FORM FOUR CLUSTER KCSE MODEL3

AGRICULTURE PAPER 1 ANSWERS

SECTION A (30 Marks)

Answer ALL the questions in this section in the spaces provided.

1.(i) Mammalian livestock farming/pastoralism/Rabbit production/shoats production/beef and dairy production.

(ii) Fish farming/agriculture (iii)Bee keeping/apiculture.

(iv) Poultry keeping. (½x4=2mks)

2.i) Starting small industries/enterprises.

(ii) Buying farm tools and equipment. (iii)Paying wages of farm workers.

(iv)Meeting back human needs.

(v)Raising standards of living/improving infrastructure

3.(i) To slow down speed of run off thereby encouraging infrastructure and reducing soil erosion.

(ii) Collected water percolates hence raising the water table. (iii)Puts trapped water into productive use.

(iv) Reduces silting of dams and other surface water reservoirs.

(v) Improves water catchment areas thus maintaining high and continuous flow of water in rivers and streams.

(vi) Creates micro-climate hence improving environmental conditions of an area. (½x4=2mks)

4.(i) Loss of soil fertility.

(ii) Sedimentation of dams and lakes. (iii)Destruction of transport network.

(iv)Property damage and loss of life due to landslide and mudslide.

(v)Reduction in available arable land for agriculture.

(vi) River blockage/changing its course.

(vii) Pollution of water bodies or services. (½x4=2mks)

5.(i) Mulching.

(ii) Crop rotation. (iii)Cover cropping.

(iv)Crop trapping.

(v) Double digging

(vi) Biological pest control. (½x4=2mks)

6. (i) Pest predators.

(ii) Pollination.

(iii)Decomposers.

(iv) Nitrogen fixing bacteria. (½x4=2mks)

7. (i) Clear the vegetation.

(ii) Make a vertical cut 5-20 cm deep and take a slice using a soil auger.

(iii)Put the soil in a clean container.

(iv) Repeat the above steps until all the intended spots have been sampled.

(v) Soil from all the spots is thoroughly mixed.

(vi) Take a composite sample from the mixture and send it to the laboratory for testing.

(½x4=2mks)

(N/B: The steps must be sequential to serve 2 marks –maximum

8. (i) To prevent breaking stems in case of strong winds or heavy/weight.

(ii) To ensure that the plant grows in the required direction.

(iii)To improve crop yield as it is given support to fully mature.

(iv) To make field management practices e.g. stool management easier. (½x4=2mks)

9. (i) Should be raised from the ground.

(ii) Should be well ventilated.

(iii)Should be leak-proof.

(iv) Should be easy to clean.

(v) Should be vermin-proof.

(vi) Should be easy to load and off-load.

(vii) Should be strong enough to support grains.

(viii) Should be spacious. (½x4=2mks)

10. (I)Land subdivision.

(II) Land consultation.

(III) Land settlement and resettlement

11. (i) Non-erodable story area.

(ii) Vegetated area.

(iii)River/lake.

(iv) Dry valley. (½x4=2mks)

12. This refers to a point at work pest population causes damage to crops beyond tolerance.

13. (i) Stunted growth.

(ii) Leaf curling and crinkling.

(iii)Leaf chlorosis.

(iv) Rosetting.

(v) Leaf mosaic. (½x4=2mks)

14. States that if successive units of one variable input are added to fixed quantities of other inputs

(held constant) a point is eventually reached when additional products (output) for each additional

unit of input will decline. (1x1=1 mark)

15. A partial budget is prepared when a MINOR CHANGE is to be effected in the farm which involves

only variable factors while a complete budget is prepared when A MAJOR CHANGE is to be effected

in the farm which involved both variable and fixed factors.(1x1=1 mk)

16. (i) Type of machinery to be used.

(ii) Soil fertility. (iii)Size of the plant.

(iv) Moisture availability.

(v) Intended use of the crop.

