FORM FOUR CLUSTER KCSE MODEL5

AGRICULTURE PAPER 1 ANSWERS

SECTION A (30 Marks)

1. Outline six factors to consider in choosing a farming system.

- Size of the farm.

- Type of soil in the area.

- Environmental factors

. - Availability of resources.

- Cultural factors.

- Aims of the enterprise.

- Farmer's knowledge and skills.

2. List three aspects of light that influences crop growth

-Light intensity.

-Light duration.

-Light wavelength.

3. State four factors that one consider when selecting garden tools for cultivation.

- Soil type.

- Vegetation cover.

- Cost of the tool.

- Skill required.

- Availability of the tool.

- Capital availability.

- The desired depth of tillage

4. State two types of metal pipes used on the farm.

- Galvanized iron pipe.

- Aluminium pipes.

5. Name two types of inventory records.

- Permanent goods inventory records

. - Consumable goods inventory record

6. Sate two crop production practices carried after planting to achieve optimum plant population.

- Thinning

- Gapping

7.State four functions of bovon in crop development.

- Necessary for sugar translocation.

- Needed in water absorption.

- Help in calcium neutralization.

- Aids in fruit development

7. a) What is solifluction?

This is the gravitational flow of surface materials saturated with water.

b) State four factors affecting solifluction.

-The slope of land.
-The nature of material.

- Climate.

-Vegetation cover.

-Human activities.

-Forces within the earth's crust

8. State four symptoms of viral attack in crop pest.

- Leaf chlorosis

- Leaf curling

- Mosaics

- Malformation

- Rosetting.

9. At what stage in the growth of beans should mechanical /weed control be avoided.

- At flowering stage

10. a) Define crop rotation.

-This is the growing of different types of crops of different families on the same piece of land in an orderly sequence.

b) State one factor that would determine the economic performance of a lease hold land tenure system.

-Length of lease.

-Method of rent payment. 12. Name one vegetative material used to propagate each

11. Name one vegetative material used to propagate each of the following crops.

i. Irish potatoes

- stem tubers.

ii. Pineapples

-crowns

iii. Bananas

-suckers

iv. Pyrethrum

-splits

12. State four factors to consider when choosing a nursery site.

- Nearness to the water source.

- Type of soil.

- Topography

. - Previous cropping

. - Security.

- Well sheltered place.

13. State four factors which may affect the quality of hay.

- Forage species used. - Stage of harvesting.

- Length of the drying period.

- Weather condition during the drying process.

- Condition of the storage structure.

14. a) Define soil fertility.

-This is the ability of the soil to provide crops with the required nutrients in proper proportions for high production.(OWTTE)

b) List five characteristics of a crop grown for green manure.

- Should be highly vegetative.

-Should have a fast growth rate

--Should have a high nitrogen content.

--Plants must be capable of rotting quickly.

-Plants should be hardy

– capable of growing in poor condition. 16. Define agroforestry.

15. Define agroforestry.

-This involves growing of trees, crops and keeping of animals on the same piece of land

SECTION B (20 Marks)

16. Sample weighing 120gm was heated in an oven at 1050C. The dry soil was weighed and the weight

recorded as 112gm. The soil was then heated strongly after which was recorded as 106gms.

i. Calculate the percentage content of water in the initial soil sample. (2 marks)
120 -112= 8

$$\frac{8}{120} \times 6.7\%$$

ii. Why was the soil not heated strongly initially. (1 mark)

-To prevent loss of water from the soil.

iii. Calculate the weight of humus in the sample. (1 mark)

=112-106=6 gms

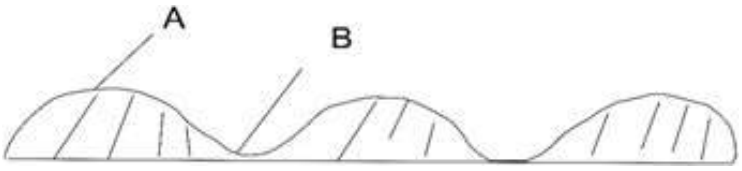
iv. **Find the percentage content of humus in the soil sample.**

(2marks percentage humus in sample =

$$\frac{weight\ of\ humus}{weight\ of\ dry\ soil\ taken} \times 100\%$$

$$= \frac{6}{112} \times 100 = 5.357\%$$

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



i. Identify the farming practice. (1 mark)

-Ridging

ii. Label parts A and B. (2 marks)

A -Ridge

B -Furrow

iii. Give importance of the practice above. (1 mark)

-In irish potatoes, sweet potatoes and groundnuts ridges encourage tuber expansion.

