MECS CLUSTER JOINT EXAMINATION

 **AGRICULTURE MARKING SCHEMES**

**PAPER 1**

***1.Name two branches of horticulture. ( 2x ½ = 1 marks)***

* Pomoculture / Growing of fruits
* Olericulture / growing of vegetables
* Floriculture / growing of flowers

***2.State two advantages of mixed farming ( 2 x ½ = 1 mark)***

* + Mutual benefit between crops and livestock
	+ Better utilization of labour
	+ Assured of income throughout the year
	+ Diversification /insurance against total loss

***3. Advantages of metal water pipes over plastic pipes in piping water . (2 x ½ = 1mark)***

* + Higher pressure tolerant
	+ Resistant to rodent damage
	+ Durable /long lasting

***4a) Two characteristics of extensive farming system ( 2x ½ = 1marks)***

* Practiced on large tract of land
* Low capital investment
* Low labour requirement per unit area
* Low yields per unit area.

***b) List four characteristic of fertile soil ( 4x ½ = 2marks)***

* Correct PH
* Good water holding capacity
* Adequate plant nutrients
* Free from pest and diseases
* Good depth
* Well drained

***5.Advantages of raising cabbage seedlings in a nursery before transplanting (4x ½ = 2marks)***

* Easy to carry out management practices
* Better conditions are provided for seedling
* It takes short time in the field
* Excess seedling is sold to earn income.
* Easy to establish small seeds into seedlings
* A farmer is able to select strong and health seedlings for transplanting.

***6. State four benefits of a land title deed to a farmer. (4x ½ = 2marks)***

* One can sell land and earn income
* No dispute of land/offers security of tenure
* Can develop permanent project on land
* Motivated to conserve soil and water
* Security to get a loan

7. ***State four factors which should be considered when deciding type of irrigation on crop production ( 4x ½ = 2marks)***

* Slope of land/Topography
* Type of crop to be planted
* Availability of water
* Type of soil
* Availability of capital

***8. ways overstocking encourage soil erosion. (2 x ½ = 1mark)***

* Animals remove all forage cover and expose soil to agents of soil erosion.
* Intensive trampling loosen soil making it easily carried by agent of soil erosion
* Intensive trampling occurs and vegetation is destroyed exposing the soil to agent of soil erosion**.**

***9. Physical weathering agents (2 x½ = 1 mark)***

* Wind
* Glaciations/moving ice
* Temperature change
* Running water(reject water alone)

***10. Objectives of million acre scheme. ( 4x ½ = 2marks)***

* To transfer land from white settlers (Europeans) to Africans.
* Reduce population pressure in the African reserves.
* To solve the unemployment problems.
* To increase agricultural production,Through better methods of land utilization.
* To maintain production levels maintained by former white settlers and also earn foreign exchange from the sale of cash crops**.**

***11. State four symptoms of attack by the bean fly in bean production. ( 4x ½ = 2marks)***

* Holes in stem/tunnels in stem.
* Stem swells at the base.
* Cracking of stem at the base
* Stunted growth***.***

***12.a) measures which are taken to minimize water pollution*** ***. ( 4x ½ = 2marks)***

* Fencing off water sources to keep off pollutants
* Application of soil conservation measures to control soil erosion
* Avoid watering animals directly from water sources
* Good disposal of effluents from processing factories
* River banks should be vegetated by planting grass to minimize siltation in rivers.
* Employing adequate storm water control methods and disposal systems especially in areas with heavy rains***.***

***b) state four importance of drainage as a land reclamation method ( 4x ½ = 2marks)***

* To increase soil volume
* To raise soil temperature
* To increase soil aeration by removing excess water
* To reduce soil erosion
* To remove toxic substances
* To increase microbial activities

***13 .List four practices that achieve minimum tillage. (4x½=2marks)***

* Application of herbicides in controlling weed
* Use of mulch on the soil surface
* Timing cultivation
* Establishing a cover crop on the field
* Uprooting or slashing weeds in perennial crops
* Restricting cultivation to the area where seeds are to be planted

14. a) ***List four farming practices that can be carried out to increase the amount of light harnessed by crop***s  ***( 4 x ½ = 2 marks)***

