**BURAMU II JOINT EXAMINATION 2021**

**AGRICULTURE PAPER 1**

**MARKING SCHEME**

1. - Animal diseases and parasites are easily controlled

 - Proper breeding programmes may be arranged

 - Pastures are improved through weed control and weeding

 - Water is provided

 - Supplementary feeding of animals is used when there is insufficient grass. **Any 4 x ½ = 1mk**

2. i) When soil fertility goes low, crops are not grown until fertility is restored

 ii) Requires availability of plenty of arable land

1. Practical with annual crops
2. Low yields
3. Use of simple tools. **Any 4 x ½ = 2mks**

3. i) Labour records

 ii) Field production records

1. Production records
2. Marketing records **4 x ½ = 2mks**

4. It causes forking that lowers carrot quality  **= 1mk**

5. - Lack of rain leads to crops wilting

 - Lack of rain leads to livestock death

 - Too much rain may lead to water logging and soil erosion

 - Heavy stores may break crops

 - Too much rain may lead to diseases in some crops

6. a) - Weed have thorns that discourage workers

 - Produces many viable seeds

 - Weed has extensive root system difficult to uproot

 - Regenerates when cut **Any 3 x ½ = 1 ½mks**

1. - Aerates the soil

- Earthing up may be done during the weed control

- May expose soil pests to harsh environment thus killing them. **3 x ½ = 1 ½mks**

7. - To control erosion

 - To conserve soil moisture

 - To minimize the cost structure

 - To maintain soil structure

 - To prevent root disturbance and damage. **4 x ½ = 2mks**

8. Seedbed is land prepared ready to receive planting materials whereas a seedling bed is prepared special nursery where provided seedlings are transferred. **NB. Mark as a whole**

9. i) to increase the contact of seed with the soil for easy germination.

 ii) To crash large soil clods

1. To compact soil preventing wind erosion

10. - To increase soil aeration

 - To raise the soil temperature

 - To increase microbial activities

 - To reduce soil erosion

 - To increase the volume of soil

 - To reduce tonic substances. **Any 4 x ½ = 2mks**

11 - i) Wood ash – used to reduce the acidity of the compost manure which improves micro- organism activity

 - increases the level of phosphorous and potassium

 ii) Top soil – Introduces micro-organisms necessary for decomposition

1. The stick is used to check the temperature of the manure
2. Manure – provide food for micro-organisms **1 x ½ = ½mk each**

12. They are rich in nitrogen **1 x 1 = 1mk**

13. i) 21 stands for the percentage of nitrogenÖ1 and 60 stands for the percentage of phosphorusÖ1 in the fertilizer.

 ii (30/15 x 100) = 200kgÖ ½

 (2 x 200)Ö ½ = 400kg

14. - May be taken up by maize plants

 -May be taken up by weeds

 - May volatize

 - May be leached

 - May be changed to free nitrogen by denitrifying bacteria

15.

|  |  |
| --- | --- |
| **Crop**  | **Vegetative propagation material**  |
| * Pyrethrum
* Pineapple
* Sugarcane
* Irish potato
* Banana, sisal , pineapple
* Irish potato
 | -Split- Slip, crown, sucker - Stem cutting - Stem tuber - Suckers - Root tubers |

16. a)To facilitate easy management of the nursery e.g in watering, weed control etc(1mk)

 b) - Near to the water source

 - Well drained/fertile soil

 - Gently sloping land

 - Secure

 - Near to the final field **4 x ½ = 2mks**

17. Tipping is the cutting back of shoots to the desired table height. (1mk)

18. Single stem pruning

 - Multiple stem pruning **2 x ½ = 1mk**

19 It controls upward and encourage development of large fruits

20. to acclimatize seedlings to the conditions prevailing in the main field.

21. -maturity of the crop

 - Moisture content of the material

 - type of material used

 - Addition of molasses grain etc

 - Addition of water

 - Extent of compaction

 - Filling duration

 - Leaf stem ratio **Any 6 x ½ = 3mks**

22. Livestock make maximum use of the pasture

 - Reduce the build up of pests and disease

 - Animal waste is distributed evenly in all fields

 - Pasture given time to regrow before it is grazed on again

 - Excess pasture can be harvested for conservation

 - it is possible to apply manure in parts of the pasture which are not in use.

23. a) i) By planting grass/suitable vegetation

 ii) Channel/trench

1. Measure Ö and markÖ the layout of drain

- Dig and removeÖ soil from the channel and heap it on the lowerÖ side of the drain

24. a) H – gutter (1mk)

 K – Drainage pipe (1mk)

 b) Let out excess water (1mk)

25. a) Peas are legumes therefore help fix nitrogen that was used by maize.

 - Maize and peas have different feeding level therefore peas utilize nutrients deeper in soil where the shallow maize roots may not reach.

