**MOKASA 1 JOINT EXAMINATIONS**

**AGRICULTURE PAPER 1**

Marking scheme

1. Give **four** activities that may be undertaken in organic farming (2 marks)

* Mulching
* Application of organic manure
* Crop rotation
* Physical/cultural pest weed parasite and disease control
* Rearing of livestock on natural foodstuff
* Use of medicinal plant products to control diseases and parasites

2. State **four** harmful effects of wind on crop production (2 marks)

* It is an agent of soil erosion
* Causes lodging and damage to crops
* Increases the spread of pests and diseases
* Increases the rate of evaporation of moisture from the soil
* Increases evaporation rate

3. Give the general name of chemicals used to control;

a) Weeds - Herbicides (½ mark)

b) Leaf rust in coffee - Fungicides (½ mark)

4. State **four** practices that can be used to improve water logged clay soils (2 marks)

* Addition of manure/organic matter
* Provide drainage
* Use of lime
* Plant eucalyptus trees

5. State **four** desirable qualities to be considered when selecting planting materials (2 marks)

* Purity of planting materials
* Suitability to the ecological conditions
* Germination percentage
* Health of the planting materials
* Size of the planting materials

6. Give **two** causes of blossom-end rot in tomatoes (1 mark)

* Irregular watering
* Calcium deficiency in young fruits

7. Give **four** pieces of information contained in a land title deed. (2 marks)

* Title deed number/land parcel number
* Size of the land
* Name identity number of the owner
* Type of ownership
* Date of issue
* Signature of the issuing officer and seal

8. Name three micro-nutrient elements whose deficiency symptom is chlorosis (1½ marks)

* Nitrogen
* Potassium
* Magnesium
* Calcium
* Sulphur

9. State two water treatment processes that take place in the coagulation and sedimentation tank (1 mark)

* Softening of water
* Aeration

10. State four reasons for pruning fruit crops (2 marks)

* Reduces incidences of pest and disease attack
* Enables effective use of chemical sprays
* Facilitates easy harvesting
* Improves the quality of the fruits
* Allows adequate light penetration into the plant

11. State four disadvantages of intercropping (2 marks)

* Difficult to mechanise farm operations
* Competition between the crops lead to fast growth
* Damage of one of the crops if the other becomes mature earlier especially during harvesting
* Expensive to control pests and diseases if both crops are attacked by different pests or diseases

12. Name three practices carried out to improve and maintain permanent pastures (1½ marks)

* Control of weeds
* Top dress with nitrogenous fertilizer as required
* Practice controlled gazing to avoid degeneration
* Cut back dry and unpalatable stems with movers to encourage fresh growth.

13. State four cultural practices of weed control in beans (2 marks)

* Crop rotation
* Timely planting
* Use of clean seed/planting material
* Proper spacing
* Clean seedbed

14. State four advantages of timely harvesting of crops (2 marks)

* To prevent rotting
* To prevent germination/sprouting
* To prevent pest infestation
* To reach the market early when the demand is high for good prices

15. List three tertiary operations that may be carried out in a seedbed (1½ marks)

* Ridging
* Rolling
* Levelling

16. Give two reasons for locating a nursery bed at a well sheltered place (1 mark)

* Reduce damage to seedlings by strong winds
* Reduce evaporation rate due to strong wind.

17. List four disadvantages of using compost manure in crop production. (2 marks)

* It may burn crop roots if used immediately
* Its preparation is labour intensive
* Its bulky and hence costly to transport
* It is difficult to determine the amount of nutrients in the quantity applied
* Can spread/weeds/diseases/pests

18. Give three reasons why timely ploughing of the seedbed is important in crop production (1½ mark)

* Allows adequate time for desiccation of weeds
* It allows adequate time for the soil to weather
* It allows for early planting
* It allows time for organic matter to decompose
* It allows time for proper soil aeration
* It allows time for pests to desiccate in the hot sun

SECTION B

19. a) P1 – Maize

b) P2 – Groundnuts

c) P3 – Tomatoes

d) P4 – Rhodes Grass

20. a) Trelishing/ training

1. - Fruits get soiled/harvesting of dirty fruits

* Fruits become rotten
* Fruits affected by soil borne pests
* Difficult to carryout field practices

1. Passion fruit/pumkins, garden peas/cucumber/water melons/tomatoes

(3x1=3marks)

21. a) To find out water retention and drainage of different types of soil

- Sample soils Q, R and S

Q Sandy soil

R Loam soil

S Clay soil

(2x1=2marks)

b) Adding organic matter/manure

- Liming

- Adding sand

(2 x 1 = 2 marks)

c) S – Paddy rice (½ mark)

22. a) Four Heap System

b)

X

X

Y

Z

Field

c) Well drained

* + Leeward side to direction of wind in relationship to homestead
  + Should be accessible
  + Should be near the farm where the compost is to be used
  + Should be located in a well sheltered place

SECTION C:

23. a)i) Planting of beans

* + Use of certified seeds
  + Plant at the onset of rains/time the planting such that they mature during the dry seasons
  + Dig holes/fallows at 5 – 10cm
  + Place 2 – 4 seeds per hole
  + Spacing 60-45cm by 10-15cm
  + Apply phosphatic fertilizer during planting time

(4 x 1 = 4 marks)

ii) Field practices

* Carry out gapping/thinning if necessary
* Provide stakes for climbing varieties
* Control pests such as beanfly, aphids, thrips and birds using appropriate method
* Control diseases such as anthracnose bean rust using appropriate method
* Stake/train tall/indeterminate varieties.

