**NAME: ………………………………… ADM NO: …………. CLASS: ………..**

**443/1**

**AGRICULTURE**

**PAPER 1**

**FORM 3**

**END OF TERM 2 EXAM 2020**

**MARKING SCHEME**

**INSTRUCTIONS:**

This paper consists of 3 sections; A, B and C. Answer all questions in section A and B and any two in section C.

1. Name three branches of horticulture. (1 ½ mks)

 - Promology/fruit growing

 - Floriculture/flower growing

 - Olericulture/vegetable farming

2. State four advantages of organic farming. (2mks)

* Reduces pollution
* Improves soil water retention
* Improves soil texture
* Provides feed for soil microbes
* Improves soil water infiltration

3. What is the importance of decomposers in agriculture? (1 mk)

* Causes rotting of organic matter in soil f arming manure

4. State three basic economic concepts. (1 ½ mks)

* Opportunity cost
* Scarcity
* Preference and choice

5. (a) What is concession company? (1/2 mks)

* Tenure system in which the government rents land to a company for a specified period of time.

 (b) Give two examples of individual land tenure system. (1 mk)

* Owner-operation
* Plantation and concession
* Landlordism/tenancy

6. (a) Differentiate between solifluction and landslide. (2 mks)

* Solifluction: slow movement of materials d own the slope
* Landslide: fast movement of materials downslope.

 (b) Name four types of landslide. (2 mks)

* Debris fall
* Slump
* Debris slide/slip
* Rock slides
* Rock fall

7. Give three control measures of Blossom-end rot disease. (1 ½ mks)

* Regular watering
* Application of calcium compounds in soil
* Use of right amount of nitrogen.

8. How are crop pests classified according to the mode of feeding. (2 mks)

* Those with biting and chewing mouth parts
* Those with piercing and sucking mouth parts.

9. State any three effects of diseases to crops. (1 ½ mks)

* Lower yields/quantity
* Lower quality
* Increases cost of production.

10. State six effects of weeds in a pasture crop. (3 mks)

* Reduce life span of the pasture
* Compete with pasture
* Reduce quality of pasture
* Reduce herbage yield
* Some cause poisoning of livestock
* Interfere with forage fertilization

 b. Define a weed – any crop growing where its not needed.

11. List two ways of classifying herbicides based on mode of action. (1 mk)

* Contact herbicides
* Systemic herbicides

12. State four factors considered when grading tomatoes for fresh market.

 (2 mks)

* Size of the fruits
* Shape
* Degree of ripeness
* Damage on tomatoes

13. Give possible causes of swelling on roots of legumes. (1 mk)

* Presence of rhizobium in the roots.

14. What is a companion crop? (1 mk)

* A crop grown in the field to help suppress weed growth and control erosion.

15. List two main methods of pruning. (2 mks)

* Pinching out
* Annual pruning

16. State two functions of polythene sheet when used as mulch material.

 (1 mk)

* Regulation of soil temperature
* Control of weeds
* Reduce soil erosion
* Conserves moisture

17. Give any four factors that influence seed rates. (2 mks)

* Desired crop stand
* Germination percentage
* Recommended spacing
* Purpose of the crop
* No. of seeds per hole
* Method of planting

**SECTION B: (20 MARKS)**

18. The diagram below illustrates a crop. Study it and answer the questions that

follow.

 (a) Identify the parts labeled K, L and M. (3 mks)

* K – Crown
* L – Slip
* M - Sucker

 (b) Apart from the parts mentioned above, list down five other vegetative

 materials used for crop propagation. (2 mks)

* Corns
* Bulb
* Stem tuber
* Bulbils
* Splits
* Vines
* Sett
* Rhizomes

19. Study the diagram below and answer the questions that follow.

 (i) What are the dimensions of the figure shown above? (1 mk)

* 1.2m x 1.2m x 1.2m

 (ii) Name the parts labeled A, B , C and D. (2 mks)

* A - Topsoil
* B – Ash
* C – Organic manure
* D – grass, leaves, refuse

 (iii) State the importance of level A in this set up. (1 mk)

* Introduces micro-organisms necessary for decomposition.

 (iv) State two factors considered when selecting a site for a compost pit.

 (2 mks)

* A well drained place
* Direction of prevailing wind
* Size of the farm
* Accessibility.

20. A farmer with one hectare of land requires 40kg of N in his farm. He applied

 CAN which costs Ksh 35 per kilogram. CAN contain 20kg N.

