AGRICULTURE PAPER ONE (443/1)
MARKING SCHEME

SECTION A

1. Four disadvantages of extensive farming
   - Law 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 L
    (d) J – Sandy soil
    L- Clay soil
16. (a) C
    (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: Incase 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)