FORM FOUR CLUSTER KCSE MODEL9

AGRICULTURE PAPER 1 ANSWERS

SECTION A (30 Marks)

Answer all questions

1. o Operations of machines.

   o Tilling of land.

   o Crop harvesting.

   o Weeding of crops.

   o Pruning of crops.

   o Measuring distances /spacing

2. o Availability of high level of skills.

   o Availability of large farms/piece of land.

   o Where farming is commercialized /mainly for income generation.

   o Where labour is easily available.

   o Where one or two major enterprises are to be carried out.

3. o Converts atmospheric nitrogen to nitrate.

   o When they die they release nitrates.

4. o Liming

   o Drainage.

   o Application of organic matter.

5. o Condition of the land.

   o Depth of cultivation required.

   o Type of tilth required.
   o Type of soil.
   o Topography of the land.
   o Cost of implements/capital available.

   o Skill or know –how required.

   o Source of power.

6. a)
   o Sub- soiling. NO ANSWER

   b)

   o Breaks the hardpans formed after land preparation.

7. a)

o Are programmers that aims at altering the land tenure legislation so as to enhance efficient utilization of land/improve the efficient land legislation.

b)

o To achieve flexibility in farming patterns to meet changing national and international market demand.

o To achieve effective utilization of national resources.

o To encourage farmers to invest more by offering security of tenure.

o To encourage conservation measures on land and general land improvement.

o To promote commercial farming.

o To achieve productivity of both land and labour.

8. o Fast growing.

o Deep rooted.

o Nitrogen fixing.

o Good in by product.

9. o Cost of feeds.

o Wages of casual labour.

o Cost of drugs/veterinary payments.

10. o Should be knowledgeable about specific Agriculture principle, marketing and accounting.

o Hardworking and time conscious.

o Should be flexible in decision making in order to adjust to the over changing social and economic trends in the society.

o Should have practical farming skills.

o Should be responsible, dynamic/prudent/competent/ambitious.

11. o Flat land/gentle slope.

o Shallow /loose soil over tight sub soil.

o Uncovered ground surface/bare ground surface.

12. o Mode of feeding.

o Crops attacked.

o Developmental stage of the pest.

o Stage of the crop attacked.

o Scientific classification.

o The level of damage.

13. o Lodging before maturity.

    o Leaves of crops develop a burnt appearance on the tips and margins.

    o Leaves curl.

    o Upper leaf surface lose chlorophyll and become yellow.

    o Stunted growth.

    o Shriveled fruit or seed.

14. o To know the soil pH.

    o To determine the level of nutrients in the soil/to know fertile the soil is.

    o To determine the type of the soil.

    o To estimate the increase in yield of the crop after addition of fertilizer.

15. o Seed dressing is the coating of seeds with an appropriate chemical/(fungicide or pesticides) to protect them against soil borne pests and diseases, while seed innoculation is the coating of leguminous seeds with the right strain of nitrogen –fixing bacteria to promote nitrogen fixation. Mark as a whole

16. a)

    o Crop rotation.

    o Cover cropping.

    o Mulching.

    o Timely planting.
    o Use of clear seeds/planting materials.

    o Proper spacing.

    o Clean seed bed.

    o Flooding.

    b)

    o Reduce the life span of pastures.

    o Weeds reduce the quality and herbage yields.

    o Weeds interfere with forage fertilization.

    o Some weeds may result in livestock poisoning.

    o Some complete with forage crops for resources such as nutrients/light/moisture.

17. o More nutrients are preserved.

    o Has few field loses. o Less dependent on weather conditions.

    o Once ensiled there are very few field losses.

o Can fed directly without use of addictives.

o Can be preserved for prolonged period with minimum loss of nutrients.

18. o Highly vegetative or leafy.

o Should have a fast growth rate.

o Should have high nitrogen content/preferably leguminous plants.

o Capable of rotting.

o Plants should be hardy/capable of growing in poor soil conditions.

19. o Type of crop to be grown.

o Topology of the land.

o Type of soil.

o Capital availability

20. o Breeding records.

o Milk production records.

o Feeding records.

o Healthy records.

21. o Nature of leaf surface.

o Differential height of plants.

o Location of growing points.

o Difference in roots systems.

o Leaf angle.

o Specialized structures e.g. Rhizomes and sedges.

SECTION B (20 Marks)

Answer all questions

22. a) Compound layering/serpentine layering.

b) o Marcotting.
o Tip layering. o Trench layering.

c) o To hold the branch in position.

d) o Plants with desirable root characteristics such as disease resistance/vigorous root system may be utilized to produce desirable shape.

o Facilitate the changing of the top of tree from being undesirable to desirable.

o Make it possible to grow more than one type of fruit or flower on the same plant.

o Help to propagate clones that cannot be propagated in any other.

o Help to shorten the maturity age.

o Help to repair damaged trees.