(4 x 1 = 4 marks)

iii) Harvesting

* Harvesting is done by uprooting dry whole plants
* Uproot when the weather is cool to minimize pod shattering
* Gather the uprooted plants and spread them for further drying
* Thresh by beating with sticks

(2 x 1 = 2 marks)

b) Safety precautions when using herbicides to minimize environmental pollution

* Avoid spraying on windy days to prevent drift to neighboring fields
* Avoid drift to animal pastures, feeds and water
* Proper disposal of empty containers
* Avoid washing spraying equipment in water sources that are used by animals human beings
* Store chemicals in safe places out of reach of children
* Store chemicals away from humans and livestock feedstuff store
* Equipment used in spraying herbicides must be thoroughly washed.

(6 x 1 = 6 marks)

c) Precautions when harvesting cotton

* Sisal bags should not be used to prevent mixing of lint and sisal fibres
* Hands should be cleaned to avoid staining of lint
* Picking should be done when the lint is dry/harvesting during dry weather
* Use clean containers for picking
* Use different containers for AR(safi) and BR(fifi) grades of cotton to ensure quality produce
* Picking should be done immediately the bolls open to prevent staining by dust/dirt
* Avoid picking leaves and twigs to avoid contamination

(4 x 1 = 4 marks)

24. a) Farming practices carried out to control crop diseases

* Crop rotation: - Break the life cycle of pathogens
* Rogueing – Stops diseases from spreading
* Weed control – prevents harboring pathogens
* Closed season – helps to break the life cycle of the pathogens
* Early planting/timely planting – it helps the crop to establish faster before disease attack
* Pruning – creates unfavourable microclimate for some pathogens and hence minimize disease spread.
* Proper spacing – controls the spread of diseases in certain crops such as rosette in groundnuts
* Application of appropriate chemicals – the chemicals kill specific pathogens
* Planting disease free=certified seeds – This prevents the introduction of pathogens in the field
* Use of resistant varieties – These varieties have a natural protective mechanism against diseases.
* Seed quarantine – this prevents introduction of disease infested planting materials into the farm
* Heat treatment – This is done to kill any micro-organisms present
* Use of clean farm impliment/equipment – this help reduces chances of possible seed contamination by pathogens
* Destruction of crop residues – This destroy or kills pathogen
* Control of disease vectors – Helps to stop spread of disease associated with such vectors
* Proper plant nutrition – application of manures and fertilizers to avoid nutrient deficiency diseases

(10 x 1 = 10marks) (mark as a whole)

b) Steps followed in land adjudication

* Establishment of ownership
* Measurements of land size/surveying
* Description of land
* Recording/mapping of the land
* Registration
* Checking the register/objection
* Settling boundary problems if any

(6 x 1 = 6 marks)

c) Methods of farming

* Mixed farming: - Growing of crops and rearing of animals
* Nomadic pastoralism:- Keeping of livestock in marginal areas with occasional and random movement from one area to another in search of pasture and water
* Shifting cultivation: - A farmer cultivates a piece of land continuously for a number of season until it is exhausted and then abandons it for new fertile land.
* Organic farming: - This is a method where only organic substances and not chemicals are used in crop and livestock production. It involves for example, the use of manure to improve soil fertility or use of organic substance to treat and control pests and diseases in livestock.
* Agroforestry

It is the growing of trees, pastures and crops on the same piece of land for the purpose of increasing or improving output of the soil.

25. a) Explain ten factors that can encourage soil erosion.

* Lack of ground cover exposes soil to agents of soil erosion.
* Steep slopes increases the speed of surface runoff hence erosive power of the water
* Light/sandy soils are easily carried away by agent of soil erosion
* Shallow soils are easily saturated with water and carried away
* High rainfall leads to saturation of soil hence increase soil erosion/surface runoff.
* Frequent cultivation/over cultivation pulverizes the soil make it easy to detach and carry away.
* Overstocking leads to overgrazing which destroys ground cover exposing it to agents of erosion.
* Burning/deforestation destroys vegetation cover and exposes soil to agents of erosion.
* Ploughing up and down the slope creates channel which speed up and increases the speed and erosion capacity of water.
* Cultivation of riverbanks destroys riverine vegetation and destroys soil structure exposing to agents of erosion.
* Cultivating the soil when too dry destroys soil structure make it eroded
* High rainfall intensity on bare ground it leads to erosion
* Long slopes increase the volume and speed of the water hence increases erosive power

b)

* Import of cheap products can reduce the demand for local products
* Import of cheap products lead to decline in prices of expensively produced local products
* Low income to farmers hence lack motivation to produce
* Close down of local industries due to lack of raw materials
* Loss of jobs/unemployment
* Decreased quality of goods produced unable to compete with others in international markets.

(5 x 2 = 10 marks)