**443/1**

**AGRICULTURE**

**PAPER 1**

**Marking scheme**

**MUMIAS WEST JOINT TESTS**

**JISET 2021**

**MARKING SCHEME**

**SECTION A**

1. Environmental factors affecting crop distribution

(i) Temperature/altitude

(ii) Prevailing wind

(iii) sunlight

(iv)Rainfall (4 x ½ = 2mks)

2. Two methods of storing water

(i) Use of water tank/container

(ii) Use of dams/ponds. (2 x ½ = 1mk)

3. One reason why too much air is undesirable in the silo

- Too much air may cause overheating

- Too much air may cause decomposition 1 x ½ = ½ mk

4. Two advantages of grass legume pasture over pure grass pasture

- Grass legume pasture is more nutritious to livestock

- It improves soil fertility through nitrogen fixation /economizes the use of N fertilizers

- Total pasture yield is more per unit area

-There is security against total pasture loss 2 x ½ =1mk

5. Two characteristics of large scale farming

-Requires large tracts of land

-Requires high capital investment

-Mechanization is common

- Skilled labour is required

- Processing of the product in the farm

-Provides more employment 2 x ½ = 1mk

6. Four reasons for practicing organic farming

- No pollution

- Conserve the soil e.g soil structure, PH e.t.c

-Easily carried out

- Produces/fetches higher prices in the international market.

- Materials used are easily available/cheap

- Produce healthy products 4 x ½ = 2mks

7. a) Definition of land reform

-Specific integrated action to bring about more effective control and use of land

-An organized action taken to improve the structure of land tenure and land use

b) Four steps in land adjudication

- Establishment of ownership- Description of the land

- Recording/mapping of the land/registration

-Checking of the register/objection

- Settling of the objection case if any/establish boundary

8. Two ways in which ridging controls soil Erosion

-Stops surface run off

-Holds the water for infiltration instead of surface flow 2 x ½ = 1mk

9. Two determinant of National income

- Per capita income

- Gross domestic product (GDP)

- Gross national product (GNP) 2 x ½ = 1mk

10. Two possible causes of a hard pan

-Ploughing at the same depth season after season

- Deposition of insoluble precipitate of same mineral salts

- Rolling of land with heavy machines e.g rollers

- Lack of crop rotation with shallow rooted crops versus deep rooted crops

2 x ½ = 1 mk

11. Difference between chitting and seed inoculation

-Chitting or sprouting is the breaking of irish potatoes/“setts” dormancy while seed inoculation is the coating of legume seeds with a nitro-culture to attract nitrogen fixing bacteria. Mark as a whole 1 x 1 = 1mk

12. Four managerial factors carried out on agro-forestry trees

- Protecting – Erecting sticks around the seedling

- Pruning to grow wide

- Training to direct growth pattern

- Grafting of the old trees

13. Four possible causes of seed dormancy

- Old age/depleted food reserves

- Impermeable testa/seed coat to water and oxygen

- Damage by pests/broken

-Damage by diseases

- Lack of moisture, Oxygen in the soil.

14. Four reasons for planting cereals early in the planting seasons

- Enables crops to establish early and withstand competition from weeds

- To enable crops escape attacks by most pests and diseases.

- Enables crops to use nutrients in the soil before they are leached/enables crops to utilize Nitrogen flash better.

-For better utilization of the available rainfall in the season

- In order to get good market

- To reduce labour competition for various operations

- For timely harvesting during the appropriate weather condition. 4 x ½ = 2mks

15. Four functions of Young Farmers Club

-Organizing and participation in A.S.K show activities e.g. livestock judging

- Participates in annual Y.F.C rallies, camps, holding symposiums

- Planting trees/carrying out agricultural projects in schools

- Organizing agricultural field days for the local community

-Participating in agricultural exchange programmes both locally and internationally

4 x ½ = 2mks

16. One term used to mean a market condition where

(i) Sole seller- Monopoly 1 x ½ = ½mk

(ii) Sole buyer- Monopsony 1 x ½ = ½mk

17. Differentiate between Hybrid and composite

Hybrid- is bred by crossing inbred varieties under controlled pollination while

Composite- is bred by crossing a number of varieties under uncontrolled pollination

Mark as a whole 1 x 1 = 1mk

18. Two characteristics of green manure plants

-Highly vegetative

-Faster growth rate

- High nitrogen content/legumes preferably

- Quickly rotting plants

- Hardy/can establish in poor conditions 2 x ½ =1mk)

19. Four farming practices leading to minimum Tillage

- Application of herbicides

-Application of mulch

-Timing cultivation e.g. early/late weeding leads to a clean seedbed

- Establishing cover crops

- Uprooting/slashing/grazing to control weeds

Rej: grazing / uprooting / slashing alone 4 x ½ = 2mks

20. Define Biological weed control

-A deliberate use of a living agent e.g. insects/virus/bacteria/fungi/animal to reduce the population of target weed. 1 x 1 = 1mk

**SECTION B**

21. a) calculate the M.R.S – give the value of V, W, X, Y.

