**443/1**

**AGRICULTURE**

**JULY, 2019**

**PAPER 1**

**Marking scheme**

**BUURI EAST STANDARDS**

***Kenya Certificate of Secondary Education***

**AGRICULTURE 443/1**

1. Advantages of intensive systems of farming.

 i) maximum utilization of land

 ii) High yield due to high level of management

 iii) Better quality of products

 iv) Possible in density populated area

 4 x ½ = 2mks

2. Conditions that facilitates land fragmentation

 i) Shifting cultivation

 ii) Inheritance of pieces of land that are scattered

 iii) Government allocation of land to people who own land else where.

 iv) Buying pieces of land in different areas.

 4 x ½ = 2mks

3. a) Post harvesting practices

 i) Threshing

 ii) winnowing

 iii) drying

 iv) Sorting and grading

 v) dusting

 vi) packaging

 vii) processing

 marks first four points

 4 x ½ =2 mks

b) Earthing up – it’s the placement of soil in form of a heap around the base of the plants. (1mk)

4. Reasons why burning as a method of bush clearing is not recommended.

 i) Destruction of soil structure.

 ii) Death of useful soil organisms

 iii) Loss of soil nutrients

 iv) Destruction of organic matter/humus

 v) Raise of soil pH due to release of potash

 vi) soil moisture is lost

 vii) Exposes the soil to the agents of erosion

 Mark first four points

 4 x ½ = 2mks

5. a) Forms in which the following elements are available to plants.

 i) Nitrogen – nitrate ions ( NO-3) or Ammonium ( NH+4)

 ii) Sulphur – sulphate ion ( SO2-4)

 2 x ½ = 1mk

 b) The liming elements in crop production

 i) Magnesium

 ii) calcium

 iii) sulphur

 marks first two points

 2 x ½ = 1mk

6. Effects of ill – health and HIV/AIDs in agricultural production

 i) Shortage of farm labour

 ii) low food supply and poverty in general

 iii) Low living standards leading to despondency, hopelessness and lack of motivation.

iv) Government and NGO’s using a lot of time and resources in controlling the pedamic

v) Increasing the cost of living of AIDs patients and their relatives.

Mark first four points

4 x ½ = 2mks

7. Functions of the followings in compost heap.

 i) Ash - improves the level of potassium and phosphorous and raise soil pH which enhances microbial activities.

 ii) Garden soil – introduces micro – organisms that are necessary for the decomposition of organic materials.

 iii) Organic manure – provides the nutrients to micro – organisms.

 iv) stick – checking the temperatures within the heap.

 4 x ½ = 2mks

8. Factors enhancing rooting in stem cuttings.

 i) High soil temperature rej. Temperature alone.

 ii) Good soil aeration rej. Aeration alone.

iii) Low light intensity in hard woods and high light intensity in soft wood rej. Light intensity alone.

iv) High relative humidity rej. Humidity alone

v) use rootings hormones rej. Hormones alone

 Mark first fours points

 4 x ½ = 2mks

9. Reasons why a farmer should have breeding record in livestock production.

 i) They assists in the planning of a good breeding programme.

 ii) They help in the selection of breeding stock.

iii) They help in culling un productive animals that have fertility problems.

iv) They are useful in determining services pregnancy diagnosis and parturition dates.

iii) They help in culling un productive animals that have fertility problems.

iv) They are useful in determining services, pregnancy diagnosis and parturition dates.

v) They assist in predicting the performance of offspring in pedigree selection.

