

AGRICULTURE
 FORM TWO
 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 1/2 x3=1 1/2)
 (Describe 1/2 x3=1 1/2)
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
- (1/2 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 (1/2 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

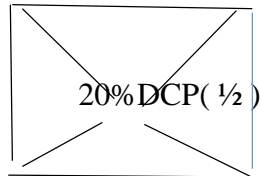
13. Outline four ways in which the government policies encourage the growth and development of local Agricultural industries (4marks)
- ✓ Subsidizing agricultural inputs e.g. fertilizer
 - ✓ Heavy taxation of imputes in order to protect local industries
 - ✓ Quality control by enforcing production of 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
- ($\frac{1}{2} \times 4 = 2$ marks)
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 $\frac{1}{2}$ mark)
- b) Saddleback/Wessex
- black body with shoulder and only front legs white ($\frac{1}{2}$ mark)
- c) Earlops –drooping ears ($\frac{1}{2}$ mark)
- d) Toggenburg- two strips running from eyes to the nose ($\frac{1}{2}$ 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
- ($\frac{1}{2} \times 4 = 2$ marks)
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 ($\frac{1}{2} \times 2 = 1$ mark)

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)
- Marcotting aerial layering
 - Serpentine/compound layering
 - 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)
- Eggs hatch, larvae emerge, climb onto the host and feed on blood
 - Engorged larvae moult, nymphs emerged and feed on blood
 - Engorged nymph moult into adult which feed on the blood of the host
 - 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 domestic 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 from 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
 - Orchitis-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.