MARKING SCHME

AGRICULUTRE F3 PAPER 1.

1. Entomology
   Agriculture Engineering
   Soil Science /pedology
   Pathology
   Genetics
   Ecology
   ½ x 4=2mks

2. Requires large tracks of land
   Low capital investment
   Low labour per unit area
   Low yields per unit area.
   Low management skills ½ x 2=1mk

3. Environmentally friendly /reduces environmental pollution
   Produces high quality products from chemical contamination
   Improves soil structure
   Improves soil structure
   Improves water retention capacity of soil.
   Provide food for soil microbes
   Enhances water infiltration ½ x 2=1mk
4. Field crops
   Horticulture ½ x 2=1mk
5. Increases evaporation leading to wilting of crops
   Increase incidence of disease infection and pest infestation in crops e.g. leaf rust in coffee and aphids in vegetables
   Reduces quality of some crops eg pyrethrum and tea.
   ½ x 2=1mk
6. Application of lime to the soil, application of organic /organic farming.
   Mulching
   Minimum tillage
   Crop rotation
   Cover cropping ½ x4=2mks

7. Pests
   Disease pathogen
   Parasites
   Denitrifying bacteria ½ x 2=1mk

8. Amount of Rainfall
   Reliability of rain
   Distribution of rainfall /rainfall pattern
   Intensity of rainfall
   Form of rainfall
   ½ x4=2mks

9. Aeration /porosity
   Drainage
   Water holding capacity
   Stickiness ½ x 2=1mk

10. Level of education
    Health
    Economy
    Government policy
    Transport and communication
    Cultural practices and religion beliefs
    Market forces ½ x 4=2mks
11. Amount of capital
    Topography
    Amount of water available
    Type of soil
    Type of crop to be irrigated
    ½ x 4=2mks
12. Bulky hence costly to transport
    Laborious to handle
    Less nutrients per given value
    Not possible to determine nutrients content
    Can burn crops if used immediately after it is made.
    Can be a means of spreading weeds
    Can labour and spread pests and diseases.
    Show release of nutrients ½ x 4=2mks
13. Leads to development of hardpans
    Leads to build up of soil borne pests and diseases
    Reduced water infiltration
    If burning is used, fertility is reduced and it kills some useful soil organisms.
    ½ x 4=2mks
14. Gradual reduction in frequency and amount of watering
    Gradual reduction on shading
    Gradual reduction on mulching
    ½ x 2=1mk
15. a. Permanent goods inventory
    Consumable goods inventory ½ mks
    b.To show the assets of the farm
    It helps to detect losses or thefts of property on the farm. 1x1=1mk
16. tu use less seeds per unit area
    requires less labour to care for seedlings in a small area
    Enables one to select vigorously healthy seedlings
    Gives a farmer a head start in planting hence early maturity of the crop.
    Many seedlings are produced in a small area
    Excess seedlings can be sold
17. a. Vegetative propagation is production of new plants by use of plants parts.
    b.i.sisal-bulbs
    Ii.Pineapple-crowns suckers
    iii. Irish potatoes-stem tubers

SECTION B

18. **a)**18-18% N(Nitrogen)
    46 – 40% P_2O_5(phosphorous pentacloride)

0 -0% K_2O) (Potassium oxide)
3x ½ (1 ½ mks)
b. 21kgN contained in 100kg C.A.N

200kg C.A.N.suppliers
21KGN kg x 200kg CAN
100kg C.A.N.

