**FORM TWO**

**AGRICULTURE MARKING SCHEME**

**MWACKAN 2016**

**END OF TERM 1**

**AGRICULTURE FORM 2 MARKING SCHEME**

**MWACKAN 2016**

**SECTION A=30KS**

1. **Meaning of**
2. Entomology-It is the study of insect and their control. *1mk*
3. Floriculture- Growing of flowers, such as tuberose, roses & carnations *1mk*
4. **Four symptoms of potassium deficiency in plants**
* Leaf curling
* Leaf surface lose chlorophyll and become yellowish, that is they become chlorotic.
* Premature leaf fall
* Stunted growth
* The edge of leaves are scorched while the central parts remain green *4× ½ =2mks*
1. **Disadvantages of shifting cultivation**

*-* The total yield per unit area is low.

- A lot of time is wasted when the farmer shifting and building structures.

- Farmers have no incentives to develop land and conserve water and soil.

- Not applicable in area of high population density or where there is a high population increase 4*× ½ =2mks*

1. **Agroforestry**
* Involves growing trees and crops and keeping animals on the same place of land *1mks*
1. **Factors influencing formation of the soil. 4× ½ mks**
* Climate
* Parent rock material
* Topography
* Time *2mks*
1. **Three aspects of light that affect crop production.**
* Light intensity
* Light duration
* Light waves length *3× ½ =1 ½ mks*
1. **Two forms in which Nitrogen can be absorbed by plant**

Nitrate ions (NO3- ) *½ mk*

Ammonium ions (NH4+ ) *½ mk*

1. **Disadvantages of row planting**
* It does not provide an ample foliage cover. Thus the soil is liable to being eroded by wind and water.
* It requires some skills in measuring the distance between and within the rows.
* It is more expensive than broadcasting because of consuming a lot of labour and time *3× ½=1 ½ mkrs*
1. **Characteristic of Romney Marsh**

-Black hooves

-Rams weigh 102-113 kg

-Produce wool of medium length that weighs 3.6-4.1 kg

-Wide chest with a straight back and short legs

-Wide head and poll that is well covered with wool. *4× ½ =2mks*

1. **Functions of**

Robbot plane- used for cutting grooves *1mk*

Strip cup- Checking mastitis 1mks

Trocar and Canular- Removal of gases which cause bloat in ruminant. *1mk*

1. **Instances where opportunity cost is zero**
* When goods are given freely
* When money is not a limiting factor
* When there is no alternative. *2× ½ =1mk*
1. **Importance of primary cultivation**
* To remove weeds
* To bury organic matter for easy decomposition
* To facilitate water infiltration and aeration
* To destroy soil-borne pest by exposing them to predators and sun
* To make planting easy

*4× ½ =2mks*

1. **Light breed of poultry**
* Leghorns
* Ancona
* Minorca
* Sykes 3*× ½ =1 ½ mks*
1. **Reasons for avoiding burning during land clearing**
* Kills useful soil micro-organism
* Plant nutrients are destroyed
* A lot of organic matters are destroyed
* Fire can extend to homestead/ unintended areas 4*× ½ =2mks*
1. **Surface irrigation**
* Flood irrigation
* Basin irrigation
* Furrow irrigation 3*× ½= 1 ½ mks*
1. **Differences between a seedling bed and a nursery bed.**

A nursery bed is a special seedbed prepared for raising seedlings before transplanting while a seedling bed is a special type of a nursery bed used for raising seedlings which have been removed from the nursery bed due to overcrowding before they are ready for transplanting *1mk*

1. **Reason for the following operations**
2. **Earthing up**
* Improves tuber formation in irish potatoes
* Improves seed production in groundnuts
* Providing support in maize
* In tobacco it improves drainage around the plant
1. **Leveling**
* It makes the soil surface flat and uniform so as to promote easy germination of small crops such as wheat.
* Facilitate uniform germination of seeds
1. **Rolling**

Used to compact the soil which is loose or fine tilth. *3×1=3mks*

**SECTION B 30MKS**

1. **(a) Identity of soil sampling methods drawn.**
2. Traverse method *1mk*
3. Zigzag method *1mk*

**(b) Procedure followed in soil sampling**

Vegetation from the sampling spot is cleared and a vertical cut made to a depth of 15-25cm for crop land and for pasture.

