MARKING SCHEME AGRICULTURE FORM 3 PAPER 1

1.
- High yields due to application of high level of managerial skills and advanced technologies.
- Enables production of high quality productions.
- Available land is maximumly utilized. (½ ×4 = 2 mks)

2.
- Delayed maturity.
- Too much vegetative growth
- Blossom end rot.
- Cracking of fruits before maturity. (½ × 4 = 2 mks)

3.
- Practice crop rotation.
- Destruction of infested crop residues.
- Closed season.
- Rogueing /uprooting and burning infected crops.
- Timely planting / early planting.
- - Intercropping with a crop that deters the pests. (½ × 4 = 2 mks)

4.
- Size of the farm.
- Weather conditions.
- Type of irrigation system used.
- Soil type.
- Type of enterprise carried out in the farm.
- Source of the water.
- - Presence of water conservation measures. (½ ×4 = 2mks)

5.
- Nearness to the water source
- Types of soil
- Topography
- Previous cropping
- Security
- Well sheltered place (½ × 4 = 2mks

6.
- Shifting cultivation
- Traditional system
- Population pressure on a limited area of land
- Accumulation of land holdings
- Offering of land to settle debts (½ × 3 = 1½mk

7.
- Serrentive / compound layering.
- Tip layering.
- Trench layering.
- - Aerial / marcotting layering.(½ × 4 = 2mks)

8.
- Ability to produce many seeds
- Seeds remain viable in the soil for a long time awaiting conducive germinating conditions
- Easily dispersed
- Ability to propagate vegetatively
- Elaborate extensive rooting system
- Ability to survive in less nutrient supply
- Short life cycle (½ × 4 = 2mks)

9.
- No soil and water conservation.
- Overcharging by the tenant.
- No long term investment if lease period is through.
- - No incentive to develop land with no written/formal agreement. (½ × 4 = 2mks)

10.
- Master roll.
- Labour utilization analysis. (½ × 2 = 1mk)

11.
a) To prevent soil borne pests and diseases attack. (½mk)
b) To increase nodulation / to enhance nitrogen fixation. (½mk)
c) To break dormancy in tubers / encourage sprouting in tubers (½mk)

12.
- Thinning
- Gapping
- Desuckering
- Pruning (½ × 4 = 2mks)

13.
- Burrowing animals they dig on soil hence break it to small bits of rock particles.

- Large animals as they move over rocks they exert pressure causing them to break.
- Man activities e.g. mining.
- Plant roots penetrate through the rock cracks exert pressure on wall hence they break.
- - Plants decay to produce organic acid which corrode with rock minerals. (½ × 4 = 2mks)

14. To suppress weeds.
- To control pests like rodents. (½ X 2=1mks)

15.
- Regulate bearing.
- Remove old / unwanted branches.
- Ensure air circulation to create micro-climate unfavourable for pests or diseases.
- Regulate the weight for easy harvesting.
- Control fruit leaf ratio
- - Open the crop for easy spraying / economise chemical spray. (½ × 4 = 2mks)

16. Facilitate soil aeration.
- Improves water infiltration.
- Brings leached nutrients near the soil surface for the crop benefit.
- - Facilitates root penetration. (½ × 4 = 2mks)

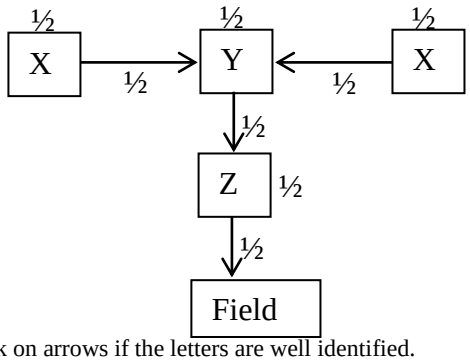
17. Avoid addition of organic manure to the soil. (1 × 1 = 1mk)

a) Earthing up the shoulders of the carrots. (1 × 1 = 1mk)

SECTION B: (20MKS)

18. a)Four heap system / stalk method. (1 × 1 = 1mk)

b)



(½ × 8 = 4mks)

NB: Mark on arrows if the letters are well identified.

