

FORM 3 AGRICULTURE PAPER 1 MARKING SCHEME

TERM 1 2015

1. Contribution of Agriculture to industrial development.
 - provide market for industrial goods.
 - provide raw materials that are used in industries 1mk.
2. Four features of rainfall.
 - rainfall distribution
 - Rainfall reliability/pattern
 - Amount of rainfall
 - Rainfall intensity
 - Form of rainfall 4x ½=2mks.
3. Four reasons why tissue technology is encouraged in crop production.
 - it is fast
 - requires less space than other methods
 - used for production of many propagules
 - Gives disease free planting materials. 2mks.
4. Effects of low level of education and technology in Agriculture 2mks.
 - poor record keeping
 - poor use of Agrochemicals.
 - poor marketing of agricultural products.
 - inefficient management in the farm
 - poor adoption of farming activities. 4 x ½=2mks.
5. problems of hardpans in the soil
 - Impedes root penetration
 - leads to water logging
 - poor soil aeration
 - cause salt accumulation 4 x ½ =2mks
6. determinants of soil colour
 - presence or absence of organic matter
 - Parent rock/materials. 2x1/2 =1mk
7. 2 crops propagated by means of slits
 - pyrethrum
 - pastures. 1mk.

8. Intercropping and mixed cropping
Intercropping is growing two or more crops in the same field at the same time while mixed cropping is growing two or more crops in the same field but in specific sections at the same time. 2mks.
Mark as a whole.
9. Four role of calcium
–Improves vigour/stiffness of straw/stem.
-Neutralizes poisonous secretion of plants.
-Helps in grain and seed formation.
-improves soil structure
-promotes bacterial activities
-corrects soil acidity $4 \times \frac{1}{2}=2$ mks.
10. Four factors influencing quantity of water used in the farm.
-Farm size
–weather conditions
–type of irrigation system used
-soil type
-Type of enterprise carried out in the farm.
11. Characteristics of a good green manure plant
-should be able to grow rapidly.
-highly leafy
-high nitrogen content/leguminous
-Faster rate of decomposition.
Hard capable of growing in poor soil conditions. $4 \times \frac{1}{2}=2$ mks.
12. Post harvest practices
-threshing/shelling
-cleaning
-sorting and grading
-processing
-dusting with appropriate chemicals
-Packaging. 2mks.
13. Methods of breaking seed dormancy.
-mechanical method /scarification
-heat treatment
-chemical treatment
-Soaking in water. 2mks.

14. Difference between over sowing and under sowing
-oversowing is the introduction of pasture legume in an existing grass pastures while undersowing is the establishment of pasture under a cover crop usually maize. 1mk.
Work as whole.
15. Importance of nursery in crop propagation. $4 \times 1/2 \text{mks} = 2\text{mk}$
-facilitate production of many seedlings in a small area.
-easy to carry out routine management at the right time.
-best conditions for growth are easily provided.
-planting of small seeds which develop in to strong seedling that are easily transplanted.
-ensures transplanting of only healthy and vigorously growing seedlings.
-excess seedlings from the nursery may be sold thus become a source of income to the farmer. 2mks.
16. Reasons for cutting back in pyrethrum
-to encourage fresh/vegetative growth
-to conserve moisture
-to eliminate some disease .e.g bud rot
-to provide mulch materials
-to ease weeding $4 \times 1/2 = 2\text{mks}$.
17. Advantages of farm yard manure
-improve soil structures.
-supplies variety of soil nutrients.
-supplies variety of soil nutrients
-has a long residue effect
-batters soil PH
-Easily/locally available
-promotes microbial activities in the soil. $2 \times 1/2 = 1\text{mk}$
18. Advantages of pruning in coffee. 2mks.
-to train the plant to sesiarable shape and size.
-to remove diseased and unwanted plants.
-control cropping
-to facilitate picking/harvesting
-to control pest and diseases.
-to ease penetration of spray. $4 \times 1/2 = 2\text{mks}$.

SECTION B (20MKS)

19. I) 18%N
46% P₂O₅ /phosphate $2 \times 1/2 = 1\text{mk}$.

ii) incomplete compound fertilizer because it contains two of the primary macro-nutrients. 1mk. Mark as a whole

b) 100kg SA _____ 21kgN
250kg SA
 $\frac{250 \times 21}{100} = 52.5$ kg/ha.

52.5 X 2=105kg of sulphate of ammonia
3x1=3mks.

20. The field practice is
Trelishing.1mk

b. importance of trelishing
-support the plant
-ease harvesting/spraying
One obtain clean fruits. 2x1=2mks.

c. other practices
-staking
Propping 2 x1=2mks.

21. Three aspects of light.
-light intensity
-light wavelength
-Light duration 3x1=3mks.

b) What was being tested is capillarity in the three different soil samples. 1x1=1mks.

b(i) G-sandy soil
H-Loam soil
J-clay soil 3x1=3mks.

(ii) G-Rough and coarse texture
J-fine texture 2X1=2mks.

iii) Addition of organic manure-addition of lime=1x1=1mk

SECTION C 40MKS

ANSWER ANY 2 QUESTIONS IN THIS SECTION

22. a) factors affecting spacing of crops.

