

2910/104  
LIVESTOCK ENTERPRISE  
MANAGEMENT I  
June/July 2023  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL  
DIPLOMA IN SUSTAINABLE AGRICULTURE  
AND RURAL DEVELOPMENT

MODULE I

LIVESTOCK ENTERPRISE MANAGEMENT I

3 hours

**INSTRUCTIONS TO CANDIDATES**

*This paper consists of **EIGHT** questions.  
Answer any **FIVE** questions in the answer booklet provided.  
All questions carry equal marks.  
Maximum marks for each part of a question are indicated.  
Candidates should answer the questions in English.*

**This paper consists of 4 printed pages.**

**Candidates should check the question paper to ascertain that  
all the pages are printed as indicated and that no questions are missing.**



1. (a) Identify **two** dual purpose breeds for each of the following animals:
- (i) dairy cattle;
  - (ii) chicken.
- (4 marks)
- (b) Outline the characteristics of each of the following breeds of pigs:
- (i) landrace;
  - (ii) large white.
- (10 marks)
- (c) Describe each of the following types of queen cells in bees:
- (i) swarm cell;
  - (ii) supersedure cell.
- (6 marks)
2. (a) Explain livestock distribution under the following:
- (i) meaning;
  - (ii) **four** factors influencing distribution.
- (10 marks)
- (b) Explain **five** roles of livestock at the national level. (10 marks)
3. (a) State the law of independent assortment of genes. (2 marks)
- (b) Explain each of the following terms as used in animal breeding:
- (i) hybrid vigour;
  - (ii) carcass trait;
  - (iii) variation;
  - (iv) heredity.
- (8 marks)
- (c) Highlight **four** conditions that make Hardy-Weinberg principle to work. (4 marks)
- (d) In cattle, absence of horns is dominant over presence of horns.
- (i) Using symbols, show the phenotypes and the genotypes of  $F_1$  and  $F_2$  generations. Assume the parents of  $F_1$  generation are homozygous dominant and homozygous recessive.
  - (ii) Determine the phenotypic ratio and genotypic ratio of  $F_2$  generation.
- (6 marks)



4. (a) Describe each of the following calf pens:
- (i) permanent calf pen with slatted floor;
  - (ii) permanent calf pen with cemented floor;
  - (iii) mobile calf pens.
- (9 marks)
- (b) Describe vaccination in animals under the following:
- (i) factors to consider when administering vaccines;
  - (ii) types of vaccines;
  - (iii) properties of effective vaccines;
  - (iv) reasons for vaccinations.
- (11 marks)
5. (a) Explain the following attributes of silage:
- (i) black, dark and slimy to the touch;
  - (ii) yellow or green with white mould;
  - (iii) good quality silage.
- (9 marks)
- (b) Describe pasture management with respect to:
- (i) ways of management;
  - (ii) objectives of management;
  - (iii) characteristics of poorly managed pasture.
- (11 marks)
6. (a) Explain **five** factors considered when selecting a livestock production system. (10 marks)
- (b) Define the following forms of extensive production system:
- (i) nomadism;
  - (ii) partial nomadism;
  - (iii) transhumance.
- (3 marks)
- (c) Highlight **seven** characteristics of semi intensive livestock production system. (7 marks)



7. (a) Roughages are classified as either dry or succulent.
- (i) Differentiate between the two classes.
  - (ii) Highlight **three** limitations of each of the two classes of roughages. (8 marks)
- (b) Describe the digestive activities in the following compartments:
- (i) rumen;
  - (ii) reticulum;
  - (iii) omasum;
  - (iv) abomasum. (12 marks)
8. (a) Explain the purpose of each of the following livestock related Acts:
- (i) Dairy Industry Act;
  - (ii) Meat Control Act;
  - (iii) Branding Act;
  - (iv) Cattle Cleaning Act;
  - (v) Fertilizer and Animal Food Stuff Act. (10 marks)
- (b) Explain steaming-up under the following:
- (i) meaning;
  - (ii) advantages. (10 marks)

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