

STRICTLY CONFIDENTIAL

GATUNDU SOUTH TRIAL EXAMINATION

JULY 2018

AGRICULTURE PAPER ONE

443/1

MARKING SCHEME

MOCK AGRICULTURE PAPER 1 : 2018

SECTION A (30MKS) MARKING SCHEME

1. – Land size
 - Socio-cultural factors
 - Tastes and preferences
 - Climatic conditions
 - Technical skills of the farmer
 - Market availability

$4 \times \frac{1}{2} = (2\text{mks})$

2. – minimizes labour
 - Can be practiced on both slopy and flat areas
 - No soil erosion
 - Controls fungal diseases
 - Economical use of water

$4 \times \frac{1}{2} = (2\text{mks})$

3. – use of heavy machinery on wet soil
 - Working the soil when too wet or too dry
 - Over cultivation/pulverization of the soil
 - Monoculture

$4 \times \frac{1}{2} = (2\text{mks})$

4. – failure to reduce cost of production
 - Not using improved production technics
 - Failing to look for proper market
 - Wrong enterprise chosen

$2 \times \frac{1}{2} = (1\text{mk})$

5. – allows adequate time for organic matter to decompose
 - Allows adequate time for weeds to be dehydrated
 - Allows for early planting so that crops establish early before the weeds grow
 - Allows for soil borne pathogens and pests to die
 - Minimizes labour competition.

$4 \times \frac{1}{2} = (2\text{mks})$

6. Hybrid – a crop developed by crossing different crop varieties under controlled pollination
 - Composite – a crop developed under uncontrolled pollination.

$2 \times 1 = (2\text{mks})$

7. Domestication – process where both crops/plants and animals/ livestock depends on human beings for existence. 1x1 = (1mk)
8. – gradual removal of shade
- Gradual reduction in amount of water applied
 - Gradual reduction in frequency of water applied
- 2 x ½ = (1mk)
9. (a) – Volatilization of nitrates to Ammonia gas
- Leaching
 - Washed away
- 1x1 = (1mk)
- (b) – Corrosive 1x1 = (1mk)
10. – Distribute forage throughout the year
- Provide feed for dry season
 - Better full utilization of land
 - Source of income e.g. selling baled hay
- 2 x ½ = (1mk)
11. – Grass holds soil particles together
- Grass cover reduces run-off speed
 - Grass reduces the impact of rain drops hence reducing splash erosion.
- 3 x ½ = (1 ½ mks)
12. – Dry brown lesions on stems, leaves and fruits
- Affected parts appear rotten
 - Fruits fall off prematurely
- 2 x ½ = (1mk)
13. – Produce large quantities of seeds
- Seeds remain viable in soil for long
 - Weeds have effective means of dispersal
 - Weeds have ability to propagate both by seeds and vegetatively
 - Weeds have elaborate root system
 - Some weeds have underground structures that are difficult to control
 - Some are able to survive with limited nutrients
- 2 x ½ = (1mk)
14. – Introduce nitrogen fixing bacteria to fix Nitrogen.
- Promote Nitrogen fixation before planting
- 2 x ½ = (1mk)
15. – Small pieces of land/land scarcity

- Lack of enough capital
- Lack of enough labour
- Lack of enough technology

$2 \times \frac{1}{2} = (1\text{mk})$

16. – States that profit is maximum where total cost of production is minimum and Net revenue is maximum

- Where margin revenue and marginal cost are the same

$1 \times 1 = (1\text{mk})$

17. – Stocking rate – Number of animals/livestock maintained per unit area of land

- Carrying capacity – Ability of forage stand to maintain a particular number of livestock units per unit area.

$2 \times 1 = (2\text{mks})$

18. – Training

- Mechanization
- Improve terms and conditions
- Labour supervision

$4 \times \frac{1}{2} = (2\text{mks})$

19. – Application of lime

- Application of basic fertilizer
- Application of acidic fertilizer
- Application of sulphur

$4 \times \frac{1}{2} = (2\text{mks})$

SECTION B (20MKS)

20. (a) A- side grafting

B- layering (Trench)

C – Marcotting

D – tissue culture

$3 \times 1 = (3\text{mks})$

(b) X- Scion

Y- Root stock

$2 \times 1 = (2\text{mks})$

© Hard wood where stem cannot bend easily to reach the ground.

