**MARKING SCHEME**

1. Give two characteristics of plantation farming (1 mark)

(1) Production of one type of crop

(2) Require large tract of land

2. Name two chemical processes of weathering

 (1) Carbonation

 (2) Oxidation

 (3) Hydration

3. State two advantages of organic farming (1 mk)

 (1) Improves soil structure

 (2) Enhance soil water infiltration and retention

 (3) Provides food for soil microbes

 (4) Production of food free from chemical residues

 (5) Cheaper since there is purchase and chemicals

4. Outline three effects of soul organisms which benefit plant growth (1 mark)

 (1) Improves aeration

 (2) Release soil nutrients when they decompose

 (3) Help in decomposition process

 (4) promote nitrogen fixation .

5. Give two ways in which organic mulch help to conserve water in the soul (1 mark)

 (1) Reduce water loss through evaporation

 (2) Improve soil water infiltration and retention

6. Give two types of labour records

 (1) Labour utilization analysis

 (2) Muster roll

7, Outline four ways in which land consolidation helps to improve farm management (2 marks)

 (1) Proper supervision

 (2) Saves time and transportation cost

 (3) Facilitator soil conservation and farm mechanization

 (4) Legal ownership and title deed used to secure loans

8. State four importance raising seedlings in a nursery bed (2mks)

 (1) Excess sold for income

 (2) Facilitates planting of small seeds

 (3) Production of many seedlings in small area

 (4) Management practices easily and timely carried out

 (5) Transplanting of only healthy and vigorously growling

 (6) provide best condition for growth of seedlings.

9. Give four ways of controlling weeds in a field of maize

 (1) Uprooting

 (2) Cultivation/ weeding with a jembe

 (3) Use of herbicides rej chemical method

 (4) Slashing weeds

10. State three reasons for top dressing pasture (1 ½ mks)

 (1) Increase herbage yields

 (2) Improve nutritive value of crop

 (3) Add soil nutrients

11. Give four reasons for training crops as a field practice (2 marks)

 (1) Plants grow in a designed direction and shape

 (2) Facilitates easy harvesting and spraying

 (3) Clean fruits are produced

 (4) Support plants

12. State three activities the farmer carries out on a store before storing grains

 (1) Cleaning the store/remove debris of previous crops

 (2) Dusting

 (3) Higher germination percentage

 (4) Pure/true to type

13 Give **four** desirable characteristics of certified seeds. (2mks)

 -High yielding

 -pure/True to type

 -Clean/freeeeds

 -High germination percentage

- Healthy/free from pests and diseases

14. a)Outline two characteristics of nitrogenous fertilizers

 (1) Highly soluble

 (2) Easily leached

 (3) Scorching /burning effects

 (4) Highly volatile

 (5) Hygroscopic

b) Give the forms in which the following elements are available to plants (1 mk)

 (i) Phosphorous: Phosphate ions (PO42)

 (ii) Potassium: Potassium ions (K+)

15. Give four factors that influence the choice of tools and equipment used in Primary cultivation. (2 marks)

 (1) Condition of the land

 (2) Type of tilth required

 (3) Depth of cultivation

 (4) Availability /cost of the tool

16. State four factors that contribute to competitive ability of weds (2 mks)

 (1) Produce large quantities of seeds

 (2) Seeds remain viable for long

 (3) Ability to propagate vegetative

 (4) Seeds easily and successfully dispersed

 **(**5) Ability to grow in poor soil condition.

**17. Terms;**

 a) Trellishing

 - supporting climbing plants e.g passion fruits (1mk)

 b) Stooking

 - cutting maize and arranging it vertically in groups in the field (OWTTE) (1mk)

**18. Two advantages of strip grazing**

 - minimizes chances of animals getting bloat

 - gives more productivity per unit area of land

 - the pasture is utilized more efficiently

 - comparatively cheaper than constructing the paddocks (2 x ½ = 1mk)

**19. Four advantages of mixed pasture**

 - security against total loss due to pest and disease attack

 - high nutrient value and high yields

 - lasts longer than pure stand pasture

 - maximum use of nutrients.

 - better ground cover and better weed control

 - economy on the use of nitrogen fertilizer (4 x ½ = 2mks)

 **SECTION B. (20 MKS)**

1. (a) A = Tea

 B = sugarcane 2 x ½ = (1mk)

(b)

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

 (b) C= Humus / organic matter.

 D = Gravel . 2 x 1 = (2mks)

(iii) Soil texture 1x1 = (1mk)

1. (a) Splash / Rain drop

 1 x1 = 1mk

 (b) -Soil depth / profile

 -Soil type 2 x 1 = (2mks)

1. -Wind

-Water

- Human activities

1. (i) Furrow irrigation 1x1 =1mk

 (ii)

* Reduce fungal diseases eg blight
* Cheap to establish & maintain
* Require little skills. 2x1=2mks
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 3 x 1 = (3mks)
	+ Can only be used if fully decomposed.

