AGRICULTURE FORM ONE

AGRICULTURE 443

MARKING SCHEME

1. Provide four beneficial biotic factors in Agricultural production. (2marks)
   - ✓ Nitrogen fixing bacteria
   - ✓ Pollinators
   - ✓ Decomposers
   - ✓ Predators

   (1/2 x4= 2marks)
2. State four aspects of rainfall and describe their effect on agricultural activities (2marks)
   - ✓ Rainfall reliability
   - ✓ Rainfall distribution
   - ✓ Amount of rainfall
   - ✓ Rainfall intensity

   (1/2 x4=2marks)
3. List four methods of fertilizer application (2marks)
   - ✓ Broadcasting
   - ✓ Row placement/size dressing /banding
   - ✓ Hole placement
   - ✓ Foliar application
   - ✓ Fertigation
   - ✓ Top dressing
4. State and describe three tertiary operations (3marks)
   - ✓ Ridging- refers to the process of digging the soil continuously in a straight line and heaping it on one side to form a bund
   - ✓ Levelling –refers to the practice of marking the soil surface fiat and uniform so as to promote easy germination of small seeded crop like wheat grasses, barley etc.
   - ✓ Rolling – refers to compacting the soil which is loose. It helps to prevent small seeds from being carried away by wind and to prevent soil erosion.

   (State ½ x3=1 ½)

   (Describe ½ x3=1 ½)
5. Advantages of drip irrigation (2marks)
   - ✓ Little amount of water is required
   - ✓ Water under low pressure can be used
   - ✓ It discourage the growth of weeds between rows
   - ✓ Discourage fungal diseases

   (½ x 4=2marks)
6. Characteristics of plants used as green manure (2marks)
   - ✓ Should be highly vegetative or leafy
   - ✓ Should have a fast growth rate
   - ✓ Should have a high nitrogen content ,leguminous plant are preferred
   - ✓ Plants should be hardy /capable of growing in poor conditions
   - ✓ Must be capable of rotting quickly (½ x4=2marks)

7. Differentiate the following terms as used in crop production (4marks)
   - ✓ Thinning is uprooting of the excess seedlings to allow space for the remaining seedlings while pricking out is the removal of overcrowded seedling in a nursery bed and planting in a seedling bed. (2marks)
   - ✓ Nursery bed is a piece of land which has been prepared for raising seedlings before transplanting while a seedling bed is a special bed used for raising seedling which have removed from a nursery bed due to overcrowding (2marks)
8. Fresh market varieties of tomatoes (2marks)
   - ✓ Money maker
   - ✓ Hundred folds
   - ✓ Bee eater
   - ✓ Super marmande
   - ✓ Ailsa craig
   - ✓ Hotset
   - ✓ Ponderosa
9. Name two types of inventory records that are kept in the farm (2marks)
   - ✓ Consumable
   - ✓ Permanent

   (1x2=2marks)
10. Outline two importance of vegetable crops (2marks)
    - ✓ Nutritional importance- they provide the body with vitamins and minerals thus acting as protective foods. They keep the body healthy and help in fighting diseases
    - ✓ Commercial importance-vegetable are sold to earn the farmer income
11. Outline four advantages of seed for crop propagation (2marks)
    - ✓ Easy to treat against soil borne pest and diseases
    - ✓ Easy to store since are not bulky
    - ✓ Easy to handle, making planting operation faster
    - ✓ It is easier to use machines when planting seeds
    - ✓ Manure and fertilizer can be easily mixed seeds during planting
    - ✓ Seed can be stored for a long period of time
    - ✓ Possible to establish new crop varieties due to cross pollination

    (4x ½ =2marks)
12. a) Tools to carry out the following operations (2marks)
    - ✓ Branding –branding iron
    - ✓ Cutting wood along the grains-Rip saw
    - ✓ Remove metal chippings in the file-wire brush
    - ✓ Cutting soft branches of coffee during pruning-secateurs