=42kg N ½ x 3=1 ½ mks

19. a.F-whip/tongue grafting
G-tissue culture
H-marcotting /aerial layering 3x1=3mks

b.Where the branches cannot reach the ground.
-where the branches can break if bent/woody branch 2x1 =2mks
c.To establish pathogen free plants
mass production propagation
fast
Requires less space 2x 1=2mks

20. a.Indove /pit method 1x1=1mk.
b.should be in a well drained place
should be on the leeward side in relation to the directing the prevailing wind.
Should be accessible
Located near the farm where the compost will be used
Should be in a well sheltered place.(2x1=2mks

c.The level of management practices during preparation e.g internal and effectiveness in turning.
The type of materials used
The age of the materials used 2x1=2mks

21. Soil capillary 1x1=1mk
b.G- sandy soil
H- Loamy soil
J-Clay soil
3x1 =3mks

c.Clay soil has the highest capillarity, followed by loam soil. Sandy soil has the lowest capillarity 1x1=1mk

22. I)Chitting
It is induction of sprouting in potato seed tubers (sets)
1x1=1mk
ii)Seed dressing
dusting seed with appropriate chemical to prevent pest and disease attack. (1x1=1mk
iii)Seed inoculation
practice of introducing the right strain of nitrogen fixing bacteria(rizobrum on the surface of legume seeds prior to planting 1x1=1mk.
iv)Earthing up

Placing a heap of soil around the base of the crop. 1x1=1mk

v)Rogueing

Removal through uprooting and destruction of plants that are diseased, infested heavy with pests or have undesirable characteristics. (1x1=1mk)

SECTION C.

23(a)Factors considered when spacing crops

- Soil fertility status.-crops can be spaced wider if the soil is infertile and closer of soil is fertile.
- Soil moisture rainfall in the area – Drier areas require wider spacing than wet areas.
- Machinery to be used in subsequent farm operations.-A crop whose operation will be given a wider spacing to allow for movement, of machinery that which will be manually transferred.
- Intended purpose of the crop.- Crops grown as fodder for annual can be spaced c loosely.eg maize for silage is spaced closer than that grown for grains.
- Growth habit/size/suckering/tilling % of the crop. – P plants that tiller or produce suckers or those that occupy a wide area should be widely spaced. Those that grow upward require closer spacing.
- Cropping system – whether pure stand or mixed stand. Wider spacing is required for a crop to be interplant than in a pure stand.
- Height – Shorter crops require narrower spacing than taller crops.
- Number of spacing per hole- If more seeds are planted per hole the spacing should be wider than fewer or one seed planted per hole.
- Mark any 6 points 1 mark stating 1x6 =6

  1 mark explaining 1x6 =6

  Total 12 marks

(b) Describe the process of chemic al water treatment

Stage 1:' Filtration at the water intake. eater is made to pass through a sense that trap large particles.

Stage 2: Softening of water

The water is made to circulate in a small tank where it is mixed with a soda ash(sodium bicarbonate ate and aluminium sulphate.

Soda ash softens the water

Aluminium facilitates coagulation and sedimentation of soil particles

Stage 3 : Coagulation, sedimentation aeration bottom a large open tank.

Water stays here for at least 36 hours to kill bilharzias wormed

The tank is left open for aeration in order to facilitate filtratiuon.Water passes into filtration tank where all the remaining solid particles are trapped and removed.

This is facilitated by the tank having layers of different sizes of gravel and sand.

Stage 5: Chlorination

Filtered water enters the chlorination tank where small amounts of chlorine solution are added to kill micro-organisms .The amount t of chlorine is controlled by a dozer.

STERP 6. Storage and distribution.

Treated water is stored in large tanks before being distributed by consumers

Mark the 5 stages in order

2 x5= 10 marks

24(a) Uses of farm records

- Guide farmers in plan ting and budgeting
- Show whether the farmers in making profit or loss.
- Show history of the farm
- Help to determine a farmers t worth insets
- Help in sharing of profit or losses in partnerships or cooperation bans
- Help in comparison of performance of different enterprises in the farm.
- Help in settling disputes among liars if the farmer dies without a will
- Help to support insurance claims in the event of death or fire
- Help to remind farmers about his depts. Laborers so as to pay so as to repay in time
- Provide labour information such as when paying terminal benefits and pensions and NSSf dues.
- Help in select ion of breed stock, culling unproductive animals.
- Help to detect thefts or loss cases on the farm.
- Help farmers in making sound management decisions
- Help to pinpoint weakness on the farm business or areas that need improvement or reorganization

