

2914/105
ANIMAL HUSBANDRY, MUSEUM
AND HERBARIUM