-Allow easy harvesting of root crops.

-In sugarcane ridges help to conserve soil and water.

18. The diagram below represents crop pest.

i. Identify the crop pest. (1 mark)

-Maize stalk borer

ii. Name one crop attacked by the crop pest. (1 mark)

-Maize iii. State three ways in which the pest can be controlled. (3 marks)

-Use of resistant variety.

-Use of field hygiene.

-Use of crop rotation.

19. Study the diagram of the silo below and answer the questions that follow.
i. Identify the method of ensiling above. (1 mark)

-Trench silo

ii. Give functions of the parts labelled w and x. (2 marks)

W -prevent water and air entering into the silo.

X -To drain off rain water.

iii. Name two other methods of forage preservation. (2 marks)

-Hay -Standing forage

SECTION C (40 Marks)

20. a) Describe the practices that a farmer should carry out to ensure uniform germination of seeds. (8 marks)

- Selecting seeds of the same size, age, variety and free from disease and pest.

- Planting the seeds at the same time.

- Preparing seeds at the same time.

- Preparing the whole field to the required uniform tilth.

- Planting at the right moisture content of the soil.

- Treating the seeds against soil borne pests and diseases.

- Planting at the correct depth.

- Treating the seed before planting to break seed dormancy. (1 x 8 each=8 marks)

b) State and explain six cultural methods of weed control. (12 marks)

- Mulching-Mulch smothers weeds, thus preventing weed growth.

-Cover cropping- smother the weeds.

-Crop rotation- Those associated with certain crops would not grow if those crops are not grown e.g. striga and some cereal crops

. -Timely planting- This allows crops to establish early before weeds, thus smothering them.

-Use of clean seed/planting materials- this prevents the introduction of weeds to the farm land.

-Proper spacing- This helps to create little space for weed growth and forming a canopy which suppresses weeds.

-Clean seedbed-crop germinates in a weed free environment and effectively compete with them.

-Flooding- Discourages the growth of all non-aquatic weeds. (Stating =1mk explanation =1 mk)

21. a) Describe the process involved in water treatment using a chemical treatment system. (12 marks)

Stage 1: Filtration at water intake – water is made to pass through a series of sieves. Large

particles of impurities are trapped by these sieves.

State II: Softening of water-soda ash and alum are added into water. Soda ash softens the water while alum

helps to coagulate solid particles which finally settle down to the bottom of sedimentation tank.

Stage III: Coagulation and sedimentation –solid water stay in this tank for at least 36 hours to kill bilharzia worms.

Stage IV: Filtration- water is passed through a filtration tank that removes all remaining solid particles.

Sate V: Chlorination- A small amount of chlorine solution is added into water. The chlorine is used to kill micro-organisms in water.

Stage VI: Storage – Treated water is stored in a large tank before distribution 6 x 2 each= 12 marks;

b) Explain eight effects of fragmentation and sub-division of land. (8 marks)

-Time is wasted while travelling from one holding to another or from the farmstead to the various fragments

. -Proper and effective control of weeds and pests become difficult.

-Difficulties of following a sound farm plan.

-Difficulties in the supervision of the scattered plots.

-Difficult to control livestock parasites and diseases.

-Difficulties in carrying out various soil conservation measures.

-It is impossible for the farmers to restrict grazing in one holding only.

-Difficulties of offering agricultural extension advice.

-Poor agricultural productivity. (1 x 8 = 8 marks)