

SUNSHINE SECONDARY SCHOOL - 2015
AGRICULTURE PAPER ONE (443/1)
MARKING SCHEME 2015

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 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: 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)

1. (a) Four importance of keeping rabbits.

- Meat, fur, hair/wool
- Rich manure in nutrients
- Used in research station
- Source of income

Any first 4 x ½ = 2 marks

(b) Two dual purpose breeds of cattle.

- Simmental
- Red poll
- Sahiwal

(Any first 2 x ½ = 1 mark)

2. Two reasons for flushing in sheep.

- To increase ovulation hence chance of twinning
- To improve chances of ovulation
- To enhance implantation of embryo in the uterus

Any first 2 x ½ = 1 mark

3. Four qualities of a good vaccine.

- Importing long life immunity on a single dose.
- Easy to administer
- Has no side effects
- Compatible with other vaccines
- Have long keeping life
- Immunity imparted in as good as natural immunity.

Any 4 x ½ = 2 marks

4. Four methods of preserving fish. (4 marks)

- Smoking
- Salting
- Freezing
- Deep frying
- Sundries

Any first 4 x ½ = 2 marks

5. Farm management practices carried out in a crus.

- Vaccination
- Dehorning
- A.I
- hoof trimming
- Administering drugs
- Pregnancy test
- Inspecting sick animals

Any first 4 x ½ = 2 marks

6. (a) Four symptoms of coccidiosis.

- Emaciation
- Ruffled feathers
- Dull with drooping wings
- Diarrhoea with varying nature i.e whitish-brown or blood stained.
- Sudden death

Any 2 x 1/2 = 1 mark)

(b) Three ways in which health of an animal may be restored.

- Good feeding
- Provision of a clean environment
- Treating the disease
- Inducing repair of damaged tissues.
- Relieving discomfort/injury to an animal.
- Preventing further spread of the disease.

Any first 2 x 1/2 = 1 mark

7. Lack of shell

- Soft shelled eggs
- Double yoked eggs
- Tiny eggs

4 x 1/2 = 2 marks

8. Four abnormalities which may arise during egg formation.

- Udder towel
- Milking can
- Milking jelly/salve
- Warm water
- Filter pads

Any 6 x 1/2 = 3 marks

9. Four factors that influence the amount of concentrates fed to a milking cow.

- Amount of milk produced per day
- size of the animal
- Type of feed being fed on.
- Cost of the concentrates

4 x 1/2 = 2 marks

10. Breeding systems

- (a) Cross breeding – 1/2 mark
- (b) Inbreeding – 1/2 mark

11. For control measures of tsetseflies.

- bush clearing
- spraying their breeding places with suitable insecticides
- Use of traps with impregnated nets.

-use of sterilizing agents on male flies

Any first 4 x 1/2 = 2 marks

12. Four examples of succulent feeds

- Sweet potato vines
- Young grass
- Silage
- Nappier grass
- Beetroots

4 x 1/2 = 2 marks

13. Three methods of treating bloat

- Manual
- Surgical
- Chemical

3 x 1/2 = 1 1/2 marks

14. Reasons for maintain farm tools.

- For them to last longer
- for them to be efficient in use
- for them to be safe to use
- to reduce replacement costs.

4 x 1/2 = 2 marks

SECTION B

15. (a) Labelling of parts 1, 2, 3 and 4

- 1 – hard core
- 2 – site murrum/sand
- 3 – concrete
- 4 – sand, cement mixture/mnortar

4 x 1/2 = 2 marks

(b) Factors that influence quality of concrete.

- Method of curing
- Quality of sand used
- Quantity of water
- Ratio of cement to sand.

16. (a) Kenya top bar hive (*1 x 1 = 1 mark*) reject hive

(b) Parts

- G – handle/wireloop
- H – Top bars
- K – Entrance

3 x 1 = 3 marks

(c) Factors to be considered in siting bee hive

- Security

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- Water source
- Near flowers
- Well sheltered place
- Away from busy areas.

17. (a) Identify: Parasite

A – Liverfluke

B – Round worm

(2 x 1 = 2 marks)

(b) Two control measures for parasite B.

- Avoid contamination of pasture
- Practice rotational grazing
- Sanitation in animal houses.
- Drenching animals with appropriate antihelminthics; reject any response without the word appropriate.
- Proper use of latrines

2 x 1 = 2 marks

(c) Symptoms of parasite A on cattle.