19. a) A- cutworm
B- Maize stalk borer. (1 x1=1mk)

b)
- Burrow tunnels in the stems and growing tips destroying transport system.
- Eats leaves and reduce photosynthetic surfaces.
- Bores holes on maize cobs reducing the yields. (1 x 2=2mks)

c)
- Timely planting
- Crop rotation
- Close season
- Trap cropping
- Field hygiene. (2x2=2mks)

20. a) A - Double thorn *(Oxygonumsinuatam)* (1 × 1 = 1mk)
B - Stinging nettle *(Urticamassaica)* (1 × 1 = 1mk)

b) .Irritating effect to the farmer
- Cause injury. (1 x 2 = 2mks)

c) Source of food / vegetable.
- Medicinal value.
- Upon decomposition add nutrients into the soil (1 x 2 = 2mks)

21. a) T – budding (1x1=1mk)

b) A – Scion
B – Rootstock (1 x 2 = 1mk)

b)
- Plants with desirable root characteristics but with undesirable products can be used and improved to be better producers. ;
- Changing the top of the tree is possible / top working. ;
- More than one type of fruit or flower can be propagated on the same tree. ;
- Some clones can only be propagated in this manner. ;
- Maturity period of crops is shortened. (1 x 2 = 2mks)

22.

a) Topography
- Crop to be irrigated
- Type of soil
- Water availability
- Capital availability

b)Stone lines - Are stones heaped along contour to trap soil that is being washed away /check run off.

- Trash lines - Train or crop residues are heaped along contour to trap soil before it is washed away.
- Cut-off drains / diversion ditches - They are channels that divert water run off from cultivated
- slopes into areas where it can cause erosion.
- Gabions/porous dams - Are boxes made of wire mesh and filled with stones. They are built across
- slopes - dry valley or gullies to trap soil and reduce speed of run off.
- Ridging - ridging ridges constructed along contours of the field to slow down run-off and trap
- eroded soil.
- Bunds - Heaps of soil on earth built on sloping land along contours trap.
- Dams - Reduce its speed / run off speed.
- Terraces - constructed on hilly areas by exacavating soil throwing uphill. (fanyajuu terrace) or down (fanyachini terrace) hence slow down surface run-off and divert water away from cultivated. ($2 \times 5 = 10$mks)

23. a)

- Mulching - apply light mulch on the nursery bed after sowing to conserve moisture.
- Watering - water regularly twice a day.
- Weed control - uproot weeds to prevent competition against growth factors.
- Shading - provide shade to avoid direct sun heat that would result in high evapotranspiration.
- Pest control to ensure vigorous and healthy growth.
- Diseases control - control using appropriate method to enhance healthy growth.
- Picking out - remove overcrowded seedlings thus ensure healthy growth.
- Fertilizer application to supplement nutrients in the soil.
- Hardening off - reduce watering frequency to enable seedlings acclimatize to the normal
- conditions in the field.
- Root pruning- to make lifting of the seedlings easier, encourage short, dense and strong
- Rooting system.($1 \times 10 = 10$mks)

b) Reduce cost of production.

- Control soil erosion.
- To maintain soil structure.
- To prevent disturbances of roots.
- Prevent exposure of humus to adverse conditions e.g. sun's heat hence volatilization of nitrogen. ($1 \times 6 = 6$mks)

24. a) Use of open ditches/channels/furrows

- Use of underground pipes
- French drains
- Cambered beds
- Mechanically pumping
- Sub soiling
- Planting trees (5x1=5 mks)

b) Rainfall amount

- Attitude
- Expected yield/yield potential
- Maturity period
- Farmers preference and choice(5 x 1=5 mks)

c)

- Increase the rate of evaporation of moisture from the soil
- Causing lodging in cereals and damage to crops
- Blowing away and bringing rain bearing clouds
- Agent of seed dispersal
- Agent of soil erosion
- Increases evapo transpiration rate
- Increasing spread of pests and diseases
- Destroying farm structures
- Brings cooling effect.
- Aids in spreading pathogens
- Causes stress by chilling of young livestock and crops. (10 x1=10 mks)