M/s SUKEILIMO - P₁

SECTION A (30 marks)

*Answer **all** the questions in this section in the spaces provided*

1.   Give two disadvantages of intensive system of farming.   (1mk)

- Requires high Capital investment per unit area
- High Labour per unit area. / High skilled labour.

2.   List four methods of farming.   (2mks)
- Agroforestry
- Shifting cultivation   Mixed farming
- Organic farming
- Nomadic pastoralism

3.   Give the meaning of the following terms:
        a)   nitrogen fixation into the soil;   (1mk)

Nitrogen gas is converted in to forms which canbe absorbed by plants

        b)   phosphorus fixation in loss of soil fertility.   (1mk)

- Phosphorous combines with other elements and becomes unavailable for plant use.

4.   List four ways through which soil PH influences crop production.(2mks)
=> Determines the type of fertilizer to apply.
=> Determines the availability of particular mineral elements in the soil.
=> Determines the activity of micro-organisms in the soil.
=> Determines the crop to grow in an area.

5.   Outline four factors that affect the effectiveness of a pesticide.(2mks)
- Weather conditions
- concentration of the pesticide
- persistence of the pesticide
- Mode of action
- formulation of the pesticide.

6. Sate two reasons for land fragmentation in Kenya. (1mk)

- Shifting cultivation
- Settlement and resettlement.
- Traditional system/ inheritance of land among heirs.
- Population pressure on a limited area hence purchase of la...
- Accumolation of land holdings.

7. Give four advantages of individual owner operator tenure system as practiced in Kenya. (2mks)

- Minimices land disputes as the farmer posseses a tittle deed.
- It is easy to plan and make decisions.
- The owner has incentives to make longterm investiments.
- The tittle deed can be used as a security to obtain loans.
- It gives the farmer incentives to improve the land.
- The owner can sell or give away part of the land at will.

8. Sate four features that should be considered when choosing water pipes for use on the farm. (2mks)

=> The pipes should be durable.
=> The cost of the pipe
=> The Diameter/size
=> Streangth/ Ability to witsstand preasure
=> workability / skills available.
=> Colour

9. Give four reasons for treating water for use on the farm. (2mks)

- To remove Chemical impurities
- To remove bad smell.
- To Kill disease causing micro-organisms.
- To Nemove sediments of solid particles.

10. State four factors that determine the stage at which a crop is harvested. (2 marks)

- The intented use of the crop.
- Weather conditions
- Market demand
- Concentration of the required chemicals

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Prevailing Market prices and profit Margins.

11. State two activities carried out during hardening off tomato seedlings. (1mk)
=> Removal of Shade
=> Reducing watering frequency.

12. Give two reasons for carrying out each of the following operations in land preparation:
    a) rolling: (1mk)
    - increases seed-soil contact
    - prevents soil erosion
    - prevents small seeds from being carried away by wind.

    b) leveling. - Encourages uniform depth of planting. (1mk)
    - facilitates uniform germination.
    => prevents depressions which collect too much water which may cause rotting of seeds.

13. Give four benefits of practicing organic farming. (2mks)
    - The method is environmentally friendly.
    - Encourages production of chemical free products.
    - The method is generally cheep
    - It improves soil structure and water infiltration.

14. Name three vegetative parts that can be used to propagate pinapples. (1 1/2 marks)

    - Suckers
    - Crows
    - Slips.

(b) State three disadvantages of vegetatively propagating pinapples. (1½
    - May not result in to new crop varieties
    - Keeping the materials free of diseases is difficult

3

- Materials cannot be stored for a long time unlike seeds
- Materials are bulky ∴ difficult to transport.

16.   Name two classes of weeds on the basis of each of the following:
      a)   growth cycle;   (1mk)

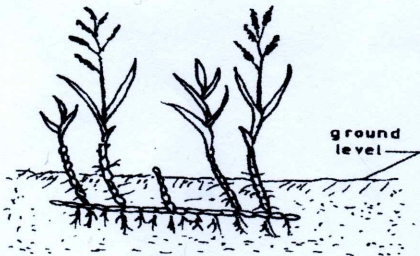*- Annuals*
- Perrenials
- Biennials.

      b)   plant morphology.   (1mk)

⇒ Broad leaved
⇒ Narrow leaved.