 (a) Calculate the amount of CAN the farmer requires. (2 mks)

 20kgN = 100kg CAN √ (1mk)

 40Kg = ?

 40 X 100 = 200kg CAN √ (1mk)

 20

 (b) How much will a farmer with one and a half hectares spend to apply in his

 farm? (3 mks)

 200kg CAN = 1hec √ ( 1mk)

 ? 1.5 hec

 200 x 1.5 = 300kg CAN √ (1mk)

 1

 $∴$ 1kg CAN = 35/-

 300kg CAN = 300 X 35

 = 10,500/- √ (1mk)

 (c) List five characteristics of nitrogenous fertilizers. (2 ½ mks)

* Highly soluble
* Highly volatile
* Hygroscopic
* Scorching effect
* Short residual effect

 (d) State the two methods employed during soil sampling. (1 mk)

* Traverse
* Zigzag

(e) Define soil sampling – this is collecting of sample of soil to represent the whole land.

**SECTION C: (40 MARKS)**

21. (a) Discuss the importance of crop rotation to a farmer. (12 mks)

* There is maximum utilization of nutrients. Different crops vary in their nutrient requirement in terms of type and depth of absorption.
* Helps in control of soil-borne pests and diseases. Some pests and diseases specific to various crops are easily curbed by alternating crops from different families.
* Controls weeds: Weeds associated with certain crops are easily controlled e.gstriga in grass family crops.
* Helps to improve soil fertility: Inclusion of a leguminous crop in the program helps to restore soil fertility.
* Improves soil structure: Glass hay when included in the rotation restores soil structure.
* Helps to control soil erosion: Crops with poor growth cover should be alternated with those having good cover to prevent/control soil erosion.

 (b) Discuss the factors that determine harvesting of a crop. (8 mks)

* Use or purpose of the crop: The intended aim of planting a crop is considered e.g maize for silage making is harvested bust before flowering.
* Concentration of the required chemicals: Guided by the part being harvested e.g in coffee, the ripe berries are the ones harvested.
* Market demand: Consumers preference should be considered e.g harvesting maize at green stage for fresh market.
* Weather conditions: Dry spell is most preferred for most crops to prevent losses.
* Market price and profit margin, harvesting can be delayed or done early depending on the trends in the market.

22. (a) Discuss the process of water treatment using a chemical treatment system. (12 mks)

* **Stage 1: Filtration at water intake**

- Water is passed through a series of sieves of different mesh

before entering the intake pipe.

* **State II: Softening of water**
* Water flows to a mixing chamber where soda ash and aluminiumsulphate are added in equal proportions.
* **State III Coagulation and sedimentation**
* Water moves to large open tanks where solid particles settle down. Air circulation in water also occurs to remove bad smells.
* **Stage IV : Filtration**
* Water is made to pass through a filtration tank with layers of different sizes of gravel and sand. This is to remove the remaining solid particles.
* **Stage V: Chlorination**
* In the chlorination tank, some small amount of chlorine is added depending on the amount of water to kill micro-organisms
* **State VI: Storage**
* Treated water is stored in large tank before distribution to consumers.

 (b) State and explain various methods used during land leasing. (8 mks)

* Tree felling: Involves cutting down trees
* Burning: Fire is set on the vegetation. However, care should be taken to prevent speed to unintended grasses.
* Use of chemicals: employs use of herbicides which kill weeds faster.

23. (a) Explain various harmful effects of weeds. (10 mks)

* Lower quality of agriculture produce
* Some weeds are poisonous to man and livestock e.g thorn apple.
* Some weeds act as alternate host for insect pests and diseases.
* Some weeds are parasitic to cultivated crops e.g witch weed in maize.
* Weeds compete with crops for nutrient, space, light and soil moisture.
* Some weeds are difficult to control e.g stinging nettle.
* Some block irrigation channels, affect oxygen levels in water.
* Some have allelopathic effect-surpress growth of crops
* Weeds lower quality of pastures
* Block navigation.

 (b) State ten cultural methods employed in pest control. (10 mks)

* Timely planting
* Timely harvesting
* Proper tillage
* Close season
* Trap cropping
* Crop rotation
* Planting resistant crop varieties
* Field hygiene
* Altering micro-climate
* Crop nutrition
* Destruction of alternate hosts
* Use of clean planting materials
* Proper spacing
* Use of organic manure
* Irrigation