AGRICULTURE PAPER 1, MARKING SCHEME

Section A (30 marks) Answer all questions in this section.

1. Flowers for fresh market export

* Roses
* Tuberose
* Carnations

1. Communication channels for farmers

* Postal services
* Radios
* T.V
* Emails
* Print media

1. Effects of burning on soil fertility

* Destroys organic matter
* Kills soil micro organism
* Destroys soil structure

1. a) Definition of minimum tillage

* is the application of a combination of farming practices aimed at least disturbance of soil

b) Farming practices involved in minimum tillage

* use of herbicides
* use of mulch
* timing cultivation
* establishing cover crops on the field
* uprooting/slashing weeds in perennial crops
* restriction of cultivation to areas where seeds are to be planted

5 a) Types of individual land tenure system

* individual owner operator
* concession/company
* landlordism and tenancy

b) Co-operative land tenure system –

* land is owned by a group of people on cooperative basis by forming a cooperative society and registered under a cooperative name.

6. a) Give two differences between a dam and a weir. (1 mark)

|  |  |
| --- | --- |
| dam | weir |
| has a slip way | No spill way |
| has a reservoir/stores water | Raise level of water /excess flow |

b) List two surface water sources for farming. (1 mark)

* streams
* rivers
* ponds
* dams/weirs

7. State four ways in which treating water makes the water fit for use on farm. (2 marks)

* It kills disease causing micro-organisms
* It removes chemical/impurities
* Remove sediments
* It removes smell and bad taste
* It softens hard water

8. a) Define leaching. (1/2 mk)

* Leaching is the movement of soluble minerals form top soil to lowermost horizons where plants roots cannot reach

b) Give three benefits of deep soil to a crop. (1 ½ mks)

* Supply more nutrients than shallow soils
* Contain more moisture than shallow
* Resist much erosion by absorbing much water

9. Give three benefits of spacing maize plants widely. (1 ½ mks)

* To allow room for farm mechanization
* To prevent spread of diseases
* To prevent spread of pets

10. State four reasons for conserving forage. (2 marks)

- To distribute avaialble forage for stock throughout the year

- To provide feed for dry season

- To ensure better and full utilization of available land

- Some/extra can be sold e.g. baled hay

11. State two ways in which pruning tomatoes helps to control diseases in this crop. (1 mark)

- Ease penetration of spray

- Discourages breeding and spreading of pests and diseases

- Removes diseased and unwanted parts of a plant

12. Explain each of the following:

a) Slopy land requires little number of cultivations. (1/2 mk)

- Sloppy land with fine seedbed could encourage soil erosion

b) A field with rhizomatous weeds requires deep cultivation. (1/2 mk)

- To get rid of extensive rooting system of rhizomatous weeds

c) Irish potatoes are raised on ridges, rather than on leveled land (1/2 mk)

- Encourage tuber expansion

- Easy harvesting of root crops

13. State four reasons for carrying out primary tillage. (2 marks)

- To remove weeds

- To make planting easy

- To facilitate water infiltration and aeration

- To bury organic matter for easy decomposition

- To destroy soil borne pests by exposing them to sun and predators

14. State two positive effects of winds on agriculture. (1 mark)

- Agent of seed dispersal

- Agent of pollination

- Bring rain bearing clouds

- Increase the rate of evaporation from plants, thereby increasing the rate of water and nutrient uptakes by plants.

15. Distinguish between seed dressing and seed inoculation. (1 mark)

- Seed dressing is the coating of seeds with a fungicide/insecticide or both chemicals to prevent the seedling from soil borne pests and diseases seed inoculation is the coating of legumes with an inoculants with the right strain of Rhizobium.

16. State two ways in which soil pH3 can be raised to pH6.5 (1 mark)

- Application of lime

- Application of a basic fertilizer

17. Name any three insect pests with biting and chewing mouthparts. (1 ½ mks)

- Locusts

- Grasshoppers

- Cricket

- Cutworms

- Bollworms

- Termites

- Beetles

- Maize stalk borer

18. Name any four early maturing varieties of cabbages. (2 marks)

- Brunswick

- Gloria hybrid

- Golden acres

- Main crop

- Early jersey

- Mukuki

- Coppenhagen market

Section B (20 marks) Answer all questions in this section in the spaces provided.

19. a) 1. Grass, leaves, refuse

2. Manure

3. Wood ash

4. Top soil

b) 1. Organic matter to form manure

2. Improve pH and nutrients in the compost manure

20. a) Trelishing

b) Tomato/passion fruit

c) Reasons:

* 1. To produce clean fruits
  2. To control soil borne diseases
  3. Facilitate spraying
  4. To facilitate harvesting

d) Propping

Staking

21. a) F – Locust

G – Aphids

H – Quelea

b) Pierce plant parts

- introduce disease causing organisms

c) (i) American bollworm

(ii) Spraying with insecticide

(iii) cutworm

* Spider
* Redspider

22. a)

D 1 – nut grass/sedge

D2 – black jack

b) Not which resist absorption of herbicide

herbcide of retained on the leaf

c) Reduce ally of farm products e.g. wool

harbours pests

competes for growth factors

23a) Land fragmentation and land sub – division

Land fragmentation is a situation where a farmer has many small pieces of land scattered in different places while land sub division is the portioning of a piece of land into small portions.

b) Effects of land fragmentation and sub-division

* Difficult to supervise all scattered holdings
* Waste of time traveling form one holding to another
* Difficult of following a sound farm plan arising form the small size of fragments
* Difficult of weed and pest control
* Difficult in carrying out soil conservation measures
* Difficult of offering agricultural extension advice
* Parcels may be small for mechanizations

a) Cultural methods used to control diseases of crops

* Using healthy planting materials
* Practicing field hygiene e.g. burning diseased crop residues
* Proper seedbed reparation
* Proper spacing to control damping off in cabbages seedling
* Heat treatment e.g. in control of ratoon stunting disease in sugarcane
* Proper drying of cereals and pulses to recommended moisture content before storage
* Use of disease resistant varieties such as Ruiru II variety of coffee.

14 a) Effects of temperature on crops

* Delayed maturity
* Improve quality of some crops

b) Factors which influence soil formation

- Type of parent material

- Climate

- Topography/relief

- Living organisms

- Time

c) Factors that determine the type of irrigation chosen by a farmer

* Topography of the area
* Availability of capital
* Type of crop to be irrigated
* Type of soil on the farm
* Availability of water

25a) Factors considered in designing a crop rotation programme

* Crop root depth-deep rooted crops should be alternated with shallow rooted crops
* Crop nutrient requirement-heavy feeders should come first in a newly opened field
* Week control-crops associated with certain weeds should be alternated with those that are not/crops that are not easy to weed should be alternated with those that are easily weeded.
* Pests and disease control-crops from same family should not follow one another since they are attacked by same pests and diseases
* Soil fertility-leguminous crops should be included to improve soil fertility
* Soil structure-grass leys should be included.

b) Benefits of intercropping food crops

* max utilization of land
* Diversification
* Mutual benefit

c) Post-harvest practices carried out in the production of maize

* threshing/shelling-removing maize grains from the cobs
* drying – until right moisture content for storage is attained
* winnowing/Cleaning – to remove chaff
* dusting- applying chemical powders on seeds to prevent attack by storage pests
* processing – transforming a raw material into final product e.g. maize to flour
* packaging – placement of produce into containers for storage, sale or transportation.