$1 \times 1 = (1\text{mk})$

(d) - Early maturing

- big bunch
- High annual yield
- Control viral diseases

2 x 1 = (2mks)

21. (a)

A- Stinging Nettle (Urtica masaica)

B- Nut grass (cyperus rotundus)

2x1 = (2mks)

(b) – Has underground bulbs

1x1 = (1mk)

© A- Raises cost of production/difficult to control

B-Lowers quality of pasture

2x1 = (2mks)

22. (a)

(i) Cut off drain

(ii) Bench terraces

(iii) Gabion/porous dam

3x1 = (3mks)

(b) - Reduce erosive force of run-off.

- Trap soil flow through stones

2x1 = (2mks)

© - Wire mesh

- Stones /gravel

2x1 = (2mks)

SECTION C (40MKS)

23. (a) **Land preparation**

- Done during dry season
- Clearing vegetation
- Remove stumps
- Remove perennial weeds
- Carry cultivation to harrow to moderate tilth
- Ridging making furrows of 90-100cm apart
- Make hole on top of ridges 50cm apart
- Fill holes with phosphatic fertilizer and organic manure

2x1 = (2mks)

Planting and planting materials

- Select desirable variety as per ecological zone
- Place stem cutting i.e 2-3 nodes/splits in the holes made in the ridges at onset of long rain in slanting angle of 45°
- Add phosphatic fertilizer mixed with organic manure

- Cover with soil and firm at base to avoid erosion/exposure of material
2x1= (2mks)

Fertilizer application

- Top dress with nitrogenous fertilizer at base of stump 6-8wks after planting/weeding
- Top-dress at onset of rains
- Top dress after harvesting for high yield and regeneration
2x1 = (2mks)

Defoliation

- When 3-5 months/1.5m high
- Use sharp panga to avoid damaging stump and suppress regrowth
- Cut 2.5-5cm above ground
- When leave proportion is greater than stems
2x1= (2mks)

Weed control

- Uproot with hands
- Slashing/cutting at base of woody weed with panga
- Digging with jembe during dry and rainy season
- Mulching at base of stump to suppress weed
- No herbicide use to avoid poisoning livestock.
2x1= (2mks)

(b) – Crop root depth

- crop nutrient requirement
- Weed control
- Pests and diseases control
- Soil fertility
- Soil structure

6x1= (6mks)

©

- Volume of heap/material in the heap goes down
- Materials break easily to small pieces when pressed between finger
- Growth of fungi/moulds in manure
- Temperature of the material goes down
4x1 = (4mks)

24. (a) Silage making procedure

- Prepare silo before harvesting depending on amount to be ensiled
- Cut crop and wilt for 6-12hrs
- Chop
- Put in silo at 10-12cm and compact
- Fill silo rapidly (less than 2 day)
- Check temperature(maintain at 32°C)
- Cover with polythene sheet or dry grass to protect from air and water

- Dig a trench around silo

5x1= (5mks)

(b) Gross revenue= 50 x 1000= 50,000

Variable costs= 5000 + 3000+ 3600 + 2000 + 500= 17,600/=

Gross margin = Gross Revenue – Total variable costs

50,000 – 17,600

= 32,400/=

5x1 = (5mks)

© Management practices in a cabbage nursery

- Regular watering/morning and evening
- Weed control by uprooting
- Pricking out – remove weak seedlings and transfer to seedling bed
- Mulching – apply a light mulch after sowing and remove when seedling shot to emerge
- Shading – apply shade above the nursery
- Pest control – spray suitable pesticide
- Disease control – spray suitable fungicides
- Hardening off – gradual removal of shade and reduce rate of watering

5 x 2= (10mks)

25. (a)

- Filtration at intake - use sieve to remove large particles
- Softening – Add soda ash to soften water
 - Add allum to allow coagulation and settling of particles
- Filtration – water passes through different sizes of particles in a filtration tank
- Chlorination – Chlorine added in chlorination buk
- storage – water stored in large well protected ranks
- Distribution – By piping or pumping to consumers

Any 5x2= (10mks)

(b)

- Purchasing cattle from farmers
- slaughtering beef animals
- Grading carcasses
- Processing meat and packing in tins
- Marketing beef locally and oversees

4x1 = (4mks)

©

- Using healthy planty material

- Using disease resistant varieties
 - Proper drying of cereals and pulses
 - Heat treatment
 - Proper spacing
 - Proper spacing
 - Proper seedbed preparation
 - Held hygiene
- 6x1 = (6mks)s