**COUNTY LINK GROUP**

**COMMON EXAMINATION**

**END OF TERM II FORM 4 -2017**

**AGRICULTURE MARKING SCHEME**

**PAPER 443/1**

**SECTIONS A (30MKS)**

1. (a) *Define the term mulching*
* It is the placement of materials on the ground next and in between the rowing plants (1mk)

(b) Two types of mulches

- Organic mulch

- Inorganic mulch $(2 x\frac{1}{2}=1mk)$

1. *Four ways of improving labour productivity*
* Training the labour force
* Use of mechanization where possible
* Giving labour force incentive and motivations
* Supervision of labour $(4 x\frac{1}{2}=2mks)$
1. *Four factors that determine seed rates*
* Germination percentage
* Spacing of the crop
* Number of seed per hole
* Purpose of the crop
* Moisture content of soil
* Method of planting
* Condition of the soil at planting time $(4 x\frac{1}{2}=2mks)$
1. *Factors that determine the depth of cultivation*
* The types of crop[s to be planted
* The implements available for use
* The soil type in the farm $(3 x\frac{1}{2}=1\frac{1}{2}mks)$
1. *Two reasons why weeds are adapted to wide range of environment*
* Extensive rooting systems
* Ability to survive where there are limited nutrients.
1. *State three reasons that make tissue culture popular*
* Establishes pathogen free plants, viral diseases free plants
* Used in mass production of propagates
* Requires less space than other methods $(3 x\frac{1}{2}=1\frac{1}{2}mks)$
1. *Give three main method of land preparation*
* Primary land cultivation
* Secondary land cultivation
* Tertiarlly land cultivation $(3 x\frac{1}{2}=1\frac{1}{2}mks)$
1. *Give four examples of product – product relationship in management of agriculture enterprises*
* Joint products
* Competitive products
* Supplementary products
* Complementary products $(4 x\frac{1}{2}=2mks)$
1. *Four functions of farmers co-operative societies*
* Marketing farmers produce
* Negotiating for fair prices for farmers produce
* Keeping records of the cooperative activities and informing the members accordingly
* Paying dividend to the members
* Educating the members on matters relevant to their cooperative $(4 x\frac{1}{2}=2mks)$
1. *What role does soil PH contribute in maintenance of soil Fertility*
* Unsuitable soil ph will inhabit the activities of micro organisms in the soil leading to loss of soil fertility due to reduce decomposition O.W.T.T.E (1mk)
1. *Give two biological methods of weed control*
* Use of livestock grazing in crop plantations like coconuts and cashew nuts
* Use of weed eating fish for aquatic weeds.
* Use of moths in control of cactus and pricking pear.$ (2x\frac{1}{2}=1mk)$
1. *Two factors that encourage damping off disease in cabbage nursery bed.*
* Excess watering of the seedlings
* Too thick shade
* Too low shade $(2 x\frac{1}{2}=1mk)$
1. *Three reasons why proper drying of grains is encouraged*.
* Prevent fungal attack
* Maintain grain quality
* Prevent germination in the stove
* Help to stretch time for quality between harvest and consumption $(3 x\frac{1}{2}=1\frac{1}{2}mks)$
1. *Two marketing organization for coffee in Kenya*
* Kenya planters cooperatives union
* Coffee board of Kenya ` $(2 x\frac{1}{2}=1mk)$
1. *Three disadvantages of concession or company land tenure system*
* Encourages monopoly in production
* Encourages social problems/ social evils
* Big losses may occur incase of mismanagement
* Benefits are siphoned to mother country $(3 x\frac{1}{2}=1\frac{1}{2}mks)$
1. *Environmental factors that influence the effectiveness of a herbicide*
2. Soil
* Some soils absorbs and retain more herbicides that n others rendering the herbicide less effective (1mk)
1. Temperature
* Temperature increase the translocation of herbicides and death of weed (1mk)
1. *Four qualities of a good farm manger.*
* Knowledgeable on agricultural principles
* Hardworking
* Have practical farming skills
* Responsible / dynamic/ prudent/ ambitious
* Flexible in decision making $(4 x\frac{1}{2}=2mks)$
1. *Four site in the farm where agro-forestry may be practiced*
* Farm boundary
* Along the river banks
* Along the terraces
* In steep slips
* Within the homestead $(4 x\frac{1}{2}=2mks)$
1. *Four methods of treating agro-forestry seeds before planting*
* Seed inoculation of leguminous species
* Hot water treatment of calliandra and acacia
* Mechanical breaking of hard coats of erosion
* Light burning or roasting of wattle trees
* Soaking in water for 24 hours of leucoxene. $(4 x\frac{1}{2}=2mks)$

**SECTION B (20MKS)**

1. (i) Marco ting / air layering (1x1 = 1mk)

