. ***Amount of organic matter on the surface***
6. ***Slope of the land/ vulnerability t soil erosion***

**(4x½ = 2mks)**

**SECTION B (20MKS)**

**ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED**

1. 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)***

1. ***Releases nutrients slowly***
2. ***Bulky***
3. ***May be a source of weeds***
4. ***Provide breeding grounds for pests***
5. ***Difficult to quantity***
6. ***Nutrients contained***
7. ***Supply many nutrients to crops***

**(2x1 = 2mks)**

1. 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***

1. 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 (-)** **Extra cost (sh)** Buying cattle 5,000Disease control 200Salary 2,000Fencing 500Sub total **Revenue forgone** Vegetables 10,000Total (EC + RF = 17,700Net worth = CR – DR 17,400 – 17, 700 300Farmer should not replace vegetables with dairy rearing  | **Credit (+)** **Extra revenue (sh)** Sale of milk – 15,000Sales of manure – 1,000Subtotal – 16,000**Costs saved** Weeding 200Harvesting 300Fertilizer 500Seeds 400TOTAL (ER + CS) = 17,400 |

1. The illustration below shows a tube of soil erosion. Study it carefully and answer the question that follow:
2. Identify the tube of erosion illustrated above; ***(1mk)***

***Splash/ rain drop erosion (1x1 =1mk)***

1. Give ***three*** soil factors that influence the rate of soil erosion ***(3mks)***
2. ***Soil type***
3. ***Absence of corner crop***
4. ***Rainfall intensity***
5. ***Topography***

***(2x1 = 2mks)***

1. Name one agent of soil erosion ***(1mk)***
2. ***Wind***
3. ***Human beings***
4. ***Animals***

***(1x1 – 1mk)***

**SECTION C (40 MARKS)**

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

1. a) Describe harvesting of sugar cane ***(4mks)***

***Harvest at correct age 13-22 for plantation 12-18 months for ratoon***

1. ***Take sugarcane sample for testing to determine maturity***
2. ***Using matches cut mature can at the base/near the ground***
3. ***Cut off the green tops***
4. ***Strip off leaves from the stem/burn the cane before harvesting***
5. ***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******Building and structures*** ***Five cows*** ***400 layers*** ***20 goats*** ***Spray equipment*** ***Total*** ***Current Assets*** ***Cattle feeds in store*** ***Animal drugs in store*** ***Debts relievable*** ***Cash at hand*** ***Cash at bank*** ***Total*** ***Total Assets***  | ***Ksh******60,000******250,000******80,000******30,000******12,000******972,000******10,000******4,000******18,000******20,000******30,000******82,000******1,054,000*** | ***Cts******00******00******00******00******00******00******00******00******00******00******00******00******00*** | ***Long term liabilities******Loan payable bank*** ***Liabilities*** ***Debts to co-op*** ***Bonus payable to workers*** ***Breakages and repair*** ***Total*** ***Total liabilities*** ***Capital/ net worth*** ***Owners’ equity***  | ***Kshs******300,000*** ***20,000******19,000******30,000******69,000******369,000******685,000*** | ***Cts*** ***00******00******00******00******00******00******00*** |
|  |  |  | ***Total***  | ***1054000*** |  |

***Tittle – 1mk Totals***

***Assets/liabilities – 1 Assets – ½***

***Correct entries Liabilities – ½***

***Assets 1 Net worth/owners’ equity/ capital – ½***

***Liabilities – 1 Correct value – ½***

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

1. ***Carrying out advertising of farm products to increase of farm products to increase demand***
2. ***Provide finances/capital to carry out agricultural activities***
3. ***Transportation of farm produce to the areas of consumption***
4. ***Storage of farm produce after harvest to minimize loss and as a marketing strategy***
5. ***Selling farm produce on behalf of farmers***
6. ***Packing farm produce to reduce storage space and make transportation easier.***
7. ***Process farm produce to provide a variety and increase their value of prolong shelf/ life***
8. ***Grading farm produce to provide uniform standard and cater for various consumers.***
9. ***Assembling farm produce form scattered areas of production for bulking & transport.***
10. ***Protection of farm produce from damage by use of chemicals or insurance/ bearing risks.***
11. ***Buying farm produce from producers***
12. ***Gathering, analyzing and interpreting market information to determine appropriate market and price.***

***(10x1 = 10mks)***

1. a) Describe the procedure of silage making ***(10mks)***
2. ***Prepare the sitto silo***
3. ***Cut the crop at 8-10 weeks***
4. ***Wilt the crop for 6-12 hours***
5. ***(65% - 70% moisture content***
6. ***Chop the materials***
7. ***Put chopped materials into the silo while compacting every 10-12 weeks depth layer***
8. ***Fill the silo rapidly***
9. ***Ensure ensiled material are humped at the top***
10. ***Check temperature and adjust***
11. ***Keep silo air and water tight with polythene sheet. On top***
12. ***Cover the polythene with thick layer of soil maintaining a ridge appearance***
13. ***Dig a trench around.***

***(10 x 1 = 10mks)***

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

1. ***Increase the rate of evaporation of moisture from the soil***
2. ***Causing lodging in cereals and damage to crops***
3. ***Blowing away and bringing rain bearing clouds***
4. ***Acting as an agent of seed dispersal.***
5. ***Acting as an agent of soil erosion***
6. ***Increasing the spread of pests & diseases.***
7. ***Destroying farm structures***

***(5x1 = 5mks)***

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

1. ***Use of lethal of temperature***
2. ***Proper drying of procedure***
3. ***Flooding***
4. ***Suffocation***
5. ***Physical destruction of pests***
6. ***Use of scarecrows***
7. ***Use of physical barrier***
8. ***Use of electromagnetic***
9. ***Radiation***
10. a) Describe the safety precautions a farmer should take when using herbicides ***(5mks)***
11. ***Wear protective clothing eg gloves, overalls and boots***
12. ***Avoid inhaling herbicides/ do not smoke/ spray along the direction of wind***
13. ***Read manufactures instructions and follow them strictly***
14. ***Avoid blowing/ sucking blocked nozzles***
15. ***Wash thoroughly after handling the herbicide***
16. ***Keep the herbicide out of reach of children***
17. ***Properly dispose of empty containers***
18. ***Spray in calm weather***
19. ***Wash the equipment thoroughly***

***(5x1 = 5mks)***

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

1. ***Temperature***
2. ***Warm temperature are required at root zone while coal temperatures are required at aerial part to prevent drying***
3. ***Relative humidity***
4. ***Rooting to reduce transpiration on rate and maintain turgidity/ reduce wilting***
5. ***Light intensity***
6. ***Soft wood cuttings root better in high light intensity which promote photosynthesis but hardwood cuttings of well in darkness.***
7. ***Oxygen supply – requires aerated rooting medium***
8. ***Leaf area***
9. ***Soft wood cutting root better when they have more leaf are to promote photosynthesis***
10. ***Chemical concentration***
11. ***Cutting root further when treating with rooting medium***

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

 ***(5mks)***

1. ***Diversification***
2. ***Contracting farming***
3. ***Insurance***
4. ***Input rationing***
5. ***Flexibility in production methods***
6. ***Adopting to modern methods of farming***

***(1mark x 5 – for well explained point)***

***Stating – without explanation – no score***