1. 





(ii) Calculate 



22. -Sorghum compact panicle 1 x 1 = 1mk

b) Common diseases

G- Smut, Head smut

H- Streak virus diseases 1 x 1 = 1mk

c) Four cultural methods of controlling disease (H)

-Burn crop residues

- Rogueing and burning affected crops

- Plant resisitant varieties

- Field hygiene

- Use certified seeds 4 x ½ =2mks

23. a) -Calcium =½mk

b) - Nitrogen =½mk

c) - Potassium =½mk

d) - Phosphorous = ½mk

23 b Earthing up

24. a) Method of propagation

Tip layering / layering / ground layering / trench layering.

b) Two ways of initiating faster root development

-Apply hormones e.g I.A.A

-Debarking / wounding the part of the plant buried in the ground / ring barking

-Bending the part of the plant buried in the ground

-Applying a rooting medium

- Wetting the soil. 2 x 1 = 2mks

c) Why choose the above method of propagation.

-Used for plants whose cuttings do not root easily

-When a larger planting part (propagule) is required. 1 x 1 = 1mk

**SECTION C**

25. a Nursey bed should be watered well.

-lift the seedlings with a lump of soil around the roots

-select healthy and vigoursly growing seedlings.

-plant one seedling per hole.

-firm soil around the base of the plant

- transplant late in the evening.

* Gapping :done to maintain the correct plant population.
* Top dressing : top dress when the seedlings are 25-30cm with nitrogenous fertilizer such as CAN or SA 20KGN or 100kg/HA
* Weeding : field should be kept weed free
* Staking : Tall varieties should be staked.
* Pruning : it should be pruned one to three shoots per plant.
* Pest control: American bollworm should be controlled with appropriate pesticide
* Disease control : they should be controlled

b – little amount of water is required as compared to other types of irrigation.

-water under low pressure can be used as long as it can flow along the pipe

-it discourages fungal diseases such as blight, CBD

-it does not encourage the growth of weeds between the rows.

C – forage species used .

-Stage of harvesting hence the leaf to stem ratio

-length of the drying period.

-weather conditions during the drying process.

-Conditions of the storage structure.

26. a) The profit and loss account of Mr.Makunda for the year ending 31/12/2021✓

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Purchase and expenses✓ | | | Sales and receipt | | |
| -Opening valuation  -Goat  -Poultry  -Dairy meal  -Pasture seeds  -Transportation of farm produce  -Casual workers  -Ox plough  **Sub-total**  Net profit | shs | cts✓ | Mohair  Rabbits  Pigs  Groundnuts  Oranges  Eggs  Closing valuation | shs | cts✓ |
| 150,000  4,000  15,000  25,000  50,000  15,000  12,000  10,000  **281,000**  235,000 | 00✓  00  00  00  00✓  00  00  00  **00**✓  00✓ | 75,000  36,000  70,00  100,000  20,000  15,000  200,000 | 00✓  00✓  00✓  00  00  00  00✓ |
| Total | 516,000 | 00✓ |  | 516,000 | 00✓ |

Awarding of marks

Title - 1mk Sales & receipt -1mk

Purchases & expenses – 1mk Closing valuation -1mk

Shs / Cts - 1mk Total -1mk

Valuation - 1mk Any four correct entries -4mks

Sub-total -1mk

Net profit -1mk

Total balancing -1mk Any 15 x 1 = 15mks

b) - open ditches

- Underground drain pipes

-French drains

-cambered beds

-pumping

-planting trees

27.a) –lack of collaterals. Most farmers lack adequate security to enable them to obtain loans.

- loans are diverted to other uses which they were not intended .

-the interest rates are usually high such payment becomes a problem.

- non payment of loan may lead to assets used as security being auctioned .

-lack of knowledge and appropriate skills in the management of credits may lead to misappropriation or misuse of the funds.

-Lack of proper farm proper farm records may disqualify farmers from getting funds.

b

-Provide labour information like terminal benefits like NSSF dues.

-help farmers in settling assets like farm animals and machinery.

-records help to compare the performance of different enterprises within a farm or other farms

-they show the history of the farm

-they show the history of the farm

-Guide a farmer in planning and budgeting farm operations

-help to detect losses or theft on the farm

-help in the assessment of income tax to avoid over or under taxation.

-helps to determine value of the farm or determine assets and liabilities

-make it easy to share profits and losses in partnerships

-help in settling disputes among heirs to the estate when a farmer dies without leaving a will.

- records help to show whether the farm business is making profits or losses

-helps in supporting insurance claims on death , theft and fire of assets.

c) – increasing the rate of evaporation of moisture from the soil

- causing lodging in cereals and damaging to crops

- blowing away and bringing rain bearing clouds

- acting as agent of seed dispersal

-acting as agent of soil erosion

-increasing the spreading of pests and diseases

Destroying farm structures

Areas with humidity tend to be hotter , but when wind takes away atmospheric water , a cooling effect occurs.