23. a)

A. – Roof

B. -Funnel lid.

C. – Overflow pipe.

D. -Drainage pipe.

E. – Tank.

F. –Tap.

G. –Gutters.

H. –Base.

b) Use of water tanks.

c)

o Cover the tank to prevent contamination from dust. o Clean the tank to remove accumulated dirt.

o Stone and concrete tanks should be reinforced with wire mesh or barbed wire during construction so as to resist pressure. o Iron sheet or aluminum tanks should be placed on a strong base

24. a)

X1-Nematodes

X2-Sorghum shoot fly

b)

o Insect toxic substances into the plant stimulate abnormal tissue growth.

o Some nematodes feed on plant roots causing root stunting.

o Nematodes attack, cause wounds in plant tissues leading to secondary infections.

o Suck the cell saps, causing wilting.

c)

o Early planting.

o Closed season.

o Application of insecticides.

d)

o Sorghum.

SECTION C (40 Marks)

Answer TWO questions

25. a)

o Adding manure of the soil to enrich it with more nutrients.

o Using in organic fertilizers which release nutrients in forms that are readily available to plants.

o Regulating the soil PH through liming.

o By weeding to reduce competition for nutrients.

o Through mulching to conserve moisture/add organic matter/control erosion/suppress the growth of weeds.

o Practicing afforestation and re- afforestation.

o Controlling erosion. o Practicing crop rotation.

o Using appropriate tillage method e.g. minimum tillage.

o Carry out irrigation to increase the carry out level and uptake of nutrients.

b)

o Nearness to the water source for easy watering.

o The type of soil: should be well drained deep and fertile, preferably sandy loam soils.

o Topography: should be on a gently sloping land to enhance drainage.

o Security: should be well secured from thieves and damage by livestock.

o Well sheltered: the place should be free from strong winds.

o Previous cropping: areas where same crop species had been planted should be avoided.

c)

o Soaking the seeds in water to soften the seed coat/scarification.

o Heat treatment e.g.by boiling, slight –burning or roasting to soften the seed coat and allow water permeability.

o Chemical method such as use of sulphuric acid to make the seed coat permeable to water.

o Storing the seed over a period of time/pre –conditioning the seeds.

o Washing/removing the mucilage.

26. a)

o Helps the farmer in decision making so as to avoid over expenditure and impulse buying.

o Enables the farmer to predict future returns/plan ahead.

o Helps the farmer to incurring losses by investing in less profitable enterprises.

o It enables farmers to secure loans from financial institutions such as AFC and commercial banks.

o It pin points of efficiency or weakness in farm operations.

o It acts as a record which can be used for future reference.

b)

o Pruning to create unfavourable micro-climate for some pathogens, hence minimize the spread of disease.

o Closed season: to break down the life cycle of the pathogens.

o Early planting or timely, helps the crop to establish faster before disease attack.

o Planting disease –free/certified seeds to prevent introduction of pathogens into the fields.

o Weed control to facilitate elimination of disease causing organisms associated with some weeds.

o To prepare spacing to control the spread of pests in certain crops such as rosette in groundnuts.

o Regueing, which involves removal and destruction of the infected crops to stop the disease from spreading further.

o Use of resistant varieties, which have natural protective mechanism against crop disease e.g. maize streak.

o Seed quarantine: prevents introduction of disease infected planting materials into the farm.

o Heat treatment, to kill any micro-organism present.

o Use of clean farm implements or equipment, to reduce chances of possible seed contamination by pathogens.

o Destruction of affected crop residue to destroy/kill the pathogens.

c)

o Clear the vegetation from the sampling spot and make a vertical cut 5 cm for posture crops and 15-25cm for crop land.

o Take a slice from the vertical cut using a spade or soil anger.

o The soil is put in a clean polythene bag/suitable container.

o The above steps are repeated in different spots.

o Thoroughly mix soil from the different spots, dry it and crash.

o A sub –sample is then taken to and sent to the laboratory for testing and sent to the laboratory for testing

27. a)

o Control weeds by either slashing or uprooting.

o Use selective herbicides to control weeds.

o Top-dress with nitrogenous fertilizer to replenish the soil nutrients.

o Apply nitrogenous fertilizer after topping in splits/apply the fertilizer by broadcast method.

o Carry out topping/remove fibrous material left over after grazing.

o Done by use of tools such as sickles.

o Irrigate during dry spells.

o Control pests such as moles.

o Fence off the pasture land to avoid disturbance of pasture.

o Avoid grazing when the pasture is too young.

o Practice light grazing in the initial stage of pasture establishment.

b)

i. Used of weirs/dams.

o Weir is constructed across the river to raise water level and facilitate pumping.

o Dams forms reservoirs that store water and facilitate pumping.

ii. Roof catchment: Rain water is collected from rooftops, then directed into water storage structures/tanks.

iii. Use of pond: stone water for livestock and domestic use/rearing fish.

iv. Rock catchment: Rain water harvested from rocks by constructing a concrete wall amount the base of the rock and directed to the reservoir.

v. Use of wells: harvesting of rain water from big rocks.

o Concrete channels constructed at the base of the rocks to direct water into a reservoir.