- Are in different families therefore not attacked by same pests and diseases/lead to pest and disease control **Any two well explained = 4mks**

 b) To rebuild soil structure and reduce erosion (1mk)

26. G – couch grass/Digitariaspp

 H – Sodom apple/Solanumspp

 b) i) - Greatly reduce the yield of crops

 - Fodder for livestock

 - Reduce quality of crops

 - Increase production costs **Any 3 x 1 = 3mks**

1. Perennial weed

**27.** **(a)** (i) Trench silo(rjsilo alone)***(1mrk)***

(ii) Silage ***1mrk***

(iii) Polythene sheet : to prevent entry of water into the silo. ***(1mrk)***

**(b)** Hay making

 Standing forage.  ***(1x1=1mrk)***

28.a) Level of education and technology – High level of education help in solving problems such as use of poor methods of farming etc

- Health – successful farming requires vigour, strength, vision and determination only found in healthy bodies.

- Economy -liberalization of Kenyan economy and world trade has led to dumping of cheaply produced and imported goods that have flooded local market fertility prices of agricultural products to drop.

- Government policy – in order to encourage agricultural production, the govt should institute policies to regulate the amount of imported agricultural goods

- Transport and communication – ensures goods from the producers reach intended consumers in good time and farmers get market and research information in good time.

- Cultural practices and religious beliefs – they affect what people produce and consume

 **Any 5 well explained = 5mks)**

 **NB 1mk for stating factor and 1mk for explanation**

b- Seed cleaning

- Seed dressing

- Seed inoculation

- Chitting

- Breaking seed dormancy **Any 4 x 1 = 4mks**

28.i) Water – for placing scions to prevent dehydration

ii) Grafting knife – For shaping the scion and rootstock to fit depending on the method

iii) Grafting tape – help to hold scion in position and avoid entry of water

iv) Grafting wax – applied in the grafted part to prevent water from entering the union.

 **Any 3 x 2 = 6mks**

  **NB 1mk for identifying the material and 1mk for correct use**

29.a)i)They provide the body with vitamins

ii)They have pleasant colours and smell which make food appetizing

iii)They provide the body with minerals

iv)Are good complements of staple foods

v)Source of raw materials to industries

vi)They can be sold to generate income

v)Horticulture earns a country foreign exchange when exported. **Any 6 x 1 = 6mks**

b)Timely planting – early planted crops may escape pest infestation

ii)Timely harvesting – crop may escape attack of pests like grain weevil

iii) Close season – a period during which a susceptible crop must not be grown to ensure destruction of pest.

iv) Trap crop-a crop planted to attract pest away from the main crop

v) Crop rotation – starves pests associated with particular crop to death

vi) Plant resistant varieties- resist pest

vii) Field hygiene – minimize spread of pest e.g rouging

viii)Alteration of environmental condition create micro-climate not conducive to form pests e.g pruning, mulching etc

ix)Destruction of alternate host – help reduce pest infestation e.g weed control

x)Crop nutrition – crop grows faster and stronger to escape and resist pests.

**14 x ½ = 7mks NB ½ mk for each method and ½ for explanation.**

29.- Use of stone lines

- Use of trash lines

- Building bunds

- Construction of gabions/porous dams/check dams

- Ridging

- Construction cut off drains

- Use of terraces

- Grassed water ways

  **Any 7 x 1 = 7mks**

30a) i)- Introduce water into the field to a depth of 7.5 – 10cm before primary cultivation

 - Leave the field submerged for 4 days then film of water about 1 week

 - at the time of transplanting leave a thin film of water for about 1week.

- Introduce water gradually into the field

- Maintain the water level at 1/3 the height of the crop up to 3weeks before harvesting.

- Water should be changed every 2-3 weeks

- Remove water 3weeks to harvesting

- water should flow slowly through the field  **Any 7 x 1 = 7mks**

-Picking be done twice a week to avoid picking overripe cherries

- sorting should be done to remove undesirable cherries before taking to factory. (Undesirable include diseased, unripe, overripe, extremely small)

- Deliver to factory immediately  **2 x 1 = 2mks**

b)- Difficult to supervise all scattered holdings

- Waste of time traveling from one holding to another

- Difficult of following a sound farm plan arising from the small size of fragments

- Difficult of weed and pest control

-Difficult in carrying out soil conservation measures

- Difficult of offering agricultural extension advice

-Parcels may be small for mechanization.  **5x1 = 5mks**

c)i) scarcity – the factors of supply are limited in supply and are therefore insufficient to supply all goods and services needed

ii)Preference and choice – the choice has to be made on how to allocate the limited factors of production to meet production needs

iii)Opportunity cost – is the value of the best foregone alternative **3 well explained = 6mks**