

KITUI COUNTY MOCK

443/1

AGRICULTURE

PAPER 1

July, 2017

TIME: 2 HOURS

END OF TERM II FORM FOUR EXAMINATION, 2017

Kenya Certificate of Secondary Education (K.C.S.E)

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MARKING SCHEME



1. - Broadcasting;
- Placement method;
- Side dressing / top dressing / band application / ring application;
- Foliar spraying;
- Drip application in drip lines;
- Fertigation
(4 x ½ = 2 marks)
2. - Pollinators;
- Decomposers;
- Friendly predators;
- Nitrogen fixing bacteria
(½ x 4 = 2 marks)
3. - Crop production;
- Livestock production;
- Soil science;
- Agricultural economic;
- Agricultural engineering;
(½ x 4 = 2 marks)
4. - Has no land disputes;
- Labour is well used;
- Profit accrued is well distributed among the members;
- Mechanization is well effected
(½ x 4 = 2 marks)
5. - Reduces soil erosion;
- Conserves water;
- Suppresses weeds growth;
- Improves soil structure upon decomposition;
- Adds fertility to the soil upon decomposition.
(½ x 4 = 2 marks)
6. - Where land is abundant;
- Where the population is sparse;
- Where the livestock per unit area is low;
- Where land is communally owned,
(½ x 4 = 2 marks)
7. - Loss of plant nutrients;
- Loss of soil microorganisms;
- Reduction of soil depth;
- Siltation of dams and rivers;
- Permanent scars on the landscape;
- Tourist attraction sites created
(½ x 4 = 2 marks)
8. - Warm temperature;
- High relative humidity;
- High light intensity for soft wood cuttings;
- Oxygen;
- Supply / aeration;
- Chemical treatment with rooting hormones IAA/IBA /NAA;
- More leaf area for soft wood cuttings;
(½ x 4 = 2 marks)
9. - Date;
- Amount sold;
- Price per unit;
- Total amount;
- Where sold;
(½ x 4 = 2 marks)
10. - Joint products;
- Competitive products;
- Supplementary products;
- Complementary products;
(½ x 4 = 2 marks)
11. - Date;
- Particulars;
- Folio;
- Credit;
- Debit;
(½ x 4 = 2 marks)
12. - Improves yield the following season;
- Discourages bud disease occurring;
(½ x 2 = 1 mark)
13. - Gross Domestic Product (GDP)
- Gross National Income / Product (GNI / GNP)
- Per Capital Income
(½ x 4 = 2 marks)
14. - Leaf curling;
- Mosaic;
- Malformation / distortion / leaf chlorosis;
- Rosetting / short internodes
(½ x 4 = 2 marks)
15. - Improve soil aeration;
- Improve soil volume;
- Raise soil temperature;
- Increase Microorganisms population;
- Reduce soil erosion;
- Remove toxicity.
(2 marks)
16. - Remove unpalatable stemmy fibrous material;
- Stimulate fresh growth of pasture
(½ x 4 = 2 marks)

17. - Durable.
 - High pressure tolerance
 - Resistant to rodent damage
 ($\frac{1}{2} \times 4 = 2$ marks)

SECTION B

18. a) **J** – Double thorn /oxygonumsinuatatum
K – Nut grass / sedge /Cyprus rotundas
 ($\frac{1}{2} \times 4 = 2$ marks)
 b) Has underground nuts that are used for propagation
 (1 mark)
 c) - Reduces the efficiency of workers in the field due to the sharp thorns that inflict injuries.
 - Competes for nutrients with the desired crops
 (1 mark)
 d) - Extensive rooting system;
 - Survive where there are limited nutrients;
 - Have short life cycles
 (1 mark)

19. a) **Method of compost making**

Indore method (1 mark)

b) **Factors to consider when sitting the structure**

- Well drained place
- Direction of prevailing wind
- Size of the farm
- Accessibility
- Topography

($4 \times \frac{1}{2} = 2$ marks)

c) **Function of the following materials in preparation of compost manure:**

i) **Top soil** (1 mark)

- Introduces microorganism necessary for decomposition of organic material.

ii) **Wood ash**

- Improve level of phosphorous and potassium in resulting manure

20. a) **A** - Maize weevil

B - Squirrel
 (1 mark)

b) **A** - Dry grain in store / dry grains / stored grain

B - Seeding stage / grains at planting time
 (2 marks)