(vi) Pest and disease control

(vii) Growth habit of the crop. (½x4=2mks)

17. This is the process of cutting the main stem of coffee at a height 53 cm when the young coffee

plant is 69 cm tall.(1x1=1 mk)

SECTION B (20 Marks)

Answer ALL questions in this section in the spaces provided

18. . (a)(i) 30 =Phosphorus percentage/30% OS P2

(ii) 10 =Potassium percentage/10% O K2 (1x2=2 mks) (b) 1 ha of land = 10,000 m2 √ 1 ha (10,

000m2) requires 200 kg of NPK fertilizer

The plot (5x4) m2 would require.

g kgkg 400 /4.0 000,10 20045

√√

The farmer would therefore require 0.4 kg/400g for the plot. N/B: = Areas to be awarded. (1x3=3

mks)

(c) A PARTIAL BUDGET:

DEBIT (-) √			CREDIT (+) √		
	AMOUNT			AMOUNT	
	Kshs√	Cts		Kshs	Cts
EXTRAS COSTS			EXTRA REVENUE√		
Potatoes √					
(i) Fertilizer.			Potato yield√		
$2\frac{1}{2} \times 0.5 \times 1{,}200$	1.500	00√	90x0.5x1, 700	76,500	00√
(ii) Labour –					
50 x0.5 x150	3,750	00√			
(iii) Seeds –			Su-total	76,500	00√
4x 0.5x2, 000	4,000	00√	COSTS SAVED√		
			Maize.		
Sub-total	9,250	00	(i) Fertilizer		
REVENUE FORE GONE√			2 x0.5x1, 200	1,200	00√
Maize yield-√			1x1, 000	1,000	00√
			(ii) Seeds		
50x0.5 x1, 300	32,500	00√	1x1, 000	1,000	00√
TOTAL√	41,750	00	TOTAL	78,700	00√

19. (a) Thorn apple /Datura starmonium. (1x1=1mark)

(b) Annual weed. (1x1=1mark)

(c) It causes poisoning when eaten by livestock. (1mk)

(d) It produces many seeds with poisonous substances. (1mk)

20. (a) Overhead irrigation/sprinkler irrigation.

(b) (i) Advantages:

-Soluble fertilizers can be applied with irrigation water/fertilization.

-It can be used on forms in slopy areas and flat areas.

-Water is evenly distributed. (½x2=2mks)

(ii) It encourages fungal disease outbreaks e.g. CBD and Bright in tomatoes due to water accumulation on leaves. (1x1=1 mks)

(c) (i) Maintenance

–unblocking clogged nozzles.

-repair broken parts. (1x1=1 mk)

(ii) By using –watering can.

-hose pipe. (1x2=2 mks) 21

21. (a) Method

A- Pollarding.

B-Coppicing. (1x2=2mks)

(b) Method B differs from A in that in technique B the entire tree is cut at 10-15 cm from the ground while in technique A it is only the crown/top branches which are pruned. (1x1=1 mk)

(c) Objections of pollarding/method A:

- Harvesting wood for fuel.

- Harvesting fodder for animals.

SECTION C (40 Marks)

Answer any two questions from this section in the spaces provided after question 24.

22. . (a) Four human factors that influence Agriculture: Explained:

(i) Levels of education for most people in a given area.

- The higher the level of education, the higher the chances of better performance in agriculturalproduction.

- Educated people can easily follow instructions on how to do certain things.

- Educated people easily respond positively to new emerging technologies.

(ii) Health of the people.

- Healthy people are stronger and productive as they are able to put more working hours and hence produce more.

- Where many people are affected or infected with diseases such as HIV/AIDS, they cannot work infrom as they are silk or taking care of the sick. (iii)Transport and communication.

- Produce from farms should reach the market after harvesting as some are highly perishable.

(iv) Cultural and religious belief:

- This influences agricultural practices and enterprises a given community may adopt e.g. Muslimcommunities do not keep pigs.

(v) Market force:

- Supply and demand dictate that you can only supply what the market is willing and able to buy acertain price, time and place.

(vi) Government policy.

- The government through the state department of agriculture, Amy come up with policies

resulting in improvement or drop in agricultural production e.g. subsidies, increasing taxation,

training and provision of seeds freely. (2x4=8 mks)

(b) Production of Dry Beans: (i) Planting:

- Done at onset of rains.

- Place 2-3 Seeds per hole by dibbling.

- Space at 30 -45 x 15 cm. -Apply DAP at the rate of 200 kg/ha.

-At a depth of 2.5-10 cm depending on soil moisture content and soil type

- Can be done manually or mechanically using planters. (1x3=3 mks)

(ii) Field management practices.

- Weed control.

Done manually using jembes and shallowly before flowers form.

Done when the field is dry to avoid spread of diseases.

Use pre-emergence herbicides.

