

# MARKING SCHEME

## FORM 3 AGRICULTURE PAPER 1 END TERM 2,

### TIME; 2 HRS INSTRUCTIONS

- This paper contains three sections A, B and C.
- Answer all questions in Section A and B and any two from section C.
- All answers must be written in the spaces provided after the questions

#### SECTION A (30MKS)

1. Name any two physical characteristics used to classify soil. (2mks)
  - Colour
  - Texture
  - Structure
2. Name four types of livestock farming. (2mks)
  - Pastoralism
  - Fish farming
  - Bee keeping
  - Poultry keeping
3. State four human factors that affect agriculture. (2mks)
  - Level of education and technology
  - Human health
  - Economy
  - Government policy
  - Transport and communication
  - Cultural practices and religious beliefs
  - Market forces.
4. What is the importance of seed dressing in crop production. (1mk)
  - Prevents attack by pests/diseases
5. State two conditions that may lead to sub-division of land. (2mks)
  - Purchase/sale of land
  - Land sharing
  - Government allocation

- **Inheritance of land**

6. Farmer growing maize on 10 hectares is to dress it with sulphate of ammonia (20% N) at the rate of 120kg of S.A for hectare. AT the local market, S.A is available in 50Kg bag selling at 1500/- per bag. Calculate the amount of S.A the farmer needs to top dress his crop of maize. (3mks)

$$\begin{aligned} & \text{1 hac} && \text{120 kg S.A} \\ & \text{; 10 hac} && \text{120 x 10} \\ & && \text{= 1200kg} \end{aligned}$$

$$\begin{aligned} \text{(ii)} & && \text{100 kg S.A} && \text{20kg N} \\ & && \text{1200kg} && \frac{\text{1200x20}}{100} \\ & && && \text{= 240kg N} \end{aligned}$$

$$\begin{aligned} \text{(iii)} & && \text{1 bag} && \text{50kg} \\ & && \text{1200kg} && \frac{\text{1200}}{50} \times 1500 \\ & && && \text{=36000/=} \end{aligned}$$

7. Define the following terms. (1½mks)

(i) Nursery bed

**A special seedbed prepared for raising seedlings before transplanting.**

(ii) Seedling bed

**A nursery used to raise seedlings after removal from nursery due to overcrowding (after picking out)**

(iii) Seedbed

**A piece of land prepared to receive planting materials.**

8. State two examples of nitrogenous fertilizers. (2mks)

- **Sulphate of ammonia**

- **Ammonium sulphate Nitrate**

- **Calcium Ammonium Nitrate**

- **Urea (rej symbols)**

9. State three disadvantages of broadcasting seeds. (1½mks)

- **Uses more seeds**

- **Seed not spread evenly**

- **Overcrowding of plants**

- **Low yields due to competition**

10. State four deficiency symptoms of nitrogenous fertilizers. (2mks)

- Chlorosis
- Stunted growth
- Production of purple colour (anthocyanin)
- Premature fall of leaves

11. Give four conditions of the land which may make it necessary to carry out reclamation practices. (2mks)

- Swampy/water logged area
- Stony ground
- Steep areas
- Aridity/dryness
- Eroded/bare land
- Tsetse fly infected areas
- Bushy land

12. State two mechanical methods of separating soil particles according to size during soil analysis. (2mks)

- Sedimentation
- Sieve method

13. Give four pieces of information contained in a land title deed. (2mks)

- Parcel number
- Size of land
- Name/identify of owner
- Date of registration
- Seal
- Conditions if any

14. State four effects of post-election violence in 2008 to agriculture production. (2mks)

- Withdrawal of labour
- Insecurity
- Lack of capital to purchase input
- Lack of motivation
- Death of labourers
- Escalation of inputs
- Lack of market

15. State two reasons why shifting cultivation has become unpopular in Kenya. (1mk)

- High population pressure
- Change in land ownership

#### SECTION B

16. The diagram labeled E and F illustrate some soil structure. Study them carefully and answer the questions that follow.