(b) Ways in which soil loses fertility

- Leaching – As more waters moves down the soil horizons it carries along soil nutrients allow the soil profile beyond the reach of the plant roots
- Soil erosion – Detaching and carrying away of top fertile soil leads to loss of fertile soil
- Burning of vegetation –This destroys organic matter, beneficial organ isms that breakdown organic matter to realize nutrients are also destroyed.
- Change in soil ph – Due to prolonged use of acid or basic fertile ph determine the type of micro-organisms present and the availability of certain nutrients to crops.

- Monocropping- The practice of growing one type of crop in the same place of land for a long time. There is depletion of certain nutrients and from a certain zone in the soil
- Contour cropping- Crops absorb large amount of nutrients which get lost if they are never replenished back to the soil
- Accumulation of salts – Under irrigation in semi- arid areas, there is a high evaporation rate leading to accumulation of salts .This causes Salinization and destruct ion soil structure if leads to loss of soil fertility
- Development of hard pans- These prevents water infiltration into the soil proper development of crop roots.
- Fixation of nutrients into insoluble farms – Some nutrients become fixed hence are not readily available to crops
- Stating ½ x 5 =5 mrks
- Explaining ½ * 5 = 5 marks
- Total 10 marks

25 Tomato production

a. Ecological requirements

- Rainfall 760 -130 mm per annum moderate rainfall well distributed.
- Altitude 0-21000mm above sea level /low to medium altitude areas.
- Soils- deep fertile well drained.
- SOILM PH – 6-6.5/slightly acidic soils.
- Temperature- optimum temperature of 21-22 moderate temperature 1x3 =3 marks

b. Should be done early before the onset of rains

Clear the vegetation and remove tree stumps.

Plough deeply an d remove all perennial weeds

Harrow the land to medium tilth and level it.

Prepare planting holes 15cm deep

Holes should be spaced at 9M x 0.6 M or 1.0 mx0.5 m depending on variety

Apply organic manure/phosphatic fertilizers eg Dsp one tea spoonful per whole

mix the manure or fertilizer well with the soil 1x4=4mks

Transplanting – Transplant when seedlings are 10-15 cm high 4 to 6th the leaf stage pencil thick

c. Transplant on a cool cloudy day late in the afternoon.

Water the nursery bed well before transplanting

Use a garden trowel to lift the seedling with a ball of soil around the roots

Select only healthy and vigorously growing seedlings

Water the seedbed planting hole before transplanting the seedlings

Pace seedlings in the planting hole at the same depth as they were in the nursery.

Apply appropriate insecticide chemical to control soil –borne pests like cutworms.

Firm/ compact the soil around the seedlings

Mulch

Then water the seedlings (5pts in order) 1x 5 =5marks

Field management practices.

- Carry out timely gapping of seedlings that have died after transplanting.
- Water regularly, especially during the dry spell.
- Top dress by 2 split applications using nitrogenous fertilizers.
- Weed early and regularly.
- Stake all tall varieties.
- Prune to remover excess suckers or leaves touching the ground.
- Control nests using appropriate methods
- Control diseases like tomato blight by spraying regularly with appropriate chemicals.
- (any 5) 1x 5 = 5

d. Marketing

e. Fresh market fruits should be picked as soon as they ripen.

f. Ripening may be hastened by keeping fruits in cool dry conditions

g. Fruits for canning need to ripen enough for processing.

h. Use large well ventilated crates to transport tomatoes.

i. The fruit should be level with the of the crates to allow piling of crates to avoid damaging the fruits

j. Deliver the fruits to the market with our delay the perish ability.

k. Grade tomatoes depending on size, degree of ripeness, freshness

(any 3) 1x 3 =3 marks