Mark first four points

4 x ½ = 2mks

10. Ways of treating water for use in the farm.

 i) Chemical treatment

 ii) filtration

 iii) boiling

 iv) Aeration

 4 x ½ = 2mks

11. Methods of harvesting trees.

 i) Pruning

 ii) lopping

 iii) pollarding

 iv) coppicing

 v) Thinning

 Mark first four points

 4 x ½ = 2mks

12. Method of conserving forage

 i) hay

 ii) silage

 iii) Standing forage

 marks first two points

 2 x ½ = 1mk

13. Roles of young farmers clubs in Kenya.

 i) Carrying out agricultural projects in school.

 ii) Participating in ASK shows.

 iii) Participating in agricultural exchange programmes.

 iv) organizing agricultural fields days.

 v) Organizes and participates in the annual young farmers club of Kenya symposiums and rallies.

 Marks first four points

 4 x ½ = 2mks

14. Distinguish between farm planning and farm budgeting.

a) i) Farm planning – involves establishing the organizational objectives and defining clearly the means of achieving them.

 ii) Farm budgeting – is an estimates of the future income and expenses of proposed farm plan.

b) Sources of capital in the farm

 i) savings

 ii) Credit facilities

 iii) Grants

 Mark first two points

 2 x ½ = 1mk

15. Advantages of budding

 i) Budding produces seedless fruits.

 ii) They produces plants that are identical to the mother plants.

 iii) They are less thorny

 iv) They produces shorter tree varieties, hence easy to harvest.

 v) They mature early compared to crops propagated by seedlings.

 Mark first four points

 4 x ½ = 2mks

**SECTION B:**

16. a) Aim of the experiment

 To show the presence of living organisms in the soil.

 1 x 1 = 1mk

 b) Observation made by the students in the two flasks at the end of experiment.

 i) Flasks 1 – the time water turns milky/white precipitates.

 1 x 1 = 1mk

 ii) Flasks 2 – The lime water remained clear.

 1 x 1 = 1mk

 c) Reasons for observation in flask 1

carbon (iv) oxide produced by living organism in the soil turned the lime water milky. The carbon (iv) oxide was produced during respiration.

1 x 1 = 1mk

17. a) Identify the method of propagation illustrated

 Tissue culture 1 x 1 = 1mk

 b) The common crop propagated through the method

 Banana 1 x 1 = 1mk

 c) Disadvantages of the methods of propagation.

* Requires high level of sanitation/hygiene
* Certain crops cannot be propagated by the method

18. a) Identify the pest

 Weaver bird

 1 x 1 = 1mk

 b) Damages caused by pest to crops

1. It eats the grains
2. It causes the grains to fall off
3. It exposes maize cobs to rain, causing them to rots.

Mark first two points 2 x 1 = 2mks

 c) Methods of controlling the pest

1. Trapping them
2. Killing them using a catapult
3. Scaring them away
4. Destroying their breeding sites

Mark first two points

 2 x 1 = 2mks

 - Requires special structures

 - Requires high skills

 Mark first three points

 3 x 1 = 3mks

19. a) 1ha = 1 hectare = 10,000M2

 Crop spacing given = 2.7M x 2.7M

 Plant population = Area of land give ½ mk

 Crops spacing

 = 10,000M2 = 10,000M2 = 1,371.7 give ½ mk

 2.7 x 2.7 7.29M2

 = 1371 or 1372 plants give ½ mks

 Maximum score = 2mks

 b) reasons for correct spacing.

1. High yields are obtained
2. Reduces incidences of pest and diseases.
3. Crops produces are of high quality
4. Give maximum utilization of provided resources.

Marks first three points

3 x 1 = 3mks

20. a) Methods of harvesting water in the farm

 i) Weirs

 ii) Dams

 iii) Ponds

 iv) Roof catchment

 4 x 1 = 4mks

 b) Farming activities that encourage soil erosion

 i) Monocropping

 ii) overstocking

 iii) Planting of annual crops, steep slopes

 iv) clean weeding

 vii) Continous cropping

 Mark first six points

 6 x 1 = 6mks

 c) Farming practices that conserves soil in farm.

 i) Contour farming reduces the speed of run – off water.

 ii) Minimium tillage conserves the soil structure.

 iii) Mulching reduces the speed of run – off water and reduces the impact of raindrops on the soil particles.

 iv) Terracing reduces the length of slopes and speed of run – off.

 v) Planting of trees, i.e agroforestry, trees hold the soil particles together hence reducing soil erosion.

 vi) Maintaining a proper stocking rates reduces overgrazing. This protects the soil cover.

 vii) Establishing grass strips or strip cropping to reduces the speed of run – off. This increases water infiltration.

 ix) Cover cropping or planting grass reduces impact of raindrops on the soil particles. It also reduces the speed of run off and increases water infiltration into the soil.