* Prunning
* Thinning
* Weeding
* Wider spacing

15 ***Two ways of preparing planting materials before planting*** ***(2 x ½ = 1mark)***

* Breaking seed dormancy
* Seed dressing
* Chitting/ sprouting
* Seed inoculation

16.***four ways of increasing labour efficiency on the farm*  *(4x½=2marks)***

* Training them
* Giving incentives
* Supervision
* Good operator – worker relationship
* Farm mechanization
* Assigning tasks according to skills & specialization
* Proper remuneration /Attractive salaries

17. ***State four factors which may affect the quality of Hay. (2 x ½=1marks)***

* Forage species used
* Stage of harvesting (leaf: stem ration)
* Length /period of storage
* Weather condition during drying period
* Condition of the storage structure

 **SECTION B (20 MARKS) ANSWER ALL QUESTION**

*18* ***(a)What is the experiment set up above designed to study. (1 mark)***

* To compare porosity / water holding capacity of different soils

***b) Name the three soil types B and C. (2 marks)***

 C- Clay

 B- Loam

 ***c) What are the characteristic textures of the soil type A and C (2 marks)***

 A- Coarse texture

 C – Fine textured

19a) ***Identify the farm practice represented by B. (1mark )***

 Earthing up

***b) State one the importance of the above practice in the following crops. (3marks)***

* ***Maize*** - provides support to prevent lodging
* ***Irish potatoes*** - Improves tuber formation/expansion
* ***Tobacco*** – Improves drainage around the plant

***c) At what stage of growth should the above practice be carried out in maize. (1mark*** )

* During second weeding /knee high/45 cm in height

20. ***Identity of the record (1mark)***

* Health record

(b) ***State two different information that should be entered in the remarks column (2marks)***

* Occurrence of the disease
* Response to treatment
* Next date of treatment /vaccination

 ***c) Give two importance of keeping the farm record illustrated above (2marks)***

* Know the course of action to be taken in the event of a disease and maintenance of good health
* Know the prevalent disease
* Calculate cost of treatment
* Select and cull animals on health ground
1. ***a) Identify the weed labeled (2marks)***

 C-Black jack *Biden pilosa*

 D- Oxalis

 b***).Classify the weed labeled C according to plant morphology. (1 mark)***

* Broad leaf

 c***).Explain the reason why it is difficult to control the weed labeled D. (2 marks***)

* Has the underground structure (bulbs) which goes deep/spread hence difficult to control

***SECTION C 40 MARKS*** ANSWER ONLY TWO QUESTION

22(a) ***Nursery Preparations and establishment (7x1=7marks)***

* Clear the place if bushy
* Dig the land to remove perennial weed
* Break soil clods to a fine tilth
* Remove roots and stones from site
* Prepare nursery bed 1m wide by any convenient length
* Prepare raised or sunken depending on moisture available
* Level nursery bed
* Make shallow drills about 10cm apart
* Apply phosphatic fertilizer in drills and mix through with soil
* Sow seeds by drilling
* Cover the seeds lightly with soil
* Apply some thin layer of mulch after sowing
* Water the seeds

(b) ***Management of seedlings in the nursery (5x1=5marks)***

* Remove the mulch as soon as seedlings emerge
* Water nursery twice a day – morning and late evening
* Remove weeds as they come up.
* Prick out of overcrowded seedlings
* Control pests using appropriate pesticide
* Control diseases using appropriate fungicide
* Hardening off the seedlings by gradual removal of the shade & reduction in frequency watering.
* Erect a shade to protect the seedlings from direct sunlight.

***( c) Transplanting of seedlings (8x1=8 marks)***

* Water nursery thoroughly before transplanting
* Dig planting holes of appropriate depth and correct spacing (60-90)cm x 60cm
* Select healthy and vigorously growing seedling only
* Lift seedlings carefully with a garden trowel.
* Ensure the seedling is lifted with lamp of soil around the roots
* Transport seedlings carefully to the field
* Transplant on a cloudy day or late afternoon
* Place phosphatic fertilizer and well rotten manure in the planting holes and mix with soil
* Plant seedling same depth as they were in the nursery bed
* Fill the holes with soil and firm around the base seedlings
* Apply mulch or erect a shade
* Water the seedlings thoroughly.

