

AGRICULTURE PAPER ONE (443/1)
MARKING SCHEME

SECTION A

1. Four disadvantages of extensive farming
 - Low output
 - Land is underutilized
 - Done where land is not limited
 - Can//not use land to get loans
 - Low profit per unit area
 - Poor quality produce
 - No land improvement
 - High spread of pests and diseases (4×½=2mks)
2. Four human factors that lead to low crop production
 - Low level of education
 - Poor health
 - Poor economy
 - Lack of market force
 - Poor government policy
 - Cultural and religious belief (4×½= 2mks)
3. Four characteristics of soil that influence crops planted
 - Nutrients available
 - Soil PH
 - Drainage
 - Water holding capacity
 - Air movement
 - Soil depth (4×½= 2mks)
4. Four factors that influence the number of secondary cultivation
 - Size of planting material
 - Land topography
 - Soil moisture
 - Condition of soil ciods
 - Capital available
 - Population of weeds (4×½= 2mks)
5. Four reasons for ridging
 - Encourage tuber expansion
 - Control soil erosion
 - Improve drainage
 - For easy harvesting tuber crops (4×½= 2mks)
6. Four practices that encourage minimum tillage
 - Use of herbicides
 - Mulching
 - Cover cropping
 - Slashing/ uprooting/ grazing animals on weeds (4×½= 2mks)

7. (a) Three non chemical methods of water treatment
- Filtration
 - Boiling
 - Sedimentation
 - Geration (3×½= 1½mks)
- (b) Four advantages of trickle irrigation
- Require little water
 - Use water under low pressure
 - Discourage fungal diseases
 - Control weeds between rows
 - Can be used to apply soluble fertilizer (4×½= 2mks)
8. Four importance of organic matter in sandy soil
- Increase water holding capacity
 - Improve soil fertility after decomposition
 - Provide food and shelter to micro-organisms when fresh
 - Improve soil structure after decomposition
 - Butter soil pits after decomposition
 - Reduce the toxicity of plant poison due to chemical and fertilizer application after decomposition
 - Pack color of humus increase soil temperature that make crops grow faster (4×½= 2mks)
9. Four types of records kept by a poultry farmer
- Egg production
 - Inventory
 - Feeding
 - Health
 - Marketing
 - Labour (4×½= 2mks)
10. (a) Two forms nitrogen element is absorbed by plants
- Nitrate ions (NO^{-3})
 - Ammonium ions (NH^{+4}) (2×½= 1mk)
- (b) Two methods of harvesting Agro forestry trees
- Pruning
 - Lopping
 - Pollarding
 - Coppicing
11. (a) Four importance of nursery practice
- Production of many seedlings in a small area
 - Easy to carry management practices
 - Easy to provide the best condition for growing of crops
 - Facilitating the planting of small seeds into strong seedlings
 - Easy to select healthy seedlings for transplanting
 - Facilitating planting of already established seedlings
 - Excess seedlings can be sold (4×½= 2mks)

(b) Three vegetative propagation material of pineapples

- Crown
- Slip
- Suckers (3 × ½ = 1½mks)

12. Four effects of excessive application of nitrogen fertilizer on growing maize

- Lodging / excessive / succulence weakening of stems
- Scorching / burning of leaves
- Delayed maturity
- Excessive foliage growth
- Encourage/ causes blossom end rot (4 × ½ = 2mks)

13. Four cultural ways of controlling nematodes in a field of bananas

- Plant resistant / tourant varieties
- Remove and burn infected plants / held hygiene
- Crop rotation
- Plant Mexican marigold in the field
- Trim roots of suckers before planting (4 × ½ = 2mks)

14. Pricking out and Rogueing

- Pricking out is uprooting some seedlings in an overcrowded nursery and planting them in a second nursery bed while rogueing is uprooting and destroying infected plants with a disease (mark as a whole 1mk)

SECTION B

15. (a) Soil porosity / water holding capacity (1mk)

(b) The smaller the size of the particles the greater the force of holding capacity (1mk)

(c) Sample **C**

(d) **A** Sandy soil

C Clay soil

16. (a) **B A**

(b) **A** - Too close to the bud

B - Sloping wrong way

D - Too far from the bud

(c) 3 importance of pruning coffee

- Remove diseased and unwanted parts
- Cropping
- Facilitate picking
- Easy penetration of chemical spray
- Remove micro-climate for disease coming microorganisms e. g CBD (3mks)

17. (a) Smut (1mk)

(b) Any cercal crop and sugarcane (2mks)

(c) Two control measure

- Hot water treatment
- Use certified seeds
- Crop rotation Field hygiene (2mks)

18. (a) Zone 1: An input of fertilizer results in an increased output in bean production

Zone 2: Any increase in input results in a decreased output of beans till it reaches a maximum I e decreased output reaches zero

Zone 3: Any further increase in fertilizer input results in a negative output of beans I e decline (3mks)

(b) Zone 2 because the output reaches maximum (2mks)