* A slice is taken from the vertical cut, using a spade or preferably a soil auger.
* The soil is put in a clean polythene bay or any suitable container.
* The above steps are repeated in different parts of the field, preferably 15-20 spots depending on the sampling method being used.
* Soil from all the spots are thoroughly mixed, dried and crushed.
* A sub-sample from the mixture is taken and sent to the laboratory for testing

 *6× ½ =3mks*

1. **Information contained in a composite sample**
* Name and address of the farmer
* Field number
* Dates of sampling *3×1=3mks*
1. **(a)Property of soil being investigated**
* Soil capacity *1mk*

**(b)Relationship of soil property named above and size of the soil**

- The smaller the size of the particles the greater the forces of capillary *1mk*

**(c) Suitable sample for growing paddy rice.**

-Soil L *1mk*

1. **(a)Method of fertilizer application**
* Band/Ring placement *1×1=1mks*

**(b)Other methods of fertilizer application**

-Drip

-Foliar spraying

-Broadcasting

-Side-dressing *4×1mks=4mks*

1. **(a)What is soil drainage**

It is a method of removing excess water or lowering the water table from a marshy

waterlogged land. *1×1=1mks*

**(b)Importance of drainage**

* To increase soil aeration
* To increase soil volume
* To raise soil temperature
* To increase microbial activities
* To reduce soil erosion
* To remove toxic substances *4×1=4mks*
1. **Methods of drainage**
* Use of open ditches
* Use of underground drain pipes
* Use of French drains
* Use of cambered beds
* Planting of trees such as Eucalyptus *4×1=4mks*
1. **(a) Irrigation method**
* Drip Irrigation 1mks
1. **Advantages of the above method .**
* Little amount of water is required as compared to other types irrigation
* Water under low pressure can be used so long as it can flow along the pipes.
* It discourages fungal disease such as blight, CBD and others as it does not wet the leaves of the crop.
* It does not encourage the growth of weeds between the rows *4×1=4mks*

**SECTION C 40 MKS**

1. **(a) Factors determining spacing of crops**
* **Type of machinery to be used.**
* Between rows, the spacing should allow free passage of the machinery which can be used in the field.
* **Soil Fertility**
* Closer spacing is possible in a fertile soil since it can support high population
* **Size of the plant**
* Short variety require closer spacing while tall crop varieties require wider spacing.
* **Moisture availability**
* Areas with high rainfall are capable of supporting a large number of plants hence closer spacing than areas of low rainfall.
* **Use of the crop**
* Crops grown for the supply of forage or silage materials is planted at a closer spacing than for grain production.
* **Pest and Disease Control**
* Properly spaced crops makes it difficult for pest to move from one place to another e.g. aphids in ground nuts
* **Growth habit of the crop**
* Spreading and tillering crop varieties require wider spacing than erect type. *7×2=14mks*

**(b) Factors considered when selecting a nursery site**

* Nearness to the water source for easy watering
* Soil type- it should be well drained, deep and fertile preferably sandy soil.
* Topography – Should be sited on a gentles slope to prevent flooding and erosion through run off.
* Previous cropping – should not be in an area where crop of the same species had been planted to avoid build- up of pest and diseases.
* Security – should be well protected from theft and destruction of animals and birds.
* Well sheltered place- windbreaks are necessary to prevent strong winds which can uproot the seedlings and cause excessive evapotranspiration *6×1=6mks*
1. **State and explain various practices carried out in the nursery while seedlings are growing.**
* Mulching

Light mulch should be applied on the nursery after establishment and be removed on the fourth day or as soon as the seedlings start to emerge.

* Watering

Nursery bed should be watered regularly preferably in the morning and evening.

* Weeds Control

Weeds are removed through uprooting

* Pricking out

Overcrowded seedlings should be removed and planted in a seedling bed.

* Shading

A shade should be erected over the nursery bed but dark conditions should be avoided as they cause the seedlings to become etiolated and pale.

* Pest and disease control

Pest and disease should be controlled by use of appropriate chemicals right from nursery establishment.

* Hardening off- Practice of preparing seedling to adopt to the ecological conditions in the seedbed which involves gradual reduction of shades and watering 1-2 weeks before transplanting 7*×2= 14mks*

**(b) Roles of agriculture to our economy**

* Sources of raw materials for industries.

Agriculture produce raw materials used to process finished goods in industries e.g. Tea factories.

* Provision of market for industrial goods.

Farmers buy final industrial products such as jembes, fertilizers etc thus providing market for final products of industries.

* Source of money (capital)

Farmers sells agricultural products, thus earning money for purchasing farm requirements such as pesticides, capital goods such as jembes etc.

* Sources of employment

About 80% of Kenyan people are employed in agriculture related sectors.

* Source of food e.g. maize, beans etc.
* Sources of foreign exchange

Kenya as a country export most of the agricultural products such as tea, coffee etc thus earning foreign income *6×1=6mks*