AGRICULTURE 443/1

MARKING SCHEME

1. ***Difference between olericulture and pomoculture 1mark***

* Olericulture –Growing of flowers
* Pomoculture –growing of fruits

***2 .Methods of farming 1mark***

* mixed farming
* Nomadic pastoralism
* shifting farming
* Organic farming
* Agro-forestry

***3. Variable and fixed cost in broiler production 2marks***

***a) Variable***

* cost of the feed
* cost of drug
* cost of chick

***b) Fixed***

* cost of feeders and waterers
* Cost of structure/Depreciation of poultry house

***4. Advantages of crop rotation 2marks***

* Improve soil structure
* Control pest and diseases
* Maximum utilization of nutrient
* Aids in weed control
* Control soil erosion
* Add nitrogen through N-fixation by Rhizobium bacterial when legume are included

***5. Factor to consider when choosing seed rate ( 4x½ =2marks)***

* Seed purity
* Germination percentage
* Spacing
* Number of seeds per hole
* The purpose of the crop

***6a) Reasons for using certified seed for planting 4x½ =2marks***

* For increased crop yields
* Higher resistance to diseases
* Good adaptation to recommended ecological zones
* Reduced spread of pests and diseases

b***) Disadvantages of using non capped multiple stem pruning 4x½ =2marks***

* Rotting of stump with age
* Difficult in spraying the tall bushes
* Difficult in gathering the berries from top
* Breaking of stem and branches

1. ***Reasons for planting cassava as last crop 2x½ =1marks*** 
   * Less feeder
   * Require little cultivation after establishment
2. ***Importance of farm record*** ***4x½ =2marks*** 
   * Show history of the farm
   * Compare performance in farm enterprises
   * Help in insurance claims
   * Show profit or loss in a farm
   * Help in planning and budgeting
   * Show farm assets and liabilities/ value for the farm

***9. Aspect of light that affect crop production ( 2 x ½ =1 mark)***

* Light intensity
* Light duration
* Light wavelength

***10a)-Biotechnology used to clone vegetatively propagated plants 1mark***

***b) Importance of tissue culture in crop production ( 2x½= 1marks)***

* Propagate pathogen free plants
* Mass production of propagules
* Fast and requires less space

11.a) ***Information on title deed apart from identity, no and size of land***

***1mk each for any 3 points 3marks***

* Location/plot number
* Serial no
* The seal
* Signature of issuing officer
* Date of issue
* Type of ownership i.e. leasehold, absolute or free hold
* Conditions of ownership if any

***b)Importance of land title deed (2marks)***

* It is a proof of ownership
* Reduce land ownership disputes
* Can be a security in acquisition of loan
* It is an incentive for investment by the farmer on long-term project
* The owner can courageously lease out whole or part of his land for income

***12.*** ***List four methods of fertilizer application. (2marks)***

* Hole placement
* Broad casting
* Side dressing or banding
* Foliar application
* Top dressing
* Drip method

***13. State four advantages of growing maize in a row instead of broadcasting. (2marks)***

* Easy to establish plant population
* Allow easy use of machines
* Gives economical use of seeds i.e. Lower seed rate
* Undertaking of management practices
* Ensures uniformity of growth

***14. Name four factors that determine the choice of a nursery site. (2marks)***

* Topography
* Nearness to a reliable water source
* Type of crop previously planted
* Security
* Well sheltered place
* Type of soil
* Nearness to the final field

***15. Name two post-harvest practices in beans. (1marks)***

* Drying
* Threshing
* Winnowing
* Dusting with suitable pesticides
* Sorting out.
* Packaging

***16. Give four reasons why burning is discouraged as a method of land clearing. (2marks)***

* Leads to destruction of organic matter or humus
* Useful soil organisms may be killed.
* Exposes the soil to agents of erosion
* Release of potash raises the soil PH
* Soil moisture is lost
* Mineral salts may be lost through volatilization

**SECTION 20 MARKS**

17. ***filling average product and marginal product 4marks***

|  |  |  |
| --- | --- | --- |
| **Variable input fertilizers** | **Average product(maize in 90kg bag** | **Marginal product m.p in 90kg bags** |
| 0 | 0 | 2 |
| 1 | 5 | 3 |
| 2 | 7 | 9 |
| 3 | 7 | 7 |
| 4 | 6.5 | 5 |

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***18. (a) Identify structure 1mark***

* Nursery bed

***(b)*** ***Reasons for***

***Pricking out 1mark***

* To avoid overcrowding of the seedlings /allow seedling to grow strong and healthy

***Hardening off***  ***1mark***

* To prepare seedlings to the ecological conditions in the main field/ reduce transplanting shock.

***(c) Importance of part labelled A 2marks***

* To reduce the amount of water loss through vaporization/ evaporation / transpiration.
* To modify nursery temperature.
* To reduce the impact of rain drops / hailstones there by minimizing damage on the seedlings.
* Reduce splash erosion.

