**Term 2 - 2022**

**AGRICULTURE (443/1)**

**PAPER 1**

**FORM FOUR (4)**

**Time: 2 Hours**

**MARKING SCHEME**

**SECTION A (30 MRKS)**

1. Difference between olericulture and pomoculture

- Olericulture –Growing of flowers

- Pomoculture –growing of fruits

2Physical weathering agent

* Wind
* Water
* Temperature changes (1 ½ mrks)
* Moving ice /glacieir

3 Methods of farming

-mixed farming

-Nomadic pastoralism

-shifting farming

-Organic farming

-agro-forestry

4. Variable and fixed cost in broiler production

a)Variable cost

cost of the feed

cost of drug

b)Fixed cost

-cost of feeders and waterers

--Cost of structure/Depreciation of poultry house

 - Cost of chicks

5. Advantages of crop rotation (2mrks)

-Improve soil structure

-Control soil borne pest and diseases

-Ensure maximum utilization of farm labour (2mrks)

-Aids in weed control

-Improve soil erosion

-Security in case of failure on one crop

-Add nitrogen through N-fixation by Rhizobium bacterial when legume are included

6. Factors considered when classifying crop pests

-crop attacked /mode of felling

-whether field /storage pest/stage of attack (2mrks)

-Crop part attacked

-science classification e.g. insect mite, rodent

7. Reasons why water logged oil is unsuitable for most crops ( 1 ½ marks)

-It is not aerated (as water expels air)

-It lacks micro-organism

-It is always acidic

-Low temperature

8. Advantage of tissue culture (2mrks)

-Used to establish pathogen free plant

-Used in mass production of propagules

-It is fast and require less space than use of cutting

- Used to propagate plants that don’t produce seeds

9. Observable indicators of economic development of a nation (2mrks)

-Development of infrastructure

-Housing status of the citizen

-Increase in recreation facilities

-Ratio of teachers to students

-Improvement in the level of technology

-Number of patients per doctor

(more illustration )

10 Three indictors of well decomposed manure (1 ½ mrk)

-Absence of bad odour

-Material are light in weight

-Manure is blown in colour

11.Condition where opportunity cost does not exist (2mrks)

-where there are no alternatives

-If anything is given for free

12 Management practices that promote high herbage yield in pasture production (2mrks)

-Top dressing

-Reseeding

-Topping

-Pest control

-controlled grazing

13.Reasons why primary cultivation should be done early before the onset of the rains. (1 ½ marks)

-Give time for the soil organism to act on organic mater

-Allow gaseous exchange to take place thus carbon dioxide diffuses out of the soil .

-Allows other operations to take place in time .

14 Two examples of farm records that are general in nature (1mrk)

-Production records

-inventory

-field operation records

-Breeding records

-Feeding records

-Heath record

-Marketing record

-Labour record

15. Roles of nitrogen in plants (2mrks)

-vegetative growth

-Chlorophyll formation

-Build up of protoplasm

-Improves leaf quantity in leaf crops such as tea and cabbage

16. Benefits of possessing a land title deed to farmer .(2mrks)

-Can be used as security for credit

- Encourage long term investments

-Reduce land disputes

-Motivates the farmer to conserve soil and water

**SECTION B (20 MRKS**)

Answer all the question in this section in the space provided.

17The diagram below illustrates a feature observed after digging the soil several metres Study it carefully and answer the questions that follow.

a) Soil profile(1mrk)

b) Transitional zone (1mrk)

c) Because sometimes minerals are leached from the soil and accumulate in the layer b (1mrk)

d) Ways in which the knowledge of the above feature would be of benefit to a farmer(2mrks)

-Decides what crop to grow

-How best to cultivate the land

18a) Tissue culture

b) Banana & passion fruits

c) Three ingredients used when preparing tissue culture

-Sugar (1 ½ mrks)

-inorganic minerals

-Vitamins

19a)Profit and loss account for Mr Juma ‘s farm for the year ended on 31st March 2015√

|  |  |  |  |
| --- | --- | --- | --- |
| Purchase and expense ℓ |  | Sales and receipts ℓ |  |
|  | ksh |  | Ksh ℓ |
| Opening valuation  |  100,000 | Sales of milk  |  13,000 |
| Calves |  72,000 | Sales of cereals  |  33,000 |
| Hired labour  |  21,000 | Sales of vegetable |  9,300 |
| Rent  |  9,000 | Sales of poultry  |  1,800 √ ℓ |
| Feed  |  5,300 √ℓ |  |  |
| Seed |  1,700 | Sales of fruits  |  700 |
| Fertilizer |  4,700 |  |  |
| Pesticides |  1,250 | Closing valuation |  90,000 |
| Depreciation  |  650 |  |  |
| Repair and maintenances |  950 |  |  |
| Interest on loans  |  200 |  |  |
| Total  |  216,750 ℓ | Total |  147,800 |
|  |  | B/F/loss |  68950 |
|  |  | Total |  216,750 |