    (½ each)

    b) Name four complementary tools in livestock production. (2marks)
    - ✓ Trocar and canula
    - ✓ Bull ring and leadstick
    - ✓ Hypodermic needle and syringe
    - ✓ Elastrator and rubber ring

13. Outline four ways in which the government policies encourage the growth and development of local Agricultural industries (4marks)
- ✓ Subsidizing agricultural inputs e.g. fertilizer
- ✓ Heavy taxation of imputes in order to protect local industries
- ✓ Quality control by enforcing production of high quality goods for both export and domestic market
- ✓ Stepping up to control parasites, diseases and pests that affect crops and livestock
- ✓ Conserving of natural resources to sustain agriculture such as water catchment areas forests, soils and wildlife

(1x4=4marks)

14. Name four soil structures (2marks)
- ✓ Blocky
- ✓ Platy
- ✓ Prismatic/columnar
- ✓ Single grained
- ✓ Granular
- ✓ Crumby

(½ x4=2marks)

15. Write down one distinguishing characteristic of the following livestock breeds. (2marks)

a) Jersey –it has protruding black eyes
- ✓ Milk with high butter fat content
- ✓ Smallest dairy breeds

(any correct for ½ mark)

b) Saddleback/Wessex

-black body with shoulder and only front legs white (½ mark)

c) Earlops –drooping ears (½ mark)

d) Toggenburg- two strips running from eyes to the nose (½ mark)

16. Give four advantages of organic farming (2marks)
- ✓ Products are free from chemical residues
- ✓ Its environmental friendly
- ✓ Organic manure improves soil structure
- ✓ Organic products fetch high prices in international markets
- ✓ Organic manure enhances water infiltration and retention
- ✓ It utilizes locally available materials thus cheap

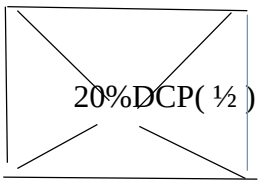
(½ x4=2marks)

17. Agriculture as an art (1marks)
- ✓ Tilling of land
- ✓ Construction of farm structures
- ✓ Measuring distances
- ✓ Machine operations
- ✓ Harvesting of crops
- ✓ Feeding and handling animals
- ✓ Marketing of agricultural goods (½ x 2=1mark)

SECTION B [20 MARKS]

18. A farmer wishes to prepare 100kg starter meal containing 20% DCP using wheat containing 10% DCP and sunflower cake 35% DCP. Using the Pearson's Square Method, show how that ration is computed (5marks)

Wheat 10% DCP (½) 15 parts wheat(½)



Sunflower 35% DCP (½) 10 part sunflower(½)

Total parts=15+10=25 (½ mark)
Quantity of wheat: 15/25x 100= 60kg (1mark)
Quality of sunflower: 10/25x 100 =40kg (1mark)

19. The diagram below show various nursery propagation practise. Study them carefully and answer the questions that follow

a) Name the practice labelled (3marks)
   i) Marcotting aerial layering
   ii) Serpentive/compound layering
   iii) Tissue Culture
b) State the importance of carrying out practice A (1mark)
   - ✓ Enable the propagation of crops with hard woody stems / branches that cannot bend easily

c) State two advantages of practice C, over other vegetative propagation practise (1mark)
   - ✓ Enable mass production of propagules.
   - ✓ Enable propagation of disease –free propagules
   - ✓ It is fast and requires less space than the cultural methods of using cuttings which require a bigger space

20. The diagram below illustrates the stages of life cycle of a tick. Study the diagram and answer the following questions that follows

a) Describe the development of tick at 1, 2, 3 and 4 (4marks)
   1. Eggs hatch, larvae emerge, climb onto the host and feed on blood
   2. Engorged larvae moult, nymphs emerged and feed on blood
   3. Engorged nymph moult into adult which feed on the blood of the host
   4. Adult feed on blood and mate.