SECTION B (20 marks)

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

17.   Below is a diagram of a weed. Study the diagram carefully and answer the questions that follow.

      a)   Identify the weed illustrated above.   (1/2mk)

couch grass;

      b)   Why is the weed illustrated above difficult to control?   (1mk)
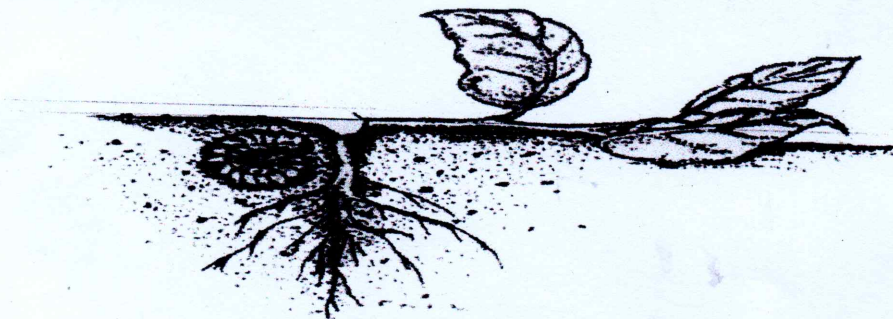
It has underground rhizomes.

      c)   State four ways in which the weed can be controlled in a field of maize.
                                                                           (2mks)

- Use of selective herbicides
- Tillage proper tillage especially in dry season.

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18. The diagram below shows a pest and the damaged crop. Study it and answer the questions that follow.


a) Identify the crop pest illustrated above. (1 mark)

Cutworm.

b) Explain two ways of controlling the pests. (2 marks)

- use of appropriate pesticides.
- Early planting for the crop to establish and outgrow the pest.
- Field hygiene to prevent transmission from previous crop residues.
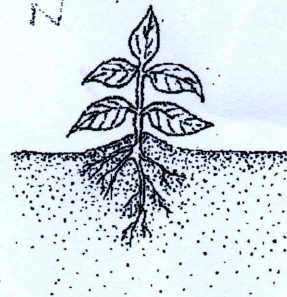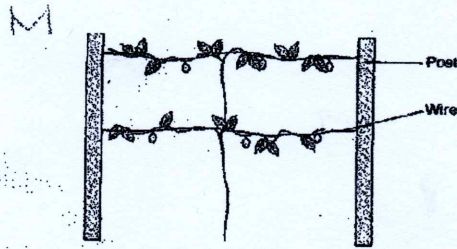- Physical killing and destruction of the pest.

20. The diagram below illustrates a nursery practice.
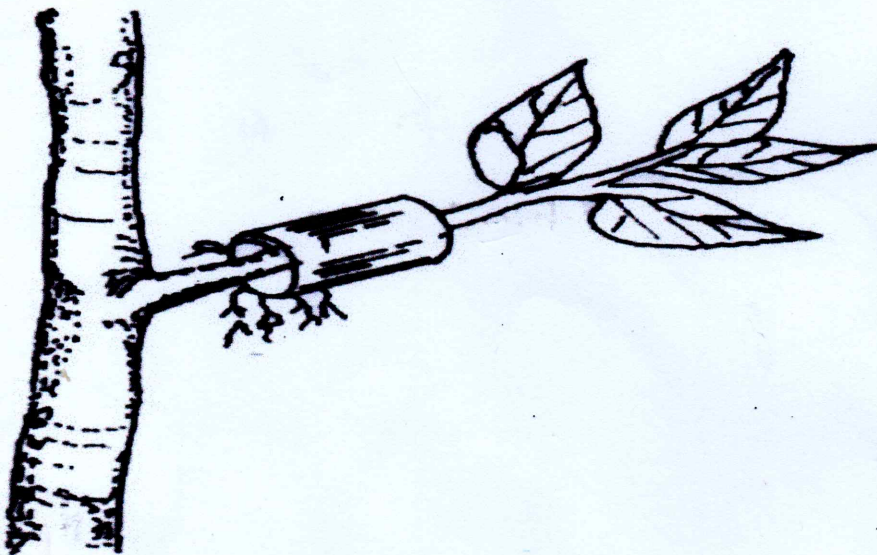
(a) Identify the practice. **(1 mark)**

Aerial layering;

5

21. .The diagrams below illustrate field management practices. Study them carefully and answer the questions that follow.

a) Identify the field practices.

M....*Tyelishing*..(1mk)

N.....*Earthing up*...(1mk)

b) Name a crop that can be managed using management (M) above.(1mk)

...*Passion fruit / some bean varieties*....................................

c) Give one reason for carrying out each of the management practices above.(2mks)

M....*provides support to crops with vines*.................................

N...*Improves tuber formation (or) in Irish potatoes*.
   - *provides support hence preventing lodging es) in Maize*.
   - *Improves drainage around the crop*.

