**MID-TERM 1 SERIES 1 MS TERM 1-2023**

**FORM 4 TERM 1 EXAM**

**443/1 AGRICULTURE**

**PAPER 1**

**MARKING SCHEME**

**SECTION A**

1. ***Reasons for organic farming***

* Helps to balance features of fertile soul e.g. organic matter and soil micro organisms
* Use of local materials
* Lessens skills in preparation e.g. green manure
* Affordable and cost effective ***½ x2 = 1 mark***

1. ***Ways in which crop rotation controls weeds***

* Cover crop smoothens weeds if alternated with other crops
* Crops associated with specific weed as are alternated with crops of different

families to remove appropriate host and break life

cycle of weeds

½ x 2 = (1mk)

1. –undersowing

-over sowing

-Direct sowing

-

4. -High germination percentage / be viable

* Be healthy / be free from diseases and pests
* Have high vigour
* Have no physical damage
* Be pure / no impurities / clean
* Be uniform in size / colour / shape
* Suitable to ecological conditions ½ x 4 = 2
* Control sol born pests of diseases

5. - Consume soil / prevent soil erosion

* Ensure maximum utilization of soil nutrients
* Help in weed control
* Improve soil structure
* Improve soil fertility
* Offer security incase of crop failure ½ x 4

6, -Running water

* Moving ice
* Wind
* Temperature

7 -Should not have any scotching effects on the plants

* Be easily absorbed by the leaves
* Used in spray form / soluble in ***water 1 ½ mks***

8

* To control banana weevils
* To spread the production
* To produce large bunches ***½ x 3 = ( 1 ½ mk)***

9.

* Where pests are found
* Feeding habit / type of damage
* Scientific / biological classification
* Crop attacked
* Stage of development of past at which it causes damage
* Stage of growth at which crop is attacked
* Part of crop attacked

10 - Buying or selling / paying debts / compensation

* Inheritance
* Settlement and resettlement
* Gift or donation
* Shifting cultivation ***½ x 4 = 2 mk***

11 - Mixing soil with water then shaking / stirring and allowing particles to settle / sedimentation

* By use of series of sieves with different meshed size ***½ x 2 = 1mk***

12 - According to the nutrients they contain

* According to soil reaction / effect o soil pH
* Time of application

***½ x 3 = 1 ½ m***

13 - Splash erosion/ cause soil erosion

* Expose seeds
* Causes hard pans / soil capping / destroy soil structure

***½ x 3 = 1 ½ m***.

14 - When cutting cannot root if detached from mother plant

* Where large planting materials are pre-faced / rooting system
* Faster production of planting materials / quick growth /
* Higher chances of survival
* Has well established rooting system

***½ x 3 = 1 ½ mk***

15 - Nitrate form / nitrate ions /

* Ammonium form / Ammonium ions / NH4**+ ½ x 2 = 1mk**

16 -Age of the weeds

* Plant morphology
* Plant physiology
* Metabolic factors
* Chemical concentration
* Stage of crop growth
* Rooting system

**½ x 4 = (2mks)**

**17 -** Amount of rainfall/ rainfall intensity

* Slope / topography
* Type of soil
* Size of intershade / catchment
* Length of slope
* Wind velocity / strength of wind
* Vegetative cover

**½ x 4 = 2 mks**

18 - high initial capital

-high management

-high labour

-diseases can easily spread

***½ x 4 = ( 2mks)***

19 - Lack of ground cover

* Steep slopes
* Shallow soils
* High rainfall intensity
* Overstocking
* Pear method of cultivation
* Deforestation ½ x 4 = 2mrks

**SECTION B**

20 a)

A - Devil’s horse whip (Achyranthes apora) ( ***1mk)***

***B -*** Datura stramomium (Thorn apple) ***(1mk)***

b) - Poisonous to livestock

* Competes with crops for nutrients / light / water or space
* Increase cost of production
* Lower yields / qualit***y 1x1 = 1mk***

1. -Enables land owners / landlord to earn income from land

* Enable people who have no land to have acres to farmers land
* Idle land put into productive use
* Enable tenants to increase / decrease acreage of land leased depending on profitability

***½ x 4 = ( 2mks)***

21 - Read the label / manufacture instructions and follow them

* Measure the required amount of fungicide
* Place the fungicide into a container and mix thoroughly with a little water / pre-mix (pre-cream) until it forms a uniform slurry
* Pour the mixture into the knapsack sprayer through the sieve
* Top up / add up to the required level on the knaprack sprayer
* Spray the mixture onto the cap as required ***1 x5 = 5 marks***

*Observe the procedure*

22)a) it is a process of taking small quantities of soil from the field to act as a representative sample of soil in that particular field

b)(i) - traverse methode

***1 x3 = 3 mks***

ii) -zigzag method

* (iii) dead furrows
  + Terrace stands
  + Old fences lines
  + Old manure heaps
  + Swampy areas
  + Near trees and boundaries
  + Between slops and bottom lands