- Pest control

 Bean aphids and bean fly controlled by early planting/crop rotation/use of certified seeds.

 Cutworms controlled by physicals destruction/soil fumigation.

 American bollworm is controlled using dimethoate

- Diseases control.

 Anthracnose by spraying with appropriate/copper fungicides/planting resistant varieties/spraying

field.

 Halo bright –by uprooting and destruction of infected plants/crop rotation/using suitable

fungicide/not weeding when wet.

 Bean Common Mosaic Virus.-controlled by preventing spread of insect vectors e.g. bean aphids.

(1 mk for disease (1x3) and 1 mark for 2 control methods =5 marks)

(iii)Harvesting and post-harvest practices:

- Done 3-6 months after planting depending on variety.

- By uprooting the whole dry plant.

- Done early in the morning to avoid bean pods shattering and splitting.

- Spread harvested crop on mats for further drying.

- Thresh dry beans by beating with sticks

. - Winnow to remove all trash.

- Sort out to remove all the trash, diseased and damaged seeds.

- Treat sorted seeds with appropriate pesticides and pack in bags.(1x4=4 mks)

23. (i) Through inheritance

–from parents, ground parents other relatives or well wishes.

(ii) Through buying-from willing sellers.

(iii)Tenancy- leasing land from a landlord.

(iv) Settlement by the government-internally displaced persons and other landless squatters can

be settled by the government or allocated land.

(b) Details contained in a Purchase Order (P.O)

(i) Serial number/recipient number/order number.

(iI) Name and address of the buyer.

(iii) Date of order.

(iv) Name and address of supplier.

(v) Items and their particulars.

(vi) Quantity of each item.

(vii) Signatures of ordering buyers. (1x4=4 mks

A PARTIAL BUDGET:

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EXTRAS COSTS			EXTRA REVENUE√		
Potatoes √					
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			Maize.		
Sub-total	9,250	00	(i) Fertilizer		
REVENUE FORE GONE√			2 x0.5x1, 200	1,200	00
Maize yield-√			1x1, 000	1,000	00√
			(ii) Seeds		
50x0.5 x1, 300	32,500	00√	1x1, 000	1,000	00√
TOTAL√	41,750	00	TOTAL	78,700	00√

(ES +RF) (ER +CS) (½x22=11 mks)

(Extra Revenue + costs saved) – (Extra costs +Revenue Foregone) 78,700-41,750) Kshs 36,950

This indicates a PROFIT of Kshs 36,950V (1 mark) This change is therefore WORTHWHILE and

should be effected.

24. (i) Nursery establishment and management. - Prepare land to fire tilth. - Remove all stamps, roots

and perennial weeds. - Work manure or phosphatic fertilizer into the soil. The soil level. - Make

shallow drills, 10 cm apart and sow seeds. - Singly and lightly cover them with soil. - Apply mulch

on the surface but remove on emergence of seedlings.

- Water seedlings lightly and regularly.

- Harden off seedlings two weeks before transplanting.

- Control weeds manually by uprooting as they emerge

. - Control pests and diseases in the nursery. (1x6=6 mks)

(ii) Field management practices:

- Carry out –dressing using nitrogenous fertilizer at 20-25 cm height e.g. SA, CAN or Urea.

- To-dressing should be repeated 3-4 weeks letter.

- Observe shallow weeding early to avoid root damage.

- Carry out manual weeding by digging out (or uproot)

- Spray against aphids using dimethoate. - Spray against fragile diseases e.g. blight using copper

fungicides.

- Control cutworms at transplanting by mixing suitable powder in each hole

. - Control damping off disease by light watering and avoiding shade.

- Black rot is controlled by crop rotation

. - Downey mildew is controlled by rogueing field's hygiene and crop rotation. (Any two pests and

their control 2x2=4 marks) Any two diseases and appropriate control =2x2=4 marks) (Total 8

marks)

(b) (i) Stocking rate and land carrying capacity.

- Stocking Rate refers to the number of animals per unit area of pasture land.

- Carrying capacity is the ability pasture/forage stand to maintain a particular number of livestock

units per given unit area. (2mks)

(ii) Properties of good quality silage.

- Fine texture with no slowness.

- Has pH not exceeding 4.2/ or below.

- Free from moulds and bad odours.

- Green-yellow in colour and not brown or black.

- Obtained from high quality forage

- Has lactic acid content 5-9 % (1x6=6 marks)