Agriculture paper 1

Marking scheme term 11

1.
- Should not come into con tact with chemicals.
- Should be planted when the soil is moist.
- They should be inoculated with the right strain of rhizobium. (2 x ½ = 1mk)

2. (i) Applying chemical powders on bean seeds to prevent attack by storage pests.
(ii) The act of removing beans from the pods.
(iii) Cleaning of the bean involves removal of chaff through winnowing.
(3x½=1½mks)

3.
- Plant must be capable of rotting quickly.
- Highly vegetative or leafy.
- Fast growth.
- Nitrogen fixing.
- Resistant to drought.
- The plant should be hardy. (4x½ = 2mks)

4.
- Leguminous crops should be included to improve soil fertility.
- Crops from the same families should be alternated in order to discourage excessive infestation of soil borne pest and disease.
- The inclusion of a grass ley and this allows for maximum soil disturbance (maintain good soil structure)
(3x½=1½mks)

5.
- Exposes pests to the sun heat / light.
- Exposes pests to predators.
- Burying the pest hence starving them.
(3x½=1½mks)

6.
- Soil colour
- Soil structure
- Soil texture
- Soil PH
- Soil depth. (4x½ = 2mks)

7. (i) Opportunity cost is the returns from the best alternative forgone (W.T.E) 1mk

(ii) Types of inventory records
- Permanent goods inventory

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- Consumable goods inventory (2 x ½ mk) = 1mk

8. Importance of sub-soiling
– Encourages gaseous exchange in soil (aeration)
– Breaks hard pans
– Brings leached minerals to the surface
– Improves soil drainage (Any 2 x ½ mk) = 1mk

9. (i) Destructive effects of moles
– Destroys crop roots thus interfering with absorption of water and nutrients
– Pulls plants underground causing their death
– Spoils pastures by covering them with soil from burrowed tunnels (Any 2 x ½)1mk

(ii) Other rodent pests
– Squirrels
– Rats
– Mice
– Porcupine
– Hedgehogs (Any 2 x 1 ½) = 1mk

10. Field pest that attack maize
– Maize stalk borer (ReJ: stalk borer)
– Army worm
– Aphid
– Birds
– Rats (Any 4 x ½) = 2mks

11. Apiculture is the rearing of bees in beehives
Aquaculture is the rearing of fish in fish ponds (Mark as a whole) 1mk

12. Ways through which burnings leads loss of soil fertility
– Destroys organic matter
– Ash accumulation leads to nutrient imbalance
– It kills/ destroys soil micro-organisms
– Exposes soil to agents of soil erosion
– Destroys soil structure increasing soil erodability
– Exposure of soil nutrients to high temperature causes increased volatilization of nutrients(Any 2 x ½) 1mk

13. Benefits of hardening off
– Reduces chances of drying-up of seedlings after transplanting
– Enables seedlings to establish themselves faster in the main field

14. **Examples of:**
a) **Organic manures**
– Farmyard manure
– Compost manure

– Green manure

b**) Straight fertilizers**

– Calcium Ammonium Nitrate (CAN) -Sulphate of Potash
– Single Superphosphate (SSP) -Double Superphosphate (DSP)
– Potassium Chloride/ Muriate of Potash -Sulphate of Ammonia
– Urea -Ammonium Sulphate Nitrate (ASN)

c) **Incomplete fertilizer**

– Diammonium Phosphate (DAP)
– Nitrophos (20:20:0)
– Monoammonium Phosphate (MAP)—(11:48:0)
– 23:23:0

15. **Macronutrient for:**
    i) **Protein synthesis**----- Nitrogen
    ii) **Root establishment**---- Phosphorus
16. **Factors that increase seed rate:**

– Low germination percentage
– Low seed purity
– More seeds per hole
– Close spacing

17. **Role:**
    a) Aluminiumsulphate -- Coagulation of tiny particles in water
    b) Chlorine -- Kill disease causing organisms.
    c) Sodium bicarbonate – Softening of water

18. Soil constituents
    (a) Soil air
    (b) Soil water
    (c) Mineral matter
    (d) Organic matter
    (e) Living organisms 3 x ½ (1 ½ mk) max
    1½ mk

19. How nitrogen is lost from the soil

– Volatilisation
– Leaching
– Combustion
– Denifrification (Any 3 x ½ mk)
1 ½ mk

SECTION B

20. a) i) Trelising (½ mark)
    ii)
    – Facilitate easy carrying out of routine practices e.g. spraying
    – Prevent soiling of fruits/clean fruits harvest
    – Control fruits from being infected by soil borne pests
    – Plant is well aerated (2x1=2)

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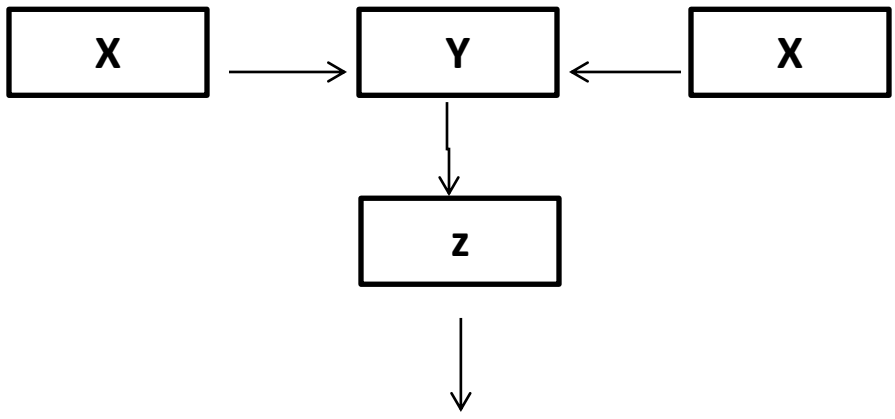
b) Plant population = (4mx100) x 3mx100
spacing 60cmx60cm =33+ 1
(1½marks)

