**MARKING SCHEME**

**AGRICULTURE MOMALICHE EXAMS PAPER 1 443/1**

**SECTION A (30MKS)**

1. **Removal of extra banana suckers pyrethrum and coffee suckers**
2. Banana stool management
3. Cutting back in pyrethrum
4. De – suckering in coffee
5. **Three properties of phosphatic fertilizers**
* Sparingly soluble in water
* Have a residual effect in soil
* Not liable to leaching
* Have a slight scortching effect 3 x ½ = (1 ½ mks)
1. **Two physical properties of soil on crops.**
* Soil texture
* Soil profile / depth
* Soil structure 2 x ½ = (1mk)
1. **Four ways of classifying crop pests**
* Mode of feeding
* Crops attacked
* Stage of development of the pest
* Stage of growth of crop
* Scientific classification
* Level of damage
* Habitat / where they are found 4 X ½ (2mks)
1. **Three uses of labour Records**
* Help in payment of wages.
* Used in calculations of operation costs
* Used in assessment of income tax
* Used in calculating profits or losses. 3 x ½ = (1 ½ mks)
1. **Four advantages of overhead irrigation**
* Water is evenly distributed over the required area
* Less wastage of water than farrow irrigation
* Can be practiced in slopy grounds.
* Foliar fertilizers can be applied with irrigation water.
* Sprinkler system can easily be moved to another place. 4 x ½ = (mks)
1. **Basic economic concepts**
* scarcity
* preference and choice
* opportunity cost 3 x ½ = (1½ mks)
1. **Four varieties for processing**
* Ann f
* Primabel
* San Merzano
* Cal J
* Seinz; Keny Beauty Rutgers 10x Hybrid 4x ½ = (2mks)
1. **Four pastures management to enhance yields:**
* Weed control
* Top dressing
* Topping
* Re. seedling
* Pest control
* Controlled grazing
* Irrigation 4 x ½ = (2mks)
1. **(a) Fertilizer Elements**
* Nitrogen
* Phosphorous
* Potassium 2 x ½ = 1mk

(**b) Liming Elements**

* Calcium
* Sulphur
* Magnesium 2 x ½ = 1mk
1. **Three ways by which pruning control disease**
* Enhance penetrating of spray to kill vectors
* Remove infected branches
* Removes micro climate to discourage pests and disease
* Maintains field hygiene to reduce infection. 3 x ½ = (1 ½ mks)
1. **Four ways of weed adaptation to environment .**
* Elaborate / Extensive root system
* Ability to survive in poor soils
* Have short life cycle
* Have high competitive ability
* Some propagate vegetatively eg wandering jew
* Prolonged seed dormancy
* Wide range of ecological condition 4x ½ = (2mks)
1. **Four factors that determine time of planting**
* Rainfall patterns / water availability
* Growth habit of the crop
* Purpose of the crop
* Prevalence of pests and diseases
* Market demand 4 x ½ = (2mks)
1. **Four factors that affect effectiveness of pesticides**
* concentration of pesticide
* Weather conditions
* Persistence of pesticide
* Formulation
* Mode of action 4 x ½ = (2mks)
1. **Reasons for staking tomatoes**
* Production of clean fruits
* Prevent infestation by soil borne diseases
* Facilitates spraying and harvesting of the crop
* Controls incidence of disease outbreaks e.g blight 4x ½ = (2mks)
1. **Five cultural methods of soil and water conservation**
* Mulching
* Cover cropping
* Grass strips / filter strips
* Grassed water ways
* Planting agroforestry trees.
* Countuor farming 3 x ½ = (1 ½ mks)
1. **Four benefits of a land title deed**
* Can be used as security to get a a loan/credit
* Encourage farmers for long term investment
* Minimize land disputes
* You can lease the land out 3 x ½ = (1 ½ mks)

**SECTION B**

1. (a) A = Tea

 B = sugarcane 2 x 1 = (2mks)

 (b)

* + - Oxygen supply
		- Rooting medium/rooting hormone
		- Correct relative humidity
		- Suitable temperature
		- Suitable light intensive
		- Leaf area 3 x 1 = (3mks)
1. (i) To show that soil is made of different sized particles (1 x 1= 1mk)

(ii) C= Humus / organic matter.