***1 x2 = 2 mks***

23) 23. tethering

(b) Maximum utilization of pasture

Distribution of animal wastes uniformly

Pastures are is given time to regrow before it is grazed again

Reduce the build of pests and diseases

Allow excess pasture to be harvested for conservation (1 ×3 =3mk)

SECTION C ( 40 marks)

24.a)

* Pick flowers selectively
* Pick flower with horizontal petals / three to two roses of disk florets
* Use fore finger and thumb
* Pick by twisting the lead so that no stem is left attached
* Put the pricked flowers in woven baskets ***1x 4 = ( 4mks)***
* Picking starts 3 -4 months after planting

b) - Picked flowers are put in woven baskets to allow ventilation and avoid fermentation

* Wet flowers should not be picked since they heat up and ferment
* Should not be comp[acted to avoid heating up and fermentation
* Suitable picking intervals 14 – 21 days to avoid overgrown or young flowers
* Break flower stalks to maintain quality ***1 x6 = 6 mks***

25 a) ***Land preparation***

* Clear the land to remove all stumps
* Dig, plough the land to remove perennial weeds / roots
* Harrow the land ; to a fine filth
* Prepare the land during the dry season / before the *rains* ***1 x5 = 5 mks***

b) ***Pasture establishment***

* Select a desirable variety of grass for the ecological condition / select the correct

variety for the same zone

* Plant or the onset of rains / plant early
* Use certified seeds
* Drill / broad cast the seeds evenly
* Apply phosphatic fertilizers or appropriate rate
* Use ssp rate of 200- 300 kg/ ha
* Use recommended seed rate for the variety
* Use 1.5-2 kg /ha PGS / 5-10 /ha for any available seed
* Drag a twig / gunny bag to cover the seeds lightly
* Cover seeds 3-5 times the diameter of seeds / depth ***1x8 = 8 mks)***

***c)Maintenance***

* Control weeds by uprooting /use herbicides
* Top dress with nitrogenous fertilizers
* Top dress with nitrogenous fertilizers
* Top dress in split application
* Cut / graze in the initial stage when 4- 6 months
* Control pests and diseases when they appear
* Avoid grazing when too young / Early defoliation
* Topping posture using appropriate method when to stemmy
* Carry out controlled grazing
* Irrigate when desirable
* Re – seeding when need ***be 1x7 = 7mk***

26a) (a) (i) Land preparation (4mks)

* Prepare land during dry season/before onset of rains
* Clear land using pangas/slasher/mower/an axe
* Carryout primary cultivation
* Dig deep to eradicate perennial weeds
* Carry out secondary cultivation to obtain a medium tilth

**(Any 4)**

**(ii)BEAN VARIETIES (2MKS)**

**Dry bean varieties:**

Rose coco (GPLZ)

Mwezimoja (GPLZ 1004)

Canadian wonder (GPLZ24)

K74

Wairimu

Mexican 142

(any 2)

**French bean varieties**

Monel

Saxa

Masterpiece

Longtom

**(iii) SELECTION AND PREPARETION OF PLANTING MATERIALS (5MKS)**

* Select fully dried beans
* Avoid wrinkled or damaged seeds
* Select certified seeds/high purity seeds/seeds with high germination percentage
* Dress seeds with appropriate chemicals to control soil borne pests
* Inoculate seeds with the right strain of rhizobium

To facilitate Nitrogen Fixation leading to high yields

-select seeds suitable to prevailing ecological conditions

(ANY5MKS)

**(IV)FIELD MANAGEMENT PRACTICES (5MKS)**

* Weeding should done before flowering to avoid knocking down flowers
* Weed using hand tools and earth up the plants
* Irrigate the plants if rainfall is unreliable
* Use overhead irrigation before flowering
* Control pests such as aphids using appropriate chemicals
* Control American bollworm and bean fly using appropriate pesticides
* Control bean anthracnose and bacterial halo blight diseases using appropriate chemical
* Top dressing should be done after weeding using CAN or foliar feeds

**(b)METHODS AND PROCEDURE OF HARVESTING SUGARCANE (4MKS)**

-Harvest when mature for plant crop 18-20months and at the coast 14months

-Ratoon crop 16months and at the coast 12 months

-Harvest at the right stage when sugar content is highest/harvest after taking cane to the factory for quality testing

-Cane is cut at ground level to ensure high yield and props establishment of the ratoon crop

-strip the leaves using a cane matchet

-Cut off green tops to avoid growth auxins flowing backwards this lowers the quality of sugar

-Use sterilized equipment/cane harvesting matchet

-Deliver the to the factory within 24hours