- c) **A** - Timely harvesting
 - Use of resistant varieties
B - Trapping, killing, use of scare crows
 - Rodenticide
 (2 marks)

21. i) Stem tuber (1 mark)

ii) Chitting (1 mark)

- iii) - fast establishment
 - True to type
 - Cheap/faster
 (3 marks)

SECTION C

22. a) **Selection and preparation of planting material (3marks)**

- Dry the seeds before planting
- Select the seeds discarding damaged and wrinkled ones
- Dress with an appropriate pesticide to control soil borne pests.
- Inoculate the seeds with the right strain of rhizobium spp

Planting (4 marks)

- Done at the onset of the rains
- Plant 2-3 seeds per hole
- Space at 30 – 45 cm x 15 cm
- Use D.A .P 200 kgms per hectare on the furrows before planting
- Use a seed rate of 50 – 60 kgms per hectare

Weeding (3 marks)

- Done shallowly;
- Done before flowering to avoid knocking flowers;
- Done when the field is dry to avoid spreading diseases
- Done preferably by hand weeding,

b) **Environmental conditions that may lead to low crop yields (10 marks)**

- Less rainfall/unreliable/too much rainfall.
- Inappropriate temperature either too low or too high.
- Extreme humidity is bad;
- Topography/some altitudes may limit crop growth.
- Extreme light intensity reduces photosynthesis.

- Hailstones damage crop leaves/cause defoliation.
- Poor weed control lowers crop yields.
- Poor soil fertility leads to poor yields.
- Excessive wind leads to soil erosion and Evapotranspiration.
- Water logging and leaching of nutrients leads to inappropriate soil pH
- Attack by crop pests lowers yields.
- Attack by crop diseases lowers yields

23.

- a)**
- Deep rooted crops alternative shallow rooted
 - Nutrient requirement – heavy feeders should come first in a rotation
 - Weed control – crops associated with certain weeds should be alternated with those that are not
 - Pests and diseases control – crops from the same family should not follow each other in a rotation since they are attacked by same pests
 - Soil fertility – a legume should be included in a rotation to improve soil fertility by nitrogen fixation
 - Soil structure – Grassley should be introduced in a rotation
 - Crops easy to weed should be alternated by those difficult to weed

(6 x 1 = 6 marks)

b) Factors influencing the type of irrigation

- Nature of land / topography
- Type of soil
- Availability / amount of water used
- Type of crop to be irrigated
- Distance of the water source from field
- Technology available
- Cost of the system to be used
- Climate of the area
- Availability of skilled human power

c) Post-harvesting practices in maize

- Shelling – removing / threshing grains from the cobs
- Drying – to acquire right moisture content for storage
- Winnowing – to remove chaff
- Dusting – applying chemical powder on seed to control storage pest
- Processing into final product for packaging

- Grading / sorting – separate bad ones from good seeds

(6 x 1 = 6 marks)

24.

a) Advantages of budgeting in farming

- It helps the farmer in decision making
- It enables the farmer to protect future returns so as to plan ahead
- It helps the farmers to avoid incurring losses by investing in less profitable enterprises
- It enables farmer to secure loans from financial institutions
- It ensures a periodic analysis of the farm business
- It acts as a record which can be used for future reference
- It pinpoints efficiency or weakness in farm operations

b) Types of risks and uncertainties.

- Fluctuation of commodity prices.
- Physical yield uncertainty - does not know how much to expect.
- Ownership uncertainty - The farmer loses part or whole of the produce through theft, fire or death.
- Outbreak of pests and diseases.
- Sickness and injury uncertainty.
- New production technique and uncertainty.
- Obsolescence - A farmer may invest in machinery which may become outdated

(Any 5 x 1 = 5 marks)

c) Importance of pruning perennial crops e.g. Tea, coffee.

- To regulate quantity and quality of fruits or flowers
- In tea pruning is done to stop the upwards growth of the plant to allow the sideways growth hence making plucking of the leaves easy
- To remove all branches broken, dead or diseased.
- To permit air circulation and secure more light for most parts of crop.
- To remove branches and fruits that rub against each other.
- To make certain field operations easier and effective e.g. spraying

(5 x 1 = 5 marks)