21. a) P – Sugar care sett/cutting (½ mark)
Q – Green top sugar cane (½ mark)
b) P – produce roots easily as Q
may rot easily before root production (1 mark)

22. a) H – single stem pruning (½ mark)
J – multiple stem pruning (½ mark)
b)
– Allow easy picking/spraying
– No breakages of the stem/branches
– Provide good ground cover 2x1 = 2 marks
c) i) Annual pruning
ii) Removal of secondaries, tertiaries and laterals which have produce two crops
iii) Changing of cycle after 4-8 years (2x1 = 2 marks)

23. a) V – platy structure (½ mark)
W – Blocky structure (½ mark)
b) V- top horizon of forest soil/clayed soils (½ mark)
W – clay soils (½ mark)
c)
– Poor soil aeration
– Poor drainage leading to water logging
Poor root penetration/root tuber expansion

24.a) Method – Four heap system *(1 x 1 = 1 mk)*
b)



(4 x ½ = 2 mks)

c) i) Volume of X = Half the size of Y ***(1 x 1 = 1 mk)***

ii) 4 -5 weeks

SECTION C

25.Establishment of cabbage under the following subheadings

a) Nursery establishment and management

– Select a suitable site where members of the Brassica family have not been grown for the last three years.
– Dig the site deeply to remove all perennial weeds and stones
– Harrow the site to a fine filth
– Make shallow drills, 10 cm apart. The drills should be made evenly on the nursery bed.
– Place he seeds in the drills and cover them with light soil.
– Apply mulch material evenly on the nursery bed and water
– Remove the mulch after the seeds have germinated, then erect a shade over the nursery bed.
– Water the seedlings regularly
– Harden off before transplanting. ***(8 x 1 = 8 mks)***

b) Land preparation

– Prepare the land early enough when the weather conditions are dry. This allows enough time for the weeds to die
– Clean all vegetation and remove any tree stumps
– Plough deeply to remove all perennial weeds
– Harrow the land to a fine filth
– Make holes 10cm deep at a spacing of 90 cm x 60cm depending on the variety. ***(4 x 1 = 4 mks)***

c) Transplanting

– Cabbage can be sown directly into the field or first established in a nursery bed.
– Transplant the seedlings at the age of three to four weeks.
– Transplant during a cloudy or cool day
– Water the nursery bed thoroughly before transplanting
– Lift the seedlings with a ball of soil to avoid damaging the roots
– Water he field well before transplanting
– Apply handful of farmyard manure or one tablespoonful of double superphosphate to each hole.
– Apply suitable insecticides to control soil borne pests.
– Plant seedlings at the same depth as they were in the nursery.
– Firm the soil well around the base of the seedlings**.** ***(8 x 1 = 8 mks)***

26 (a)

<u>Role of phosphorous</u>

– Root development
– Development of flower /flowering
– Fruit and seed formation
– Hasten ripening of fruits

- Play role in metabolic processes e.g respiration
- Take part in cell division and crop growth
- Farms part of nucleo protein
- Strengthen plant stem (5 x 1 = 5mk)

b) Policies government use to regulate amount of imported agricultural goods

- Heavy taxation of imports in order to protect local industries
- Subsidizing the growing of locally produced commodities
- Quality controlled to ensure production of high quality goods for export and domestic market
- Conservation of natural resources e.g fossils , water catchment areas, wildlife and soil
- Stepping up to control diseases and parasites that affect crops and livestock

c) Uses of farm records

- Help compare performances of different enterprises within the farm
- Show the history of the farm
- Guide farmer in planning and budgeting of farm operations
- Help defect loses or theft on the farm
- Help in assessment of income tax to avoid over or under taxation
- Help determine value of the farm i.e determine assets and liabilities of the farm
- Make it easy to share profits and loses in partnerships
- Help in settling disputes eg when a farmer dies
- Show whether the farm business is making profit or loss
- Help in supporting insurance claims
- Provide labour information like terminal benefits

27.

(a) Human factors influencing agriculture.

- Level of education and technology – A more knowledgeable farmer produces high yields of high quality
  than an illiterate farmer.
- Health/HIV/AIDS – Sick farmers are less productive.
- Economy – Farmers with high capital goods produce more than a farmer with little capital.
- Transport and communication – Good roads available easy transport of inputs and outputs hence high yield.
- Market forces of demand and supply – the higher the demand the higher the produce and rise versa.
- Government policy – Government may subsidies prices of inputs to encourage production.
- Cultural and religious beliefs – Some cultures and religious beliefs may discourage or encourage production.

(5 x 2 = 10mk)

(b) Factors to consider when choosing the planting time.

- The onset of rains – Crops planted at the onset of rains establish early and make maximum used rains.
- Weather conditions and harvesting time – Crops e.g. cotton, maize and wheat need a dry season for ripening and harvesting hence planting can be delayed for a while.
- Prevalence of pests and diseases crops planted early escape attack from pests and diseases.
- Soil moisture content – Right moisture facilitates germination of seeds and allows early crop establishment.
- Make demand off season – Vegetables are always planted late to target high market demand when there is shortage of food supplies.
- Type of crop to be planted,

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