***19.Name layers b,c and d 3marks***

(i) b- Water with fine clay particles and dissolved mineral salts.

c- Sand

d- Gravel

***(ii)Function of sodium carbonate 1 mark***

* It aids in the dispersion of the soil particles.

***(iii) Aim of experiment 1 mark***

* To show that soil is made up of different sized particles

***20. Crop production practice***

a) -Trellising  ***1 mark***

***b) Material used as part B 2x1=2 marks***

- Wires

- Twine/ sisal strings

***c)Three reasons for practice 3marks***

- Easy to carry out crop management practices/ weeding, spraying

- Effective spray application

- crop receives adequate light/ suitable micro-climate

- Avoid contamination of fruits by soil

***SECTION C 40 MARKS***

***21.Marketing functions: 10marks***

* Buying and assembling
* Transporting and distribution
* Storage
* Packing
* Processing
* Grading and standardization
* Packaging
* Collecting market information
* Selling
* Financing
* Bearing risks

***b). problems of marketing Agriculture products 10marks***

- Perishability

* Seasonality
* Bulkiness
* Poor storage facilities
* Poor transport system
* Changes in market demand
* Limited elasticity of demand
* Lack of market information

***NB stating 1 mk Explanation 1 mark***

*22a)****Ecological Requirements 4marks***

* rainfall – 760mm – 1300mm p.a, well distributed
* Low rainfall requires surface irrigation to be done
* Altitude – 0-2100m a.s.l
* Temperature - 18°c - 29°c
* Soil- deep well drained fertile soils
* Soil pH = 6.0- 6.5

***ANY FIGURE WITHIN GIVEN RANGE***

***b.Nursery establishment 4marks***

* Clear the vegetation
* Dig deeply to achieve a fine tilth
* Raise the soil slightly above the ground
* Make drills and sow the seeds
* Cover the seeds with a thin layer of the soil
* Mulch and water

***c.Transplanting 4marks***

* Done early in the morning or late in the evening
* Dig holes 15cm deep
* Spacing 90cm x 60cm or 100cm x 50cm
* Put a handful of manure or a teaspoonful of D.S.P fertilizer per hole
* Mix them well with the soil
* Water nursery bed two hours before transplanting.
* Transplant healthy and vigorously growing seedlings.
* Use a garden trowel to lift seedling with a lump of soil.
* Place each seedling in the hole at same depth as it was in nursery bed.
* Cover and firm the soil around it
* Mulch and shade it
* Water

***d.Preparation of main seedbed 4marks***

* Done early during dry season
* Plough deeply
* Remove all weeds
* Harrow the land to medium tilth

***c.Field management practices 4marks***

* Top dress with C.A.N two times at 25cm height (100kg/ ha) and during fruiting (200kg/ ha)
* Field should be weed free
* Irrigation recommended where rainfall is inadequate
* Staking
* Prunning
* Mulching
* Pest control and Disease control

***23 a) Factors that encourage soil erosion. Any 8x1=8marks***

* Lack of ground cover exposes soil to agents of soil erosion/ removal of cover crops.
* Steep slopes increase the speed of surface run-off hence erosive power of water.
* Light/ sandy soils are easily carried away by agents of soil erosion.
* Shallow soils are easily saturated with water and carried away.
* Frequent cultivation / over cultivation pulverizes the soil making it easy to detach and be carried away.
* Overstocking leads to overgrazing which destroys ground cover exposing it to agents of erosion.
* High amount of rainfall increases saturation of soil with water thus increasing soil erosion.
* Cultivation of the river banks destroys river line vegetation exposing it to soil erosion agents.
* Ploughing up and down the slopes creates water channels which encourage soil erosion.
* High rainfall intensity increases impact of raindrop thus encouraging raindrop erosion.
* Burning of vegetation leaves land bare exposing it to erosion agents.
* Cultivating soil when too dry or too wet destroys soil structure making soil easily eroded.

***b) Nursery bed management practices. Any 7x1=7marks***

* Mulching to conserve moisture
* Erection of a shade to minimize evapotranspiration.
* Weed control to reduce competition with seedlings.
* Pests and disease control to ensure healthy seedlings
* Pricking out to minimise competition.
* Watering to ensure adequate moisture supply.
* Hardening off/ removing shade/ reducing watering to acclimitise the seedlings to conditions in the field.

***c) Harvesting of sugarcane 5x1=5marks***

* Sugarcane mature 18-20 months whereas ration take 16mths in western. In coast it takes 14months and ratoon crop take 12months.
* Samples should be taken for quality testing in the factory.
* If the quality is ok harvesting should start immediately.
* Cut the cane at the ground level to avoid loss of the yield.
* After cutting cane the green tops are removed immediately.
* The leaves should be stripped.
* Harvesting is done using a cane harvesting matchettes.
* Harvested cane should be delivered to the factory within the first 24hrs.