22. A famer is advised to apply 60kg N, 20kg P_2O_5 and 30kg K_2O per hectare. Calculate the quantity of urea (46%N), single super phosphate (20%P_2O_5) and muriate of potash (50% K_2O) the farmer should apply on his 10 hectares land. **(5 mks)**

N:

46kgN is contained in 100kg b
60kgN = ?

$\left(\dfrac{60\,KgN \times 100\,Kg}{46}\right)$ 10.

= 1304.Kg

P- 20kg P_2O_5 is contained in 100kg b.
20kg P_2O_5 = ?

$\left(\dfrac{20kg\,P_2O_5 \times 100kg}{20kg\,P_2O_5}\right)$ 10.

= 1000 Kg

K 50kg K_2O = 100kg b
30kg K_2O = ?

$\left(\dfrac{30\,Kg \times 100\,kg}{50kg}\right)$

600Kg.

6

(b) Describe the procedure followed in carrying out the practice illustrated.(2 marks)

- Select a healthy branch
- Debark a section of the branch
- Heap moist rooting medium around the debarked section.
- Wrap the rooting medium with a transparent polythene paper.

(c) State two advantages of the practice illustrated above in crop production. **(2 marks)**

- It is used to obtain large planting materials
- It is used to propagate plants whose branches cannot bend easily to the ground.

b) State two ways in which pruning assists in controlling crop diseases.   (1mk)

→ Prevents spread of the disease.

→

7

23 a) factors that encourage Soil erosion.
- Lack of Ground cover exposes soil to agents of soil erosion
- Steep slopes Increase the speed of Surface run-off hence erosive power of water
- Light/sandy soils are easily carried away by agents of Soil erosion
- Shallow soils are easily saturated with water and carried away
- Overcultivation Pulverses the soil making it easy to detach and be carried away.
- Overstocking leads to Overgrazing which destroys ground cover exposing it to agents of erosion.
- High amount of rainfall Increases saturation of soil with water thus Increasing soil erosion.
- Cultivation of the river banks destroys river line vegetation exposing it to soil erosion.
- Ploughing up and down the slopes creates water channels which encourage soil erosion.
- Burning of vegetation leaves land bare exposing it to erosion agents.
- Cultivating soil when too dry/ too wet destroys soil structure making soil easily eroded.
- High rainfall Intensity Increases Impact of raindrop thus encouraging raindrop erosion.

Any 8×1 = 8mks.

b) <u>Nursery bed management Practices</u>
- Mulching to conserve moisture
- Erection of shade to minimize evapotranspiration.

9.

- Weed control to reduce competition with seedlings.
- Pests and disease control to ensure healthy seedlings.
- Pricking out to minimise competition.
- Watering to ensure adequate moisture supply.
- Hardening off to prepare seedlings adapt ecological conditions.

Any - 7×1 = 7 marks

(c) Soil factors considered when selecting a crop to grow
- Soil pH.
- Soil drainage & water retention
- Soil fertility
- Soil type & texture
- Soil structure

Any 5×1 = 5 marks.

24. a) <u>Effects of high temperatures in Kenya:</u>
   - Increases evaporation leading to wilting of crops.
   - Increases growth rate / hastens maturity of crops
   - Improves the quality of crops eg] pineapples and oranges
   - Increases incidences of some crop pests and diseases
   eg] leaf rust in coffee.
        Aphids in vegetables.

b) i) poor economic growth.
   - leads to collapse of co-operative movements and factories.
   - low pricing of agricultural products resulting to low income for farmers
   - poor infrastructure hence poor marketing of agricultural produce.
   - The low use of technology in agriculture hence reduced output

(ii) poor health
   - Shortage of labour
   - lack of motivation to invest in agriculture
   - less time is spent in farming - as people cater for the sick.
   - low standards of living.
   - lack of market for agricultural produce.

Ⓒ **Micro-catchments**
- planting pits
- Contour bunds (furrows) for crops
- Semi-circular bunds
- Negarims / Catchment basin.
- Water spreading bunds.
- Rous dams.
- Trapezoidal bunds.

25. a) Physical Methods of controlling crop pests.
- Physical destruction of the pest.
- flooding.
- Proper drying of produce.
- Use of electromagnetic radiation.
- Use of lethal temperature.
- Use of scarecrows.
- Use of Physical barriers.
- Air suffocation.
- Use of Explosives.

$$6 \times 1 = 6 \text{ mks}$$

(b) - Management practices done on Tomatoes:
- Gapping.
- Top dressing.
- weeding.
- staking.
- Prunning.
- Pest control
- control of Diseases.

c) Factors that influence seedrates.
- seed purity.
- Germination percentage
- spacing.
- Number of seeds per hole.
- purpose of the crop.

END.