 Marks first five point

 5 x 2 = 10mks

21. a) Production of tomatoes under the following sub – headings.

 i) Seedbed preparation

 - Seedbed is prepared early during the dry season so as to expose and kill borne pest and pathogens as well as the weeds.

 - Deep digging is recommended.

 - Hard pans and plant root should be removed.

 3 x 1 = 3mks

 ii) Transplanting

* This should be done at the beginning of the rains.
* Holes are made 15cm deep at a spacing of 90 – 100 or 50 – 60cm depending on the variety.
* A handful of well rottened organic manure should be incorporated into the holes.
* Add one teaspoonful of DSP fertilizer into each hole and mix thoroughly with soil.
* Seedlings should be lifted with a ball of soil around the roots

From the nursery bed hence watering should be done 3 – 6 hrs before transplanting.

* Firm the soil around the seedlings.
* Water seedlings after transplanting.
* Select healthy and vigourously growing seedlings.
* Apply mulch at the base of each seedlings if necessary.
* Plant the same depth as it was in the nursery.
* Shading of the seedlings should be done where necessary.

Any first five points

5 x 1 = 5mks

 iii) Fertilizer application

* Phosphatic fertilizer should be applied during transplanting at the rate of 200 – 220kg of DSP per hectare.
* Top dressing should be done when the crops are 20 – 30cm in height.
* Nitrogenous fertilizer should be applied as topdress at the rate of 100kg of CAN per hectare.

2 x 1 = 2mk

 iv) Weed control

* Weeds should be controlled regularly expecially when the seedlings are young.
* Manual weeding, uprooting or slashing should be done.
* Recommended herbicides can also be used.

2 x 1 = 2mks

 v) Pruning

* This is done by pinching out the sides shoots once they appear leaving only one or two main stems.
* Pinching out is done on a weekly basis, expecially for tall variety.
* The terminal bud is then removed after the plants have 6 – 8 tussles of fruits.
* The leaves which are close to the ground, old and diseased should be removed.

Any first two points

2 x 1 = 2mks

 b) Field practices carried out in crop production to control diseases.

* Crop rotation
* Rogueing/destroying infected crop
* Planting disease – free plants
* Close season
* Early planting/timely planting
* Pruning/proper spacing
* Weed control
* Use of resistant varieties
* Application of appropriate chemicals
* Use of clean equipment
* Quarantine
* Heat treatment

Any well explained point

6 x 1 = 6mks

22. a) Profit and loss account for Maboga farm for the year ended

 31 – 11- 2011.

|  |  |
| --- | --- |
| **Expenditure** | **Income** |
|  | Sh  | Ct  |  | Sh  | Ct  |
| Opening valuation Purchase and expensesSeedsFertilizersWages (casuals)Depreciation(tractors)Interest(Borrowed loan)Buy old chicksCalvesMiscellaneous  | 10,0002,8002,0002,50050040080010,0001,00030,000 | 00000000000000000000 | Sales and receipts Poultry BeansVegetables MilkClosing valuationNet loss  | 5,0001,2005006,00015,0002,30030,000 | 00000000000000 |

b) No because it made a loss

c) Role of agriculture in national development.

* Promotion of industrial development
* Food supply
* Source of income
* Creation of employment
* Infrastructural improvement
* Enhancing international relationships
* Improving the balance of payments

First four points well explained

4 x 2 = 8mks

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