b) Classify the tick on the basis of the life cycle (1mark)
   - ✓ one host-tick

21. Name two function of calcium in dairy cows (2marks)
   - ✓ component of milk
   - ✓ for growth and development of foetus
   - ✓ required for the formation of strong bones

- ✓ good health reduces infection of milk fever
- ✓ formation of strong teeth

22. Give three characteristics of succulent roughages (3marks)
    - ✓ high fibre content
    - ✓ high moisture content
    - ✓ low protein content
    - ✓ high carbohydrate content

SECTION C (40 MARKS)

23. a) Why minimum tillage is recommended (5marks)
    - ✓ it maintains soil structure
    - ✓ helps to conserve soil moisture
    - ✓ saves in time in land preparation
    - ✓ its less labour demanding
    - ✓ reduces roots/tubers disturbances
    - ✓ soil nutrients are not exposed to volatilization
    - ✓ result in low total cost of production

    b) Use of water in the farm (5marks)
    - ✓ for diluting / mixing chemicals
    - ✓ for watering livestock
    - ✓ for irrigation
    - ✓ for processing farm produce
    - ✓ washing utensils equipment's and animal houses
    - ✓ for domestics use
    - ✓ cooling and running machines
    - ✓ in construction of farm structures

24. Describe five field management practises for tomatoes (10marks)
    - ✓ Gapping – seedling that dries up after transplanting should be replaced
    - ✓ Top dressing - plants at the height of 25 to 30 cm should be top dressing by nitrogenous fertilizer at the rate of 20kg nitrogen per hectare
    - ✓ Weeding –tomatoes fields should be kept weed free to reduce competition and spread of pest and diseases
    - ✓ Staking – tall varieties should be supported using sticks which are about 2 meters high
    - ✓ Pruning – one to three main shoots are enough to give the best yield. The other shoots should be removed. Fruits and leaves which grow too near the ground should be removed
    - ✓ Tomato pest and their control - tomato pest such as American Bollworm, cutworm red spider, with and nematodes should be controlled using appropriate pesticides and nematicides crop rotation is helpful in nematode control
    - ✓ Tomato diseases and their control - tomato diseases include tomato blight bacterial with and blossom end hot should be controlled

    (stating -1 mk)
    (Describing 1mk)

25. Describe five methods of farming (10 marks)
    - ✓ Mixed faming –this involves growing of crops and rearing livestock on the same piece of land at the same time
    - ✓ Organic farming –involves growing of crops and rearing of livestock without using Agrochemicals

- ✓ Shifting cultivation – involves cultivating a piece of land until it is exhausted and then moving to another place leaving it to regain fertility
- ✓ Agroforestry - this is growing of crops, rearing of livestock and growing of trees in the same piece of land at the same time
- ✓ Nomadic pastoralism - moving with livestock form place to place in search of pasture and water (state- 1mark)-describe- 1mark)

26. State and give example of five predisposing factors of livestock (5marks)

- ✓ The species of the animal
  Swine fever-pigs
  Newcastle diseases-poultry
- ✓ The breed of the animal
  Cancer of the eye-Hereford breed
  Solar erythema-large white breed of pigs
- ✓ Age of the animal
  Pig anaemia – piglets
  Lamb dysentery – lambs
  Calf pneumonia – calves
- ✓ Sex of the animal
  Orchids-male animal
  Vaginitis-females
  Mastitis-female
- ✓ Colour of the animal
  Black animal - heat stress
  Light pigmented animals – photosensitization when exposed to high light intensity.

b) Importance of keeping livestock healthy

- ✓ Healthy animals grow well and fast enough to reach maturity quickly
- ✓ Good health gives animals a longer economic and productive life.
- ✓ Healthy animals gives maximum production or performance
- ✓ Healthy animals produce good quality products and consequently command a high market value.
- ✓ Healthy animals will not spread diseases to either animals or human beings.
- ✓ Healthy animals are economical and easy to keep as the farmer, spends less money on disease treatment, hence reducing the cost of production leading to maximum profits.