 **SECTION C. (40 MKS)**

**25. (a) Give six precautions observed in pruning mature tea (6 mks)**

1. Side branches should never be out to encourage spread of tea bush
2. Avoid dish-shaped frame
3. Prune parallel with slope of ground not horizontal
4. Cut branches across to minimise area of wound
5. Pruning knife should be sharp
6. Small branches and twigs on frame be removed by hand
7. Leave branches to rot to release nutrients/act as mulch

 **(b) Describe the procedure followed when collecting a soil sample form the field for testing in the**

 **laboratory (6 mks - procedural)**

1. Clear vegetation from sampling spot
2. Make vertical act 15-25cm deep (crop land), 5cm pasture
3. Take slice with spade/soil auger
4. Put soil sample in clean polythene bag
5. Repeat the 1-4 steps in 15-20 spots
6. Mix sample thoroughly dry and crush
7. Take sub-sample /composite sample to laboratory for testing

**(c) Outline four advantages of intercropping crops (4 mks)**

1. Helps to control soil erosion
2. Good ground cover helps to smother weeds
3. Maximum utilization of the land
4. Add soil nutrients in case legumes are intercropped

 **(d) Factors considered before selecting a farm enterprise. (4 mks)**

 - Land topography / drainage

 - Suitability of soil to the enterprise

 - Social cultural factors

 - Taste / preference of the farmer

 - Availability of inputs

 - Size of the land available for the enterprise

 - The prevailing climate

 - Availability of market for the products

 - The period enterprise would take to mature

 - The current government policy

 - The common pests and diseases which may hinder the enterprise when implemented

 - Availability of capital

 - Land tenure system

 - Profit margin in relation to price fluctuation

 **26. Field production of tomatoes**

 i) Ecological requirements of tomato plants

 - Rainfall 760 – 1300mm p.a well distributed

 - Irrigation in dry areas / dry season

 - Attitude 0 – 2100 M a.s.l

 - Soil, deep, fertile, well drained soils

 - Temperature 180 – 290C / warm

 - Soil pH 6 – 6.5 **(1 x 5 =5mks)**

 ***ii) Land preparations***

 - Early land preparations before on set of rains

 - Clear all the vegetation

 - Remove tree stumps

 - Plough deep / primary cultivation

 - Harrow the land to medium tilth

 - Prepare planting holes 15cm deep

 - Spacing to be 0.9 x 0.6m / 1.0m x 0.5m depending on varieties

 - Apply organic manure / tea spoonfuls DSP **(1 x 4 = 4mks)**

 ***iii) Transplanting***

 - Done early in the morning or late in the evening

 - Water the nursery bed well

 - Use a garden trowel to lift the seedlings with a ball of soil around the root

 - Select only the healthy and vigorous growing seedlings

 - Place each seedling in the planting hole

 - Firm / compact the soil around the base of seedlings

 - Mulch the seedlings / shade if necessary

 - Water the seedlings **(7 x 1 =7mks)**

 ***iv) Disease control***

 - Use appropriate chemical to control disease

 - Ensure regular watering to control blossom end rot

 - Practice proper field hygiene / rogueing the infected plants

 - Plant resistant varieties **(4 x 1 = 4mks)**

**27. a) Five factors that influence soil productivity.**

 - Good supply of crop nutrients.

 - Well aerated

 - Good drainage

 - Abundance of useful soil micro- organisms.

 - Adequate water retention.

 - Freedom from plant pests and diseases causing organism.

 - Free from noxious weeds eg witch weeds.

 ( 5 x 1 = 5mks)

 **b) Qualities of mother plant**

 - High yielding

 - Resistant to pests / diseases

 - High quality produce.

 - High rooting ability.

 - Early maturing

 - should be compatible

 ( 5 x 1 – 5mks)

 **c) Two types of mulching materials**

 -organic mulches

 -Inorganic/ synthetic mulches

(2x1 = 2mks)

 **d) For agricultural practices which pollute water.**

 - Use agro – chemicals in the farm lands.

 - Cultivating along river banks encouraging soil erosion, flooding and siltation of streams, rivers etc.

 - washing farm machines directly in water bodies.

 - Over – grazing leading to soil erosion and siltation of water sources.

 ( stating 1mk Explanation 1mk) ( 4 x 1 = 4mks)

 **c) Precaution when harvesting coffee.**

 - Over – ripe dark coloured cherries should not be picked.

 - Under – ripe / green coloured cherries should not be picked.

- Sort out diseased berries before delivering to the factory to avoid pulping problems.

 - Deliver cherries to the processing factory on the day of harvesting.( 4 x 1 = 4mks)