SECTION C (40MKS)

19. (a) Intenerant traders / middumen: buy produce from farmers and resell

- Processors or manufacturing companies: Buy produce to process
- Wholesalers: Buy produce in bulky from farmers or processors and resell
- Brokers or commission agents: Act on behalf of other businessmen for a fee or commission
- Co-operative societies and union: Buy farmers produce locally
- Marketing boards: Buy produce from farmers (state 1mk, explanation 1mk)

(b) Six practices that control maize diseases

- Crop rotation: Break life cycle of disease causing organisms
- Rogueing: Prevent spreading
- Plant disease free plants: Prevent introduction of pathogens
- Close seasons: Break life cycle of pathogens
- Early planting / timely: Crops establish faster before attack
- Weed control: Prevent them harboring some pathogens
- Use resistant varieties: Prevent attack by pathogens
- Chemical application: Kill pathogens
- Clean equipments: Reduce contamination with disease causing organisms
- Quarantine: Prevent introduction of pathogen on farm
- Destroy crop residues: Minimize spread
- Control vectors: Minimize spread of pathogens
- Proper plant nutrition: Make plant resistance to disease attack and deficiency diseases
- Proper spacing: Create unfavorable micro-climate for some pathogens

(state ½mk; explain ½mk)

(c) Importance of irrigation

- Enables crop production during dry seasons
- Enable to reclaim and land for production
- Supplement rainfall for crop production
- Sustain proper growth of crops which require plenty of water e g rice
- Create favorable temperature for proper plant growth
- Facilitate supply of fertilizer in irrigation water / fertilization
- Make possible to grow crops in special structure I e green houses
- Increase crop yield
- Maximize utilization of resources where land is ferble but no water
- Source of employment in areas where it is used extensively
- Promote crop production for export
- Control pests like moles and aphids

20. (a) Five farming activities which may encourage soil erosion

- Continuous cropping
- Burning of vegetation
- Ploughing along the slope
- Deforestation

- Ploughing along the river banks
 - Cultivating when soil is too dry
 - Overgrazing / overstocking
 - Flooding / over irrigation
 - Over cultivation / pulverizing the soil (5mks)
- (b) i) Procedure of harvesting cotton
- Start 4 month after planting
 - Have two containers
 - Done when balls are dry
 - Pick as soon as first ball open
 - Sorting is done as you harvest grade AR (Safi) and BR (fifi)
 - Avoid contamination / avoid sisal bags (5mks)
- ii) Precautions during harvesting sugarcane
- Bunt cane should be cut immediately after burning
 - Cut cane be delivered to factory within the first 24 hours
 - Cut cane at ground level (3mks)
- (c) Describe the production of carrots under the following sub-headings
- i) Seedbed preparation
- Prepare during dry season
 - Clear vegetation
 - Plough / dig deeply to eradicate all seeds
 - Harrow to a moderate filth / fine / appropriate filth
- ii) Field management
- Thinning
 - Weed control
 - Top dressing
 - Spray appropriate pesticides to control pests
 - Spray appropriate fungicide to control diseases
 - Water during dry seasons (4mks)
21. (a) Seven factors that influence seed rate
- Intended use of the crop: Fodder more seeds
 - Germination percentage: How germination more seeds
 - Method of planting: Broadcasting more seeds
 - Number of seeds per hole: Two or more require more seeds
 - Soil fertility: Fertile soil more seeds
 - Size of crop: Tall spreading crops less seeds
 - Spacing: Close spacing more seeds
 - Seed purity: Impure seeds more seeds
 - Crop stand: Pure stand more seeds (state & explanation 7mks)
- (b) Five factors necessary for proper functioning of farmers co-operative societies
- Availability of adequate funds, capital invue for members
 - Training of personnel or availability of advisory services on managerial skills
 - Loyalty on the part of all farmers co-operators and officials to support their organization
 - Proper and accurate record keeping and accountability for all operations
 - Efficiency with which produce from farms are marketed

- Honesty on the part of personnel with regard to the handling of cooperative finances
 - Timely payment of farmers dues (5mks)
- (c) Eight ways farmers can overcome risks and uncertainties
- Diversification / growing a variety of crops or having various enterprises: If one fails he can rely on the other
 - Taking insurance policy: In case of failure the enterprises are covered
 - Inventory marketing / strategizing farming: keeping farm products and selling at time when prices are favorable
 - Flexible enterprises: Engaging in enterprises that can be stopped or started early as conditions change
 - Rationing of inputs: Using just sufficient inputs such that in case of losses the costs are too high
 - Using more certain husbandry practices: Use practices that the farmer is sure of and has used in the past
 - Contracting: Making arrangement with marketing agencies in advance that change in prices after the arrangement do not change the price of farmers produce
 - Selecting more certain enterprises: Select enterprises that have done well in the area / tried through research
 - Adopting modern methods of production: I e irrigation, planting resistant varieties (8mks)