FORM FOUR CLUSTER KCSE MODEL 2

AGRICULTURE PAPER 1 ANSWER

SECTION A: (30 Marks)

1. - Provides raw materials for industries.

   - Provide market for industrial goods.

   - Money generated from Agricultural products inform of tax can support further industrial development.

2. (a) TWO tertiary practices suitable for establishment of certain crops.

   - Rolling.

   - Levelling.

   - Ridging. (2x½=1mk)

   (b) TWO farming practices that can improve soil aeration.

   - Continuous cultivation at the same depth.

   - Using heavy machinery on wet soils. (2x½=1mk)

3. (a) THREE reasons why proper soil aeration is important in crop farming.

   - For proper root growth.

   - For proper activity of micro-organisms.

   - To eliminate building up of carbon (IV) oxide/toxic gases /excess micro elements. (½x3=1½mks)

   (b) TWO farming practices that can improve soil aeration.
   - Soil liming.
   - Proper drainage
   - Application of organic matter/manure.
   - Deep ploughing (breaking hard pans)
   - Earthing up.
   - Working the soil at the right moisture content. (2x½=1mk)

4. - Mono-cropping.

   - Continuous cropping

   - Overgrazing.

   - Burning of land.

   - Clean weeding.

5. (a) THREE methods that can be used to apply fertilizer in a crop field.

   - Broadcasting. - Side dressing.

   - Foliar application.

- Top-dressing.

- Injection into the soil.

- Drilling.

- Irrigation method. (1½mks)

(b) THREE advantages of using tissue culture in crop propagation

- Facilitates mass production of propagules/planting materials.

- Used to establish disease free planting materials/minimize spread of disease.

- It is a fast method of crop propagation.

- It requires less space compared to other methods.

- New individuals maintain parental characteristics. (1½marks)

6. - Promotes root development.

- It is essential for flowering, fruit and seed formation.

- Play important part in metabolic process.

- Its part of nuclea proteins required for cell division.

- It strengthens plant stems.

- It stimulates nodule formation in legumes.

- It hastens maturity in crops.

- It improves quality e.g. palatability particularly in horticultural and forage crops.

7. - Tillage/cultivation.

- Slashing.

- Mowing.

- Uprooting

8. - Blossom ends appear rotten.

- Blossom end appear water –soaked

9. - Load may be diverted to other uses for which they were not intended.

- Lack of proper farm records leading to being disqualified from getting loans.

- Lack of knowledge and appropriate skills in the management of credit hence misappropriation.

- High interest rates making repayment difficult.

- Lack of collaterals.

10. - High initial capital.

- It's laborious.

- Disease can easily spread.

- High management skills needed.

11. - Show the type of commodity marketed at a particular time.

- Reveals the reason when there is a good market for the produce that have either high market demand or low market demand.

- Shows the total value of the farm produce.

12. - Increase soil volume.

- Improves soil structure.

- Reduces incidences of water-borne disease and pests.

- Improves aeration.

- Facilitates the growth of crops that cannot grow wet areas.

- Creates more land for agricultural uses.

- Improves microbial activity.

- Reduce erosion.

- To remove toxic substances.

13. - Date of payment.

- The person/firm from which money was received.

- Total amount received.

- Receipt number.

14. Intensive is a system of farming that involves utilization of all available land for maximum production, while extensive farming is a system of farming that involves production of crops and livestock on larger tract of land.

15. - Where the land is sloppy.

- Where the soil is sandy/loose soil.

- Where a rough tilth is required for planting large seeds.

- Low soil moisture content.

- Low capital availability.

- When using tractor drawn implements as compared to hand tools.
- Where land was previously cropped.
- If the time available is less.

16. - Pasture crop refers to a forage crop that can be grazed on directly by livestock without getting

spoiled while fodder crop is one that can easily be damaged by livestock grazing hence be harvested and fed to livestock.

17. - Cover cropping.

- Minimum tillage.

- Application of organic fertilizer.

- Crop rotation where fallow phase is included/grass lays.

- Control soil erosion.

SECTION B (20 Marks)

18. (a) Identify the pest illustrated in R1 and R2. (1mk)

(i) R1 –Maize stalk bore.

(ii) R2-Nematode.

(b) Name one part of the plant attacked by pests.

(i) R1-Stems. (1mk)

(ii) R2-Roots.(1mk)

(c) State the control measure of the pest named.

(i) R1 -Early planting.

- Rogueing.

-Crop rotation.

-Used of appropriate pesticides e.g. Endosurfan/Diazinon/malathion. (1x1=1mk)

(ii) R2 -Crop rotation.

-Rogueing.

-Soil fumigation (1mk)

19. (a) (i) Identify the method of pruning coffee illustrated in K1 (1mk)

- Single stem pruning. (1x1=1mk)

(ii) Name ONE other method of pruning coffee apart from the one illustrated. (1mk)

- Multiple stem pruning. (1x1=1 mk)

(iii) Explain how the pruning method illustrated in K1 is done. (4mks)

- Establish one permanent stem with framework of primary branches.

- Cap the main stem at varies heights as the coffee grows.
- The best growing sucker is allowed to grow upwards.

- Capping is done to encourage development of strong primary branches.

- The first capping is done at 53 cm, 2nd at 114 cm and final at 168 cm to obtain a final height that is between 1.5 m -1.8 m. (4x2=4mks)

(b)

(i) Field practice in K2 is trailishing (1x1=1 mk)

(ii) -Passion fruit.

