**FORM THREE AGRICULTURE MARKING SCHEME**

**END OF TERM - 2- 2021 EXAMINATION**

**SECTION A: 40MKS)**

1. **Olericulture.** Is growing of vegetables.(1x1=1`mk)
2. **-Farm tools:** jembes , pangas

* **Agrochemicals eg:** fertilizers, insecticides,pesticides.
* **Power eg:** electricity, geothermal solarPanels
* **Animal feed eg:** dairy meal
* **Equipment eg:** knapsack sprayers (3x1=3mks)

1. **Farming practices that help to achieve minimum tillage**

* Use of herbicides
* Mulching
* Cover cropping
* Uprooting and slashing weeds. (3x1=3mks)

1. **Biotic factors that influence agriculture negatively.**

* Pests
* Parasites
* Pathogens
* Predators. (4x1/2=2mks)

1. **Characteristics of sub soil layer.**

* It is more compact
* Less aerated than top soil
* May have hardpans
* Minerals leached from the topsoil accumulate here.

3x1=3mks)

1. i) sow – A mature female pig after first parturition/farrowing.

ii) Piglet –A young pig from birth to weaning

2x1=2mks

1. **Factors that determine the depth of ploughing**

* **Type of soil**
* Implements available
* Type of crop to be planted/ size of seeds.

3x1=3mks

1. **Features of the gizzard that makes them efficient in their function.**

* Have strong muscles for grinding and crushing food.

Have grit/ sand for grinding and crushing food. 2x1=2mks)

1. **Straight fertilizer-**

* This is a fertilizer that contains only one of the primary macronutrients.

**Compound fertilizer**

* This is a fertilizer that contains two or three primary macronutrients. 2x1=2mks

1. **Methods for detecting mineral deficiency in crops.**

* Leafchloris / yellowing of leaves
* Stunted growth
* Premature shedding of leaves
* Delayed maturity. (2x1=2mks

1. **Disadvantages of broadcasting method of planting.**

* Seeds are unevenly spread leading to crowding of plants.
* Higher seed rates are used.
* Difficult to carry out management practices like weeding.
* Difficult to establish correct plant population.(4x 1/2mks)

1. **Reasons for carrying out.**

i) **Pricking out.**

- To avoid overcrowding.

-To establish the correct plant population 1x1=1mk

ii) **Hardening off**

* To adapt seedlings to the prevailing ecological conditions in the seedbed.1x1=1mk

1. **Reasons for flushing ewes**

* Increases conception rate due to high ovulation rate
* Facilitates implantation of zygote
* Increases lambing percentage and chances of multiple birth.3x1= 3mks

1. Reasons for pruning in coffee production.

* To regulate bearing
* To remove old and unproductive branches.
* To make harvesting easy by regulating the height of trees.
* For economic use of chemicals
* To allow proper penetration of chemicals.

(4x1/2mks=2mks

1. Reasons why tilapia fish is preferred for rearing in ponds.

* Has a fast growth rate.
* Reproduces / multiplies fast.
* Feeds on kitchen waste and crop residues
* Does not have many parasites.

2x1=2mks)

1. Roles of worker bees

* Seal cracks and crevices in the hive.
* Make honey combs
* Clean hive
* Makes honey and bees wax
* Protection of the colony.

4x1/2 2mks

1. a) Tomatoes , some bean varieties , Garden peas 1x1/2mk-1/2MKS

b) Passion fruits, grapes, thorn melon 1/2x 1 = 1/2mk

1. Ways of harvesting water I the farm

* Rock catchment
* Roof catchment
* Use of ponds
* Use of retention ditches
* Use of dams /wiers.

4x1/2mks

1. Selection is the process of allowing certain animals to be parents of the future generations while culling the others. 1x1=1mk **SECTION B (20MKS)**
2. a) G – Play soil

F – Granular soil structure 2x1=2mks

b) X – Airsace

Y- Humus with clay 2x1=2mks

c)- influences soil aeration

- Influences water holding capacity

- Influence drainage of the soil 3x1=3mks

1. a) Chitting 1x1=1mk

b) Set B 1x1=1mk

c) It has sprouted 1x1=1mk

1. a) A– i) Contains copper sulphate solution for controlling foot rot disease

ii) Washes the foot of animals to remove mud.

B- Contains dip wash where animals are immersed.

