**MARKING SCHEME**

**FORM 3**

**AGRICULTURE**

**PAPER 1**

**END TERM 2, 2019**

**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**
1. Name four types of livestock farming. (2mks)
* **Pastoralism**
* **Fish farming**
* **Bee keeping**
* **Poutry keeping**
1. 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.**
1. What is the importance of seed dressing in crop production. (1mk)
* **Prevents attack by pests/diseases**
1. State two conditions that may lead to sub-division of land. (2mks)
* **Purchase/sale of land**
* **Land sharing**
* **Government allocation**
* **Inheritance of land**
1. 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)

**I hac 120 kg S.A**

**; 10 hac 120 x 10**

**= 1200kg**

**(ii) 100 kg S.A 20kg N**

**1200kg 1200x20**

 **100**

 **= 240kg N**

**(iii) I bag 50kg**

 **1200kg 1200 x 1500**

 **50**

**=36000/=**

1. Define the following terms. (11/2mks)
2. Nursery bed

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

1. Seedling bed

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

1. Seedbed

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

1. State two examples of nitrogenous fertilizers. (2mks)
* **Sulphate of ammonia**
* **Ammonium sulphate Nitrate**
* **Calcium Ammonium Nitrate**
* **Urea (rej symbols)**
1. State three disadvantages of broadcasting seeds. (11/2mks)
* **Uses more seeds**
* **Seed not spread evenly**
* **Overcrowding of plants**
* **Low yields due to competition**
1. State four deficiency symptoms of nitrogenous fertilizers. (2mks)
* **Chlories**
* **Stunted growth**
* **Production of purple colour (anthocyanin)**
* **Premature fall of leaves**
1. 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**
1. State two mechanical methods of separating soil particles according to size during soil analysis.

(2mks)

* **Sedimentation**
* **Sieve method**
1. 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**
1. 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**
1. State two reasons why shifting cultivation has become unpopular in Kenya. (1mk)
* **High population pressure**
* **Change in land ownership**

SECTION B

1. The diagram labeled E and F illustrate some soil structure. Study them carefully and answer the questions that follow.
2. Identify the soil structure E and F. (1mk)
* **E prismatic**
* **F columnar**
1. List down two field practices which can destroys the structures shown above. (2mks)
* **Filed burning**
* **Flooding**
* **Field rolling**
* **Over cultivation**
1. 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**
1. The diagram below illustrate a compose heap. Study it carefully.
2. Name the parts labeled K – N (2mks)

**K maize stalks**

**L green leaves**

**M- well decomposed manure**

**N- Soil**

1. 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**
1. Study the diagrams below.
2. Name the process used to test Irish potatoes in readiness for planting. (1mk)

**Chitting/sprouting**

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

 **B**

1. Give a reason for your answer in (b) above. (1mk)
* **Has produced short healthy sprouts**
1. Give two reasons why maize need to be earthed. (2mks)
* **Provide support to prevent lodging**
* **Improves drainage**
1. (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)**

1. (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 form 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 relevant explanation to be given 2x5**

**To increase micro-bial activities**

**To reduce soil erosion**

**To remove toxic substances**

(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**

1. 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**

1. 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**