**BUTULA SUB COUNTY JOINT EXAM, 2021**

**AGRICULTURE PAPER 1**

**MARKING SCHEME**

**SECTION A**

1. – Enhance seed germination
   * Enhance plant growth
   * Enhance soil microbial activities
   * Improves quality of crops e.g. Tea, pineapple
2. – Facilitates aeration
   * Facilitates drainage
   * Breaks hard pans/facilitates water infiltration
   * Brings up previously leached nutrients
   * Facilitates development of deep rooted crops –
   * Exposes soil borne pests and diseases agents -
   * Removes deeply rooted weeds.
3. This is the production in which each additional unit of input results to a larger increase in output than the proceeding unit of input
4. Blossom end rot
5. – feeding record

Production record

Health records

Marketing records

Labour records

1. Hygroscopy

Superfluous

Capillary

1. -Inheritance

- Own savings

- Gift/donation

- Loan

1. Pruning

Wider spacing

Thinning

1. -Breaking seed dormancy

- Seed inoculation

-Chitting

-Seed dressing

1. Pruning

Coppicing/tree felling/logging

Pollarding

Thinning

Lopping

* + **5/100  x 400kg = 20kg**
  + A mark for formulae
  + A mark for answer with units

1. To add (replenish) soil nutrients and ensure proper nutrient balance

* To improve the nutrients value of the crops.
* To correct or amend both physical and chemical properties eg soil structure.
* Enable soil micro-organisms to break down organic residues into available   
  nutrients.

1. -Kill disease causing organism

- Remove chemical impurities like excess flomides harmful to human beings

- Remove bad smell and bad taste.

- Remove solid/sediments in water

- Ridging

-Rolling

- Levelling

1. Short term

Medium

Long terms

1. Stage of harvesting the forage crop

- Leaf:stem ratio

- Forage species used

- Length of the drying period

- Weather condition during drying

- Condition of the storage structure.

1. Clean fruit

Provide support to weak stems

Enhance light penetration

Easen field operation

Control soil borne pest and disease

Prevent lodging of fruits

* Early planting
* Mulching
* Deep ploughing
* Crop rotation
* Use of clean implements
* Use of cover crops
* Use of clean planting materials

19.

- Stunted growth

* Wilting
* Discoloration of foliage
* Gal formation/root knots

- When there is no alternative or choice.

- When goods are limited in supply

- When the factors of production are freely offered

21. - Fertilizers

- pesticides

- Herbicides

- Fungicides

- Seeds

**SECTION B;**

**22** a) A – Oxais/oxalis latifolia/oxalis spp

B – Devils horse whip/Achyranthesaspera/Achyranthes spp

b) A – has underground storage structures that regenerate easily.

C) B – It is a weed in annual crops

- It irritates farm workers reducing their efficiency

**23. a)** Tissue culture (1 mrk).

b) Mass production of propagules

used to establish pathogen free planting materials

Help in the control of viral diseases

Faster method than cultural methods.

Requires less space.

c) Free from weed seeds

Free from pests

Free from diseases

Have 100% germination potential

24.a) 1. Grass, leaves, refuse

2. Manure

3. Wood ash

4. Top soil

b) 1. Organic matter to form manure

3. Improve pH and nutrients in the compost manure

C) To regulate temperature

d) For even decomposition of manure

25. a) F – Locust

G – Aphids

H – Quelea

b) Pierce plant parts

- introduce disease causing organisms

**SECTION C**

26. a) weed, pest and disease control is enhanced.

- Enables construction of permanent structures

- Soil conservation and land improvement

- Farm planning and adoption of crop rotation programme.

- Proper land supervision

- Gives the farmer legal ownership of land if already registered.

- Easy provision of extension services by the government. ( 5 x 1 = 5mks).

b)– lack of ground cover exposes soil to agents of soil erosion

* Steep slopes increases the speed of surface ran off hence erositive powerSof work -
* Light/sand soils are easily carried away by agents of erosion.
* Shallow soils are easily Saturated with water and carried away
* High rainfall intensity leads to Saturation of soils hence increases in soil erosion/surface run off.
* Frequent cultivation/over cultivation pulverizes the soil making it easy to detach and carry away
* Over stocking leads to overgrazing this destroys ground cover exposing it to agents of erosion.
* Burning /Deforestation destroy vegetation cover and exposes soil to agent of erosion.
* Ploughing up and down the slope creates channels.
* Cultivation of river banks destroys riverine vegetation and destroys soil structure exposing it to agents of erosion.
* Cultivation the soil when too dry destroy soil structure making it easy to be eroded - Long slopes increases volume and speed of runoff hence increasing erosive power.

(Factor with explanation to score) (8x 1 = 8mks

c. – improve soil structure

-raises soil temperature

Lowers the water table

Improve soil aeration

Improve microbial activities

Increases soil volume

Reduces soil erosion

Removes toxic substances

27. a. **Land preparation**

- Prepare land during dry season; to kill all the weeds;

- Carry out secondary cultivation; to produce a medium tilth;

**(ii) Planting:**

**-** Plant at the beginning of the rains;

- Plants recommended varieties / suitable for the ecological conditions;

- Plants certified / healthy /well selected seeds;

- Plant at a spacing of 45 -60 cm by 15 – 23cm.

- Place 2-4 seeds per hole

- Plant as a depth of 2.5 – 5.0 cm;

- Apply phosphatic fertilizer; at a rate of 250kg /ha of SSP.

**b**. chemical treatment/hormones

Oxygen supply

Light intensity

Temperature

Relative humidity

Leaf surface area (1x2 marks well explained)

28. (a) (i) – Heading (H) = 1mk

* Smooth curves (SC) = 2X1 = 2mks)
* Curve identified (CI) = 2 x ½ = 1mk
* Curve plotting (CP) = 2x1 = 2mks
* Scale (S) = 2 x ½ = 1mk
* Labeling axes (A) = 2 x ½ = 1mk

( 8 mks)

* 1. Ksh. 13.40 ᶤ 10cts (13,30- 13.50)
  2. 140 ᶤ 1kg (139 – 141 kg)
  3. Ksh 13. 80 ᶤ 10cts (13.70 – 13. 90)

(b) – Has an insulating effect thus modifies /regulates soil temperature

* + Prevents water evaporation therefore moisture is retained in the soil for the plant to use - Controls soil erosion by intercepting rain drops before they hit the soil reducing the speed off surface runoff and increasing water infiltration

-Organic mulch decomposes into humus thereby improving soil structure/water holding capacity/water retention.

-After decomposition improves soil fertility by releasing nutrients

* + After decomposition organic mulch it buffers soil PH/ increase cat ion exchange capacity

NB/ explanation must come out for score)

(5x1 = 5mks)

(c) – Mulching

* Application of organic manure/organic fertilizers
* Crop rotation
* Use of medicinal plant products to control diseases and parasites
* Rearing of livestock on natural feed staff/organic growth feedstuffs
* Physical/cultural/Biological pest/weed/parasite and disease control/accept specific control measure given