- pest and Diseases control when crops are properly spaced pests might find it difficult to move from one place to another.
- growth cycle-spreading and tillering crop varieties requires wider spacing than erect types.
- use of the crop-crop grown for forages or silages materials is planted at a closer spacing than for grain production.
- moisture availability-areas with higher rainfall are capable of supporting a large number of plants hence closer spacing than areas of low rainfall.
- Soil fertility- a fertile soil can support high plant population hence closer spacing.
- Size of the plants –tall varieties require wider spacing as compared to short varieties.
- type of machinery to be used-the space between rows should allow free passage of the machinery which can be used in the field. 6x1=6mks.

b) Importance of crop rotation

- control of soil erosion
 - crops planted in rows should always be alternated with cover crops to protect empty spaces left during establishment from agents of soil erosion.
 - improvement of soil structures.
- A grass hay is established at the end of rotation programme. Their roots bind soil particles together thus improvement of soil fertility. Eg. When leguminous crops are included in the rotation programme they help in improving soil fertility through fixation of nitrogen with the help of the Rhizobia bacteria. This nitrogen is made use of by the subsequent crops in the rotation.
- control of weeds-parasite weeds specific to grass family crops can be controlled by planting non-grass crop for a period of time.
 - control of soilborne pests and disease builds up some pests and diseases are specific to various crops
- Such pests and diseases will always attack crops of the same family when grown in succession. Such crops should be alternated with crops from different families to control them.
- maximum utilization of Nutrients

Different crops vary in their nutrients requirements in terms of type of nutrients and the depth of absorption. 6x2=12mks.

c. Name two methods of preparing compost manure

-Indore (pit method)

-Four heap method (stack method) 2x1=2mks.

23. Production of kales

-Nursery preparation

-clear the place if bushy

-dig/prepare the site for a desirable tilth/fine tilth

-remove roots and stones from the site.

-prepare nursery 1-1.5m wide by any convenient length.

-prepare raised sunken nursery bed depending on moisture content available.

-level the nursery bed. 4x1=4mks.

b) Establishment in the nursery

-make shallow furrow drills/about 10cm apart.

Apply phosphates fertilizers in the furrow/Drill and wilt with the soil.

-sow seeds by drilling

-cover the seeds lightly with soil

-apply some mulch after sowing the seeds.

-water the nursery thoroughly. 3x1=3mks.

c) managements of seedlings in the nursery

-remove the mulch as soon as seedlings emerge

-water the nursery at least twice a day preferably morning and late evenings.

-remove weeds as they come up.

-thin young seedlings if overcrowded shade gradually and reduce frequency of watering.

6x1=6mks.

d) transplanting of seedlings.

-water nursery thoroughly before transplanting

-dig the planting holes at appropriate tilth.

-Select healthy seedlings.

-uproot seedlings carefully to the end field using appropriate means.

-transport on a cloudy day or late in the afternoon.

-place insecticide in the hole to control soil borne pests.

-place the seedlings in the planting holes at the same depth they were in the nursery bed.

-fill the holes with soil and firm around the seedlings.

Apply mulch or erect a shade.
Water the seedlings thoroughly. 7x1=7mks.

24. Importance of Drainage as a land reclamation method.

- to increase soil aeration-plant growth is retarded by excess water around the root zone because it fills the air spaces restricting air movement. Plants roots get enough air for proper growth after water is removed.
- to increase soil volume-amount of soil around the root zone from which roots can easily get nutrients easily is increased,
- soil temperature-it improves the rate at which soil warms up for better plant growth.
- to increase microbial activities-micro-organisms in the soil increase in number due to proper aeration. They help to improve soil structure and make plant food more readily available.
- to reduce soil erosion-well drained soils have high water holding capacity which helps to reduce run off and increase infiltration rate.
- To remove toxic substances –toxic salts are removed through drainage. 6x1=6mks.

b. characteristics of a fertile soil

- 'Good depth-deep soils give plants greater volume to obtain plant nutrients and provide strong anchorage.
- proper drainage-well drained soil is also allow root respiration and reduce build up of carbon dioxide.
- Good water holding capacity-this will ensure that enough water is retained for plant use.
- Adequate nutrients supply- it should supply the nutrients needed by plants in the correct amounts and in a form that is available to the crops.
- corrects soil PH . different crops have different PH requirements. Certain plants nutrients are only available at a specific soil PH.
- Free from excessive infestation of soil borne pest and diseases. 6x1=6mks

C) Four factors to consider in choosing seedrates.

- seed purity-loss seeds are required when planting pure seeds with high germination percentage comprised to the use of impure or mixed seeds.
- Germination percentage-less seed is used when its germination percentage is higher. Seed of lower germination percentage is required in a large amount.
- Spacing –at closer spacing more seeds are used than at wider spacing.
- number of seeds per hole-planting 2 or more seeds per hole leads to higher seed rate than when only one seed is planted per hole.
- the purpose of the crop-crops used for silage making has a closer spacing leading to higher seedrate than the crops meant for food production. 04x2=8mks

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