(ii) Debarking / ring banking

* Applying a rooting hormone/ IAA/IBA/NAA
* Applying rooting medium e.g Silica/ sawdust sisal waste. (1x3 = 3mks)
1. (i) A – Cutworm
* B – Maize stalk borer $(2 x\frac{1}{2}=1mk)$

(ii) – Destroy transport system

* East leaves and reduce photosynthetic surfaces
* Reduce the yields $(2 x\frac{1}{2}=1mk)$

(iii) – Timely planting

* Crop rotations
* Close season
* Trap cropping
* Field hygiene $\frac{1}{2} x 2=1mk)$
1. (i) 1- Gutter

 2- Spillway

 3- Drin pipe (1x3=3)

(ii) (a) Free from disease causing micro- organisms

(b)Colorless

(c) odourless

(d) Tasteless

(e) Soft

(f) Free from foreign contaminants

(g) Neutral PH

1. *Advantages of using polythene sleeves in raising seedlings.*
* It is easy to transport the seedlings to the field
* There is no likelihood of root disturbance during transportation
* It is easy to every out root pruning incase of tree seedlings
* It is easy to control soil borne peats and disease (3mks)

Section C

1. (a) Benefits of sub- surfaces irrigation (6mks)
* Less labour demanding in changing water pipes
* Does not require construction of dykes and leveling
* It does not cause any erosion
* Does not cause fungal diseases – as water is not in contract with leaves
* Economic on the use of water
* Minimizes possibility thefts of pipes (6mks)

(b)Method of land acquisitions for agriculture in Kenya (5mks)

* Purchasing the land
* Inheriting the land
* Gift or reward
* Land can be leased/ rented
* Through government settlement (5mks)

(c ) Describe productions of tomatoes under the following sub- headings

1. Nursery establishment and maintenance
* Plough and harrow land
* Prepare bed in wide X any convenient length
* Make drills 15cm apart and scatter seeds and cover them with soil lightly
* Apply light mulch and water twice a day – morning and evening
* Remove mulch after germination
* Erect a light shade
* Harden off the seedlings 3 weeks before transplanting
* Transplant the seedlings when 10cm light or 4-6 weeks old- with five time leaves (6mks)
1. Control of bacterial with (3mmks)
* Field hygiene / uprooting and burning the affected plants
* Use of certifies seeds
* Crop rotation of control the disease (3mks)
1. (a) Describe the causes of crop disease (6mks)
* Disease causing organism Bacteria, fungi & virus
* Poor weather condition ( extreme day night temperature )
* Toxic chemicals is in the soil
* Irregular watering (physiological disorders)
* Flooding may accumulate ammonia that is poisonous
* Nutritional disorders (6mks)

(b)(i) Describe the water control in irrigated rice (4mks)

- The level of water in the field is maintained at the low level of 5cm at planting time.

- It is in cease to 15cm by the time thee seedlings are fully grown

- Water should be allowed to flow slowly through the filed.

- Old water should be drained away if the flow is not possible

- Fresh water should be added every 2-3 weeks

-Water should be drained away when the crop has matured (4mks)

 (ii)Explain the selection and preparation of beans for planting (3mks)

* Dry planting seeds to the required moisture content (12-14% M.C)
* Discard damaged seeds and wrinkled ones
* Discard seeds attacked by pests and diseases
* Dress the seeds with appropriate chemicals.
* Inoculate the seeds with the correct strains of rhizobum (3mks)

(c ) Explain the various management practices that can be carried out by a framer to maintain soil fertility on his farm (7mks)

* Control soil erosion
* Control weeds
* Proper drainage
* Control of soil PH
* Mixing cropping of leguminous and non leguminous
* Proper cultivations
* Minimum tillage (O.W.W.T.F.E) (7mks)
1. (a) Six negative effects of liberalization of agricultural market (6mks)
* Dumping of cheap in local markets reducing demand for local products.
* Drop in prices of local agricultural products discouraging farmers
* Close drown of local industries due to lack of local due to lack of raw materials
* Loss of employment due to closedown of local industries.
* Low income to farmers hence no motivations
* Health risks to the populations due to reduced standards of living and poverty.
1. How farmers overcome risks and uncertainties in farm business (7mks)
* Insurance
* Diversification
* Selections of move certain enterprises i.e choosing enterprises with low risks
* Input rationing – use sparingly to avoid wastage
* Flexibility productions i.e being able to make alternatives in farming (use new modern methods of farming e.g Irrigations and green houses (7x1 = 7mks)
1. How advancement in technology has contributed into the meaning of agriculture in Kenya today
* Modern means of pests and disease control
* Improved crop varieties for all ecological zones in the country
* Improved livestock breeds for good quality products
* Research services in way of copping with climatic changes
* Improve means of transport of both inputs and outputs in the following regions
* Better marketing structures for both local and foreign market
* Improve means of storage and processing of farm reproduce
* Tractors hive services from government and private proprieties
* Improved means of soil and water conservation
* Extension services to farmers by the government
* Credit facilities by government and private investors (7x1 = 7mks)