 D = Gravel 2 x 1 = (2mks)

(iii) Texture 1x1 = (1mk)

1. (a) Splash / Rain drop erosion

 1 x1 = 1mk

 (b) soil depth / profile

* Soil type
* Absence of cover crop
* Rainfall intensity
* Topography 2 x 1 = (2mks)
1. Wind

Water

Human beings

Animals

1. **(a) Compost manure 1x1 =(1mk)**

(b) E = Dry leaves

 F = Maize stalk 2 x ½ = ( 1mk)

**(c) disadvantages of manure**

* + Release nutrients slowly
	+ Bulky
	+ May be a source of weeds
	+ Provide breeding ground for pests
	+ Difficult to quantify nutrients contained
	+ Supply many nutrients to crops 4x 1 = (4mks)

**SECTION C: MARKING SCHEME**

1. **(a) Operations carried out when preparing land for planting grass**
* Clear the vegetation using appropriate method
* Dig the land / carry out primary cultivation
* Harrow the land / carry out secondary cultivation
* Refine the tilth / carry out tartiary operation to get a fine tilt 4 x 1 = (4mks)

 **(b) Precautions that should be observed during the harvesting of**

 **pyrethrum**  **(4 x 1= 4mks)**

* Avoid picking wet flowers
* Flowers should be put in woven baskets
* Avoid any form of contamination
* do not compact the flowers in the basket to avoid fermentation
* Dry the flowers soon after harvesting

 **(c) benefits of land consolidation:**

* Enhances proper supervision of land leading to high production
* It saves time and reduces cost of transport leading to high profit margin.
* Makes it easy to have a good farm plan for efficient utilization
* It makes it easier to carry out proper soil and water conservation for high production
* Farm mechanization is economical due t o enlarged holding.
* It makes it effective to administer Agricultural extension services under one holding.
* Makes it possible to construct permanent structure. (**6 x2 = 12mks)**
1. **(a) Management of dry been production from planting to harvesting**
* Plant at onset of rains
* Plant at dept of 5 – 10cm
* Plant certified seeds
* Space at 45 – 60cm x 10 -15cm
* Use phosphatic fertilizer during planting
* Apply fertilizer at a rate of 100 – 200kg DAP/ ha. At planting
* Plant 2-4 seeds per hole / seed rate 50-60kg/ ha
* Carry out gapping
* Carry out thinning
* Provide stakes for climbing varieties
* Control pests
* Control diseases e.g anthracnose; been rust
* Uproot mature dry plants
* Gather uprooted plants and spread for further drying 10 X 1= (10mks)

 **(b) Factors for planting depth:**

* + Size of seed: Small seeds shallow depth for seeds to emerge above the ground.
	+ Soil moisture: high soil moisture shallow depth for germination and growth.
	+ Type of germination: cotyledons above the ground shallow depth to enable plant to push cotyledon above the ground.
	+ Soil type: clay soil shallow depth to have quick emergence of seedling above the ground.
	+ Possibility of pest attack: deep planting to prevent attack by pests

 **Correct explanation 4x1= 4mks**

 **(c) Characteristics of crop for green manure:**

* + Should be leafy / highly vegetative
	+ Should be able to rot fast
	+ Should be able to fix Nitrogen
	+ Should be able grow in less fertile soil.
	+ Should be able to complete life cycle in a short time.
	+ Should be able to grow fast
	+ Should be healthy. (5 x 1 = 5mks)
1. **(a) Describe the procedure followed when collecting a soil sample from the field for testing in the laboratory (5mks)**
	* + Clear vegetation from sampling spot
		+ Make vertical act 1-25cm deep (crop land), 5cm pasture
		+ Take slice with spade/soil auger
		+ Put soil sample in clean polythene bag
		+ Repeat the 1-4 steps in 15-20 spots
		+ Mix sample thoroughly dry and crush
		+ Take sub-sample /composite sample to laboratory for testing

 **5 x 1 = (5mks)**

**(b)Benefits of using certified seeds**

* They have high germination potential
* They are free from pests and diseases / healthy
* They give high yields
* They are bred true to type
* They are free from foreign materials / are pure
* They are free from physical damage **5 x 1 = (5mks)**

 **(c) Safety precautions when using herbicides**

* + - Wear protective clothing such as gloves over alls and boots.
		- Avoid inhaling herbicides by not smoking while spraying or spray a long the direction of the wind.
		- Read manufactures instructions and follow them strictly
		- Avoid blowing / sucking blocked nozzles.
		- Wash thoroughly immediately after handling the herbicide.
		- Keep the herbicides safely out of reach of children
		- Do not wash equipment used for herbicides in water sources used by animals or humans to avoid pollution
		- Carry out proper disposal of empty containers to prevent environmental pollution.
		- Spray when the weather is calm to avoid spray drift to unintended fields/ water sources
		- Avoid chemical spillage to uninted places
		- Avoid eating / handling food before washing
		- Equipment used should be washed thoroughly to avoid damage to crops in the subsequent operations 10 x 1 = (10mks)