(i) Identify the soil structure E and F. (1mk)

- **E prismatic**
- **F columnar**

(ii) List down two field practices which can destroys the structures shown above. (2mks)

- **Filed burning**
- **Flooding**
- **Field rolling**
- **Over cultivation**

(iii) Give two characteristic of a fertile soil. (2mks)

- **Deep**
- **Good water holding capacity**
- **Good pH**
- **Good drainage/aeration**
- **Enough materials**
- **Free from pests and diseases**

17. The diagram below illustrate a compose heap. Study it carefully.

(a) Name the parts labeled K – N (2mks)

**K maize stalks**

**L green leaves**

**M- well decomposed manure**

**N- Soil**

(b) State one use of each of the parts labeled K, M, N and O (2mks)

**K – forms foundation of heap**

**M – Supply nutrients**

**N- Introduces micro-organism**

**O- Detect temp of heap**

(c) List four reasons why compost manure is not popularly used in the farm. (2mks)

- **Lack of technical knowledge**
- **Scarcity of materials**
- **Labourious**
- **Bulky to transport**
- **Takes time to prepare**

18. Study the diagrams below.

a) Name the process used to test Irish potatoes in readiness for planting. (1mk)  
**Chitting/sprouting**

b) Which of the two is suitable for planting? (1mk)

**B**

- c) Give a reason for your answer in (b) above. (1mk)  
 - **Has produced short healthy sprouts**
- d) Give two reasons why maize need to be earthed. (2mks)  
 - **Provide support to prevent lodging**  
 - **Improves drainage**
19. (a) State the two types of the multiple stem pruning system in coffee. (2mks)  
 - **Capped multiple stem**  
 - **Non-capped multiple stem**
- (b) Name any two carrot varieties planted by farmers. (2mks)  
 - **Chartenary**  
 - **Nantes**  
 - **Oxhast**

**SECTION C (40MKS)**

20. (a) Discuss the factors that should be put into consideration while choosing suitable implements for primary cultivation. (8mks)  
 - **The condition of the land. land with stones and stumps require a disc plough. a land with couch grass**  
 - **type of tilth required: fine tilth require different types of implements**  
 - **Depth of cultivation heavy implement is necessary when deep cultivation is needed. light implements are needed in shallow cultivation.**  
 - **Capital availability: with enough money, a suitable implement can be bought**  
 - **Source of the power on the farm includes animals, tractor hand**  
 -
- (b) Describe reasons for drainage as a method of land reclamation in crop production. (10mks)  
 - **to increase soil aeration**  
**To increase soil volume**  
**To raise soil temperature**  
**To increase micro-bial activities**  
**To reduce soil erosion**  
**To remove toxic substances**
- } **relevant explanation to be given 2x5**
- (c) State two factors that influence mass wasting (2mks)  
**slope of the land**  
**Nature of materials**  
**Climate**  
**Vegetation cover**  
**Human activities**  
**Forces within earth's crust**
21. a) Discuss ways in which nitrogen is removed from the atmosphere. (8mks)  
 - **nitrogen fixation by lightening: lighting helps to combine nitrogen with oxygen to form nitric oxide. Further reaction's occur to form nitrates**

- **Fixation by nitrogen fixing bacteria. Involves symbiotic and non-symbiotic fixation where bacteria convert free nitrogen into nitrates.**
- **Nitrification: involves conversion of ammonium compounds are converted into nitrites and nitrates**

b) Discuss factors to consider in choosing seed rates (10mks)

- **Seed purity: pure seeds have a high germination percentage hence less required**
- **Germination percentage. Less seed is used when germination percentage is higher**
- **Spacing: closer spacing require more seeds than wider spacing**
- **Number of seeds per whole: more seeds per hole increase the seed rate**
- **Purpose of the crop. Crop for silage making is spaced closely than that meant for grain production. (2 x5)**

c) State two main methods of planting (2mks)

- **row planting**
- **Broad casting**

22. a) Mention the procedure involved in harvesting fish. (5mks)

- **inflow of water from the river is stopped by closing the channel**
- **Normal cropping is done to remove all large fish**
- **The outlet is then opened to allow water to flow out**
- **A scoop net is used to catch the fingerlings which are kept in a holding pond.**
- **Water is completely drained for the pond to dry**

b) Discuss four types of soil erosion by water. (8mks)

- **-splash/raindrop erosion. Involves soil splash from the impact of water drops directly on soil particles. The kinetic energy in the rain drop detaches and transfer soil particles.**
- **Sheet erosion: involves uniform removal of soil in the layer from flat or gently sloping land.**
- **- Rill erosion. Removal of soil from small but well defined channels (Streamlets). It's common on slope with little vegetation**
- **Gulley erosion: An advanced stage of rill erosion. Channels get progressively deeper and wider until they become gullies. (2 x 4)**

c) Mention various biological measures employed in soil and water conservation. (7mks)

- **grass/filter strips**
- **cover cropping**
- **contour farming**
- **mulching**
- **cross systems**
- **slip cropping**
- **grassed/vegetated waterways**
- **afforestation/reforestation**
- **agroforestry**