 NB √ℓ = 1 ½ marks (entries) = 3

 ℓ = ½ x 8 = = 4

b)loss ( ½ mark) 7 marks

20a)Maize stalk borer(1/2 mark)

B-)millet(1/2mrk)

-Sorghum

-sugarcane

c) crop rotation (3mrks)

-early planting

- Rogueing

-clean seedbed

-planting clean seeds

-trap cropping

-proper nutrition

-proper spacing

 -timely planting

SECTION C (40 MRKS)

Answer any two questions in this section in the spaces provided ( 6 marks)

21a) Six advantages of rotational grazing (6mrks)

* The livestock make maximum efficient use of pasture.
* -it reduces the buildup of pest and diseases.
* -animals waste is distributed evenly in all paddock or field
* Excess pasture can be harvested and conserved
* It is possible to apply fertilizers and control weeds , pest and diseases in the pasture that are not in use
* It allows a resting period for the pasture to regenerate before been grazed on again (6mrks)

b) Eighty ways in which soil fertility can be maintained. (8mrk)

-adding manure to the soil to enrich it with nutrients.

-using inorganic fertilizers which releases nutrients in forms that are readily available to plants.

-practicing crop rotational to ensure balanced nutrients use.

-using appropriate tillage, for instance minimum tillage.

-regulating soil ph though liming

-controlling soil erosion

-practicing a forestation and reforestation

-By irrigation which increases availability and uptake of plant nutrients and reclaims saline soil

-through mulching

-By weeding to reduce competition for nutrients.

-By practicing inter cropping preferably with legume to enhance nitrogen fixation.

c) Six factors considered when drawing a farm plan. (6mrks)

-size of the land

-environment factors

-the current trend in labour market

-farmers objectives and preference

-possible production enterprises

-existing market condition and price trends

-availability and cost of farm inputs

-government regulation /policy

-security

-communication and transport facilities (6mrks)

22a) Factors that influences the type of irrigation to be used in a farm (8mrks)

-topography

-Soil type

-type of crop to be irrigated

-amount of water available

-distance of the source of water to the field

-capital available, skill available

-climate factors of the area

b) Six reasons for pruning coffee (6mrks)

-To train the plant so that it can have the required shape

-To remove the diseased and the unwanted parts of a plant such as extra suckers ,leaves ,branches ,flowers or even stems

-To control cropping

-To facilitate picking to ease penetration of the s pray

-To control pest and diseases.

c) 6 ways in which lab our productivity can be improved on a farm (6mrks)

-Training the lab our force

-Efficiency supervision of lab our

-Mechanizing farm operation or providing more efficiencies tool and equipment.

-Giving incentive such as proper housing, transport, bonuses and medical services.

-Proper regulation of the workers

-assigning task to workers according to their skills, ability and interest.

23 Importance of agro forestry in soil and water conservation (6mrks)

-Improve soil fertility though nitrogen fixation

-add organic matter to the soil which increases water infiltration

-Acts as wind break preventing wind erosion

-Provide shade to crop reducing evapotraspiration

-Trees intercept the rain drop reducing erosion rate

-Tree roots hold soil particle preventing their movement

b) Procedure of silage making

-Prepare silo before harvesting the crops

-Harvest crop at appropriate size

-Wilt the crop for 6-12hours

-fill the silo with crop compacting every 10-12 layer

-Check the temperature regularly to ensure correct ensiling temperature

-Cover the ensiled material with polythene paper

-Cover the silo with thick layer of the soil to maintain a ridge/hump to prevent rain water entering the silo

-Dig a trench all around the silo to drain water away to rain water /seepage.

c) Effects of over application of nitrogenous fertilizer

-Occurrence of blossom and rot diseases

-Delayed maturity of plants

-Fruits crack when young .

-Grow more vegetative parts and produces less fruits

-Scorching effective on leaves