-Pumpkins. (1x1=1mk)

20. (a) Name the structure marked X. (1mk)

- X- Embarkment (1x1=1mk)

(b) TWO conditions that the above method of soil and water conservation to be used. (2mks)

- Steep slopes.

- High crop value are to be grown.

- When there is a cute shortage of land. (1x2=2mks)

(c) Briefly explain how the above method of soil and water conservation facilitates effective soil and water conservation. (2mks)

- Has embarkments build on a series of steps that help to reduce the speed of water moving slope.

- The top of the embarkments has grass that filters out soil being carried/traps soil being carried. (2x1=2mks)

21. (a) Calculate the plant population if he is supposed to leave 40cm all-round the field uncultivated.(2mks)

$$Plant\ pop^{n} = \frac{Area}{Spacing}$$

$$Pop^{n} = \frac{29.2 \times 19.2m}{(75 \times 25)cm} \text{ (1mk)}$$

$$= \frac{5,606,400}{1,875} = \underline{2,990\ plants} \text{ (1mk)}$$

(b) Calculate the actual seeds that germinated if only 75% of the planted seeds germinated.(2mks)

$$\frac{75}{100} \times 2,990 \qquad \text{(1mk)}$$

$$= \underline{\underline{2,242\ plants}} \qquad \text{(1mk)}$$

SECTION C (40 Marks)

Answer two questions from this section in the spaces provided.

22. (a) The difference between complete and partial budget. (2mks)

- Complete budget is a budget prepared when a farmer wants to start a new business where both

variable and fixed costs are alatered:while partial budget is one that involve only minor changes in farm organizations leading to minimum financial effects/OWTTE

(b) Guideline followed in preparing complete budget. (8mks)

- Formulation of farming goals by stating reasons for settling up the farming business.

- Taking the farm inventory by listing the items in an inventory.

- Planning for resources while involve showing how resources are utilized.

- Estimating production by finding out the gross production of the assets on the farm.

- Estimating income and expenditure by preparing a statement income and expenditure.

- Analyzing the input-output relation that exists on the farm.

- Analyzing existing production weakness in the farm and finding a way of eliminating them.

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- Making a number of alternative farm plans and choosing one for adoption.

- Putting the best chosen plan into operation and supervising the implementation. (8x1=8mks)

(c) Functions of the Agricultural marketing boards. (10mks)

- Inspect the production process to ensure high quality of the produce.

- Provide storage facilities. - Provide credit facilities to farmers.

- Collect farm produce from production areas and deliver to stores/factories.

- Fix prices of farm produce in consultation with the government.

- They buy from farmers/delegate the responsibility to an approved agent.

- Arrange for the supply of farm input.

- Some process and package farm produce e.g. K.T.D.A

- Regulate production to prevent over or under supply.

- Carry out marketing promotion activities on behalf of farmers.

- Provide technical advice on production/extension services where applicable.(10x1=10mks)

23. (a) Factors likely to lower the effectiveness of a herbicide. (10mks)
- Poor choice of a herbicide.

- Spraying/application during heavy rains/when it is about to rain.

- Where application is done in plants with specialized underground structures such as bulbs

.- When spraying narrow-leaved weeds with inclined angle.
- Low concentration of the herbicide.
- Where the weed and the crop are of the same height/have same root systems.(5x2=10mks)

(b) Field practices that help to control pests: (10mks)

- Crop rotation; help to break down the life cycle of pests.

- Closed season; help to break down the life cycle of pests.

- Rogueing; infected plant materials are destroyed to prevent the pest from spreading.

- Heat treatment; to kill micro-organism; reduce contamination with pathogens.

- Use of resistance varieties; crops have mechanisms that make it difficult for pest attack.

- Proper spacing; make it difficult for pests to spread.

- Pruning; creates unfavourable micro-climate for pests.

- Early planting; help the crop to establish faster before the period of attack. Naming 1 mk. Explanation 1mk. (5x2=10mks)

24. (a) Distinguishing between land adjudication and land registration.

- Land adjudication is the process of establishing ownership of land, which involves measurement, description and recording of land details while land registration involves registering land with government officer and obtaining a tittle deed that proves ownership. (mark as a whole) (2x1=2mks)

(b) Problems of land fragmentation.

- Difficult to supervise all fragmented pieces of land.

- Wastage of money and time when travelling to various fields.

- Difficult to control pests/weeds/diseases.

- Hard to obtain extension services.

- Difficult to implement soil conservation measures.

- It might be uneconomical to carry out farm mechanization.

- Difficult for the farmers to follow sound farm plan.

- Difficult to construct permanent farm structures. (6x1=6mks)

(c) Chemical water treatment process.

- Water is passed through a series of sieves with different sizes of holes at the water intake to remove/trap large solid particles e.g. leaves, grass.
- Aluminium sulphate is added to water at the mixing chamber to coagulate solid particles suspended in water.

- Water is then passed through the filtration tank where all the remaining solid particles are removed.
- Water is passed through layers of sound and gravel in the filtration tank.
- All solid impurities are trapped/removed. (7x1=7mks)

(d) Management activities of agroforestry trees.

- Training and pruning to control growth/regulate growth.

- Controlling pests and diseases using appropriate method.

- Grafting old trees/top

–working to get desirable shape.

- Weeding to reduce competition for nutrients and moisture.

- Mulching to prevent moisture loss/control weeds.

- Protection of seedlings against destruction by livestock and wild animals.

- Watering to provide sufficient moisture for growth. (5x1=5mks)