***23a) Explain five ways government policy contributes to Agriculture. (5 x1=5marks)***

* Subsidize the price of inputs to ensure production is affordable.
* Conservation of natural resources to ensure sustainability
* Imposition of high tax imports to promote local products
* Stepping up control of diseases and pest to prevent spread and high quality products
* Quality control to ensure effective competition in both local and international market

 b***) Explain any five factors considered when spacing crops.***

* Soil fertility – Crops can be spaced wider if the soil is infertile and close if soil is very fertile.
* Soil moisture content – Drier areas require wider spacing than wet areas.
* Machinery to be used in subsequent farm operation - Crop whose operation will be mechanized is given wider space to allow for movement of machinery than that which will be manually managed.
* Intended purpose of the crop – Crops requires different spacing depending on their purpose e.g. maize for silage is spaced closer than that grown for grains.
* Growth habit of the crop/ size/ suckering/ tillering – plants that tiller or produce suckers tend to occupy a bigger area. they thus require wider spacing.
* Height/size of plant – Shorter crops require narrower spacing than taller crops.
* Number of seeds per hole – If more seeds are planted per hole, the spacing should be wider than if fewer or one seed is planted per hole.
* Pest and disease control-when crop are properly spaced, pest may find it difficult to move from one plant to another

 ***Stating 1 mark explanation 1 mark total 10 marks***

c) ***Describe the advantages of mixed grass -legume pasture over a pure grass pasture***

 ***( 5x1=marks)***

* + - * + Mixed pasture yields more per unit areas of land
				+ It is more nutritious /has higher nutrition value
				+ Make maximum use of soil Nutrients
				+ Helps to reduce soil erosion because of good coverage
				+ Has better weed control
				+ Increases soil fertility because of Nitrogen fixation

24a) ***.(a)State and explain four ways in which soil loses ferttility (4x2=8 marks)***

* Leaching – As water infiltrates into the soil it moves together with dissolved soluble minerals to lower horizon beyond the reach of many plant roots.
* Soil Erosion – Carrying away of top soil rich in nutrients by agents.
* Monocropping – the crop grown will use the same nutrients till exhausted leaving out other nutrients, remain unused
* Continous cropping-cultivation on the same piece of land over a long period of time exhaust all the nutrients
* Burning of the vegetation – burning destroys organic matter leading to destruction of soil fertility.
* Accumulation of salts that lead to salinity. This change leads to loss of soil fertility.
* Change in soil pH – increase or decrease in soil pH as a result of use of different fertilizers affects the activity of soil microorganisms as well as availability of soil nutrients.

***b) State the precautions that should be observed when harvesting cotton. (4x1marks)***

* Picking should be done immediately the bolls open/split to prevent staining by dust.
* Picking should be done when the lint is dry to prevent fibres from sticking together.
* Use clean containers for picking to avoid contamination.
* Hands should be clean to avoid staining of the lint.
* Do not mix cotton with foreign matter eg leaves and small twigs.
* Use separate containers for separate cotton grades to ensure quality.
* Avoid using sisal bags for collecting the bolls because their fibres may mix with the seed cotton thus creating problems during ginning.

***c) Explain four importance of crop rotation. (8marks)***

* **Maximum utilization of nutrients**- Alternating shallow with deep rooted crops ensures that nutrients from different layers are well utilized.
* **Control of soil borne pests and disease build up**- Eg root eelworms in pyrethrum. Pests and diseases are specific to various crops.
* **Control of weeds** -Parasitic weeds eg witch weed (Striga weed) are specific to grass family crops and can be controlled by planting non grass crops for some time.
* **Improvement of soil fertility**-When leguminous crops are included in the rotation programme, they help in fixing nitrogen with the help of Rhizobium bacteria. This nitrogen is made available for subsequent crops.
* **Improvement of soil structure-** It is recommended that at the end of the rotation programme a grass ley be established. The roots of grass are so extensive that they bind soil particles together.
* **Control of soil erosion**-If crops planted in rows eg maize is alternated with cover crops eg sweet potatoes providing good ground cover reducing soli erosion.

***Stating 1mark explanation 1 mark 4x2=8 marks***