**OPENER EXAM**

**FORM THREE AGRICULTURE**

**TERM 1 2023**

**TIME: 1 1/2  HOURS**

**MARKING SCHEME**

Answer all the questions in the spaces provided.(50marks)

1. Give one way in which crossbreeding improves livestock production. (2mks)

* **By concentrating genes from the parents to the offspring’s**

1. State FOUR signs that are likely to be observed when a cow is on heat (4mks)

* **Reddening and swelling of the vulva**
* **Clear mucus discharge from the vulva**
* **Frequent bellowing**
* **Cow mount others**
* **Cow stands still when mounted by others**
* **Cow becomes restless**
* **Slight rise in body temperature**
* **Slight drop in milk in lactating cows**

1. State four disadvantages of natural mating as a method of breeding in dairy cattle management (2mks)

* **It is uneconomical to keep a bull**
* **May lead to uncontrolled mating**
* **High risk of transmission of breeding diseases**
* **Only a small number of cows can be served**

1. Explain the term hybrid vigour as used in livestock production. (2mks)

* **Increased performance as a result of crossing two superior but unrelated** breeds

1. (a) Define the following terms as used in livestock breeding. (2mks)

(i) Inbreeding

* **Mating closely related animals e.g. brother and sister**

(ii) Out crossing

* **Mating unrelated animals but within the same**

(b) Outline three disadvantages of artificial insemination in cattle management (3mks)

* **Harmful traits/ diseases can spread fast**
* **Requires trained personal/ skills**
* **Laborious**
* **Low chance of conception due to poor timing/ death of sperms,**

1. Describe the life cycle of a three- host tick. (8mks)

* **Eggs hatch into larva on the ground ,Larvae climbs on 1st host**
* **Larva feed on 1st host**
* **Larva drop on the ground and moults into a nymph**
* **Nymph climbs – onto 2nd host**
* **Nymph feeds on 2nd host**
* **Nymph drops on the ground and moult into an adult**
* **Adult climb on 3rd host**
* **Adults feeds and mate on 3rd host**
* **Mated, engorged female drops and lay eggs on the ground**
* **Egg hatches into larvae**

1. (a) What is crop rotation? (1mk)

* Practice of growing different types of crops in the same piece of land I an orderly sequence

(b) State three advantages of crop rotation. (3mk)

* **Ensure maximum utilization of nutrients**
* **Control soil – borne pests and diseases**
* **Control weed**
* **Add nitrates into the soil**
* **Control soil erosion**
* **Improve soil structure**

1. (c) State three factors considered when designing a crop rotation programme (3mks)

* **Deep rooted crops alternate with shallow rooted ones**
* **Crop easily weeded are alternated with those difficult to weed**
* **Crops of the same family should not succeed each other**
* **Heavy feeders should come first in the cycle**
* **Include a legume crop**

1. Calculate the plant population per hectares of a maize crop planted at a spacing of 100cm x 50cm. Show your working (3mks)

**Plant population =Area of land**

**Spacing**

**1 ha= 10,000m2**

**100cm x 50cm=1m x 0.5m**

**10000m2**

**0.5m2  = 20,000 plants/ha**

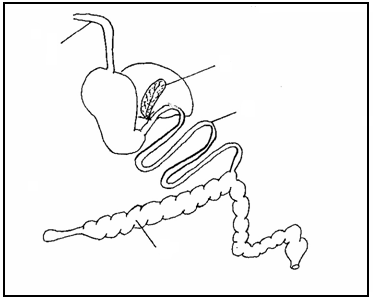
1. Name two crop production practices carried after planting to achieve optimum plant population. (2mks)

* **Thinning**
* **Gapping**

1. State four qualities of the mother plant which should be considered when selecting vegetative materials for planting. (4mks)

* **Free from pest/ disease attack**
* **Resistant to diseases**
* **High yielding**
* **Has high quality produce**
* **High rooting ability**
* **Early maturing**

1. Study the diagram **below** then answer the questions that follow.



A

B

C

D

(i) Name **one** farm animal which has the above digestive system. (1 mark)

* **Rabbit.**

(ii) Label the following parts. (2 marks)

**A**

**B**

* **A - Oesophagus.**
* **B - Pancreas**

(iii) Give the functions of each of the parts named : ( 2 marks)

**C**

* **Produces intestinal juice / digestive juices / absorption of digested food.**

**D**

* **Digestion of cellulose**
* **Absorbs carbohydrates.**

1. State three reasons of treating water in the farm.  **(3 mks)**

* **To kill disease causing micro-organism**
* **To remove chemical impurities**
* **To remove dour / bad smell**
* **To remove foreign particles**

1. Give three ways through which HIV/AIDS affect agriculture. (3mks)

* **Loss of skilled labour through death of skilled personnel.**
* **Wastage of time in caring of patients.**
* **A lot of money is spent on treating people with HIV/AIDS.**
* **Government and NGOs’ spend a lot of money to control HIV in expense of development ofagriculture.**