C – Allows excess dipwash to return to the dip tank.3x1=3mks

b) – Dilution by rainwater

- Evaporation 2x1=2mks

1. a) J- Double thorn ( Oxygonium sinuatum)

K – Thorn apple ( Datura stramonium) 2x1=2mks

b) Annual weed 1x1=1mk

c) It is poisonous if eaten by livestock.1x1=1mk

d) – 10-15cm high

2- 4 weeks after emergence of crops 1x1=1mk

**SECTION C (40MKS)**

1. a) Physical or structural methods of controlling soil erosion.
2. Store lines – rows of stones heeped along the contours reduces speed of the surface run – off.
3. Trash lines – Row of heaped trash along the contours reduce speed of running water thus controlling soil erosion.
4. Bunds – They reduce the speed of the run – off.
5. Gabions – They control gulley erosion
6. Cut-off drains / Diversion ditches – these are deep water channels that drain excess water to a waterway eg in a rocky field.
7. Ridging – educes speed of the run –off and improve water infiltration.
8. Terraces – Embankments constructed along the contours slow down the speed of the run-off.
9. Check dams – reduces speed of surface run-off. **8x1=8mks**

b) Effects of land fragmentation.

* Difficult to control weeds, pests and diseases
* Difficult to supervise the fragmented parcels of land.
* Difficult to carry out a sound farm plan.
* Difficult to carry out soil conservation measures.
* Difficult to provide agricultural extension services.
* Associated with low agricultural activity.
* A lot of time is wasted while travelling from one parcel of land to the nex or from the homestead to the parcels of land.(6x1=6mks)

c) i) Soil texture is the relative proportions of different sizes of particles in soil while soil structure is the general appearance of soil in relation to the arrangement of soil particles.(2x1=2mks)

ii) Benefits of a good soil structure in crop production.

* It is well aerated to ensure proper growth of crops.
* It ensures a good balance between soil air and water needed for crop growth.
* Ensures good water retention in the soil needed for crop growth.
* Ensures proper drainage of soil.

4x1=4mks

1. i) Ecological requirements

* Cabbages requires high altitude
* Medium amount of rainfall, well distributed during the growth period.
* Well drained deep fertile soil.
* Soil PH of 6.5
* Cool temperature

4x1=4mks

ii) Land preparation.

* Prepare the land early or during the dry season
* Clear the land
* Dig the land deeply to remove all perennial weeds
* Harrow the land or carry out secondary cultivation to obtain medium tilth.

3x1=3mks)

iii) Transplanting.

* Water the nursery 2-3 hours before transplanting
* Dig planting holes at an appropriate depth ( 15cm deep)
* Dig planting holes at a spacing of 60cm x 60cm.
* Put a handful of well rotten organic manure in each planting hole.
* Add a teaspoonful of DSP fertilizer mix thoroughly with the soil.
* Uproot seedlings with a ball or lump of soil around the roots.
* Uproot strong and healthy seedlings usinga garden trowel.
* Transplant seedlings at the same depth as they were in the nursery.

6x1=6mks

iv) Disease and pest control

* Control damping off disease through

a) Use of appropriate fungicides.

b) Thinning seedlings to reduce overcrowding.

c) Reduce rate of watering

* Control black rot disease through.

a) Crop rotation

b) Good farm hygiene

* Control pests using appropriate pesticides

4x1=4mks

b) - Level of production

* Ambient temperature
* Type of food eaten by animal
* Species of the animal.
* Size or body weight of an animal 3x1=3mks

1. a) Select a high grade pure breed bull, and a well managed low grade heifer, mate them to produce a heifer with half of the sire,s genes, mate the heifer with a sire of the same pure breed as original sire; subsequent heifers should be mated with sires of the same pure breed as original sire, upto the sixth cross/ generation; to produce a hygrade heifer with over 98% genes of the pure breed high grade bull; 6x1= 6mks

Or

High grade bull low grade heifer

F1 A AB 50% : 50%

F2 A AAB 75% : 25%

F3 A AAAB 87.5%: 12.5%

F4 A AAAAB 93.75% 6.25%

F5 A AAAAAB 96.8755:3.125%

AAAAAAB 98.4375%: 1.5625%

6X1=6mks

b) Effects of crop pests.

* Reduces the market value of farm produce.
* Lowers the quality of farm produce.
* Lowers the quality of farm produce.
* Their control increase cost of production
* Some transmit crop diseases.
* Some suck plant sap causing retarded growth.

5x1=5mks

c) Importance of keeping livestock healthy.

1. Healthy animals produce high quality products that fetch high market prices.
2. Healthy animals have a longer productive lifespan
3. Healthy animals grow faster and mature quickly.
4. Healthy animals breed regularly due to high fertility.
5. Healthy animals are cheaper to keep due to low expenses on treatment.
6. Healthy animals produce and maintain high yields.

5x1=5mks

d) Effects of high temperature in crop production.

* Improves quality of some crops eg pineapples
* Lowers quality of some crops eg. Tea
* Increases diseases in certain crops eg. Coffee leaf root
* Increases growth rate up to optimum level for early maturing crops.

4x1=4mks