- loss of weight and emaciation
- pot bellied
- indigestion
- damage of liver tissue
- anaemia
- dullness
- swollen painful abdomen

2 x 1 = 2 marks

18. (a) Identify the tools

J – manure fork

K – Steel float

L – sickle

M – File

4 x 1/2 = 2 marks

(b) Use of tools L and M

L – Harvesting pyrethrum, cutting grass

M – Smoothen metal surfaces, sharpen, cutting blades

(c) Identify two ways in which a farmer can maintain tool J

- Replace broken handles
- Paint metallic parts
- Clean after use

2 x 1 = 2 marks

SECTION C

19 (a) Discuss five factors considered when constructing a farm structure

- Security: be secure against theft
- Strong: so as to support the enterprise
- Spacious: To accommodate intended purpose
- Future expansion: Allow for future expansion
- Direction of setting: e g in calf pens
- Climatic conditions: in hot areas, walls should be tall to prevent over heating
- Ventilation: for easy air circulation
- Light: should be well lit for proper vision

(b) Describe ten management practices carried out on a fish pond (10mks)

- Feeding: At the shallow end and at regular intervals
- Fertilizing the fish pond to encourage growth of algae and planktons
- Maintaining water level: Ensure adequate water for oxygen supply
- Changing water occasion to ensure fresh water
- Desilting fish pond after a while to ensure pond water capacity is maintained
- Trimming grasses and vegetation around the dykes to avoid hideouts for predators
- Liming ponds: Avoid acidic contains
- Repair pond walls and fences
- Control predators
- Cropping to avoid overcrowding
- Cleaning of the pond e g removal of solid materials

(10x 1 =5 marks)

(c) State any five factors that should be considered when choosing tools and equipments to use in the farm

- Suitability: tools should be suitable for the task
- Availability: tools/equipments should be available in the shop
- Cost: tools/equipments should be affordable by the farmer
- Cost of maintenance: should be easily and cheap to maintain
- Operation: should be easy to operate by the farmer
- Durability: should last long one acquired

(5 x 1 =5 marks)

20. (a) Compare the use of animal drawn implement to tractor drawn implements (10 marks)

Animal Drawn Implement	Tractor Drawn Implement
Light and require less power to pull	Heavy and require more power to pull
Low maintenance cost	High maintenance cost
Requires less skill to maintain	Requires more skill to maintain
Suitable in small scale production	Economical in large scale production
Are cheaper to purchase	Expensive
Can be used on gentle slopes	Can only be used on flat areas
More versatile	Less versatile

(b) Describe any five maintenance practice carried out on an ox drawn plough

- Clean after use
- Sharpen the share if necessary
- Repair broken parts
- Replace worn out parts
- Lubricate the wheel/moving parts
- Apply old engine oil on metallic parts during long storage
- Paint the beam to prevent rusting
- Store properly after use ($5 \times 1 = 5 \text{ marks}$)

(c) Discuss the advantage and disadvantage of using tractor hire services in the farm over using own tractor (8 marks)

Advantage

- Cheap than owning a tractor
- One tractor can serve many farmers
- Farmers does not incur cost of maintenance
- Small scale farmers can have opportunity to use tractor series ($5 \times 1 = 3 \text{ marks}$)

Disadvantage

- Top grade predictor publishers
- Hire services may be expensive to small scale farmers
- Demand for the hire service may be higher than supply leading to delay of farm operations
- Quality of work done may be poor due to too much work to be in a short period of time ($3 \times 1 = 3 \text{ marks}$)

21. (a) Describe the general effects of parasites on livestock

- Cause anemia
- Cause irritation
- Damages skin/internal organs
- Blocks internal organs
- Causes wound which act as route for secondary infection
- Loss of appetite
- Leads to body emaciation/loss of body condition
- May lead to death
- Poor production/low production
- Production/low production
- Production of low quality products

($8 \times 1 = 8 \text{ marks}$)

(b) Describe East Coast Fever (ECF) under the following sub-headings

i) Animal attacked (1mk)

- Cattle

ii) Casual agent (1 mark)

- Protozoa –*theileria parva*

iii) Vectors (1mk)

- Brown ear tick

iv) Symptoms ($5 \times 1 = 5 \text{mks}$)

- Swelling of lymph nodes
- Fever (41°C)
- Lachrymation
- Salivation
- Difficulty in breathing
- Hemorrhage from the mouth and vulva
- Loss of appetite

v) Control measures ($2 \times 1 = 2\text{mks}$)

- Control ticks
- Regulate vaccination
- Treat sick animals with appropriate antibiotics

(c) Name any four internal predisposing factors of animal diseases ($4 \times \frac{1}{2} = 2\text{mks}$)

- Age: Young animals are prone to disease
- Sex of animal: Some diseases are sex linked e.g mastitis, Raginitis, orchitis
- Blood color
- Species of the animal