STICTLY 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 x ½ = (2mks)

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

   4 x ½ = (2mks)

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 x ½ = (2mks)

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

   2 x ½ = (1mk)

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 x ½ = (2mks)

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

   2x1= (2mks)

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 veget

atively
    - 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 x ½ = (1mk)

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 x1 = (1mk)

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.

2x1 = (2mks)

18. – Training
    - Mechanization
    - Improve terms and conditions
    - Labour supervision

4 x ½ = (2mks)

19. – Application of lime
    - Application of basic fertilizer
    - Application of acidic fertilizer
    - Application of sulphur

4 x ½ = (2mks)

SECTION B (20MKS)

20. (a) A- side grafting
B- layering (Trench)
C – Marcotting
D – tissue culture

3 x 1= (3mks)

(b) X- Scion
Y- Root stock

2 x 1 = (2mks)

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

1x1 = (1mk)

(d) - Early maturing
- big bunch
- High annual yield
- Control viral diseases

2 x 1 = (2mks)

21. (a)
    A- Stinging Netle (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 erossive 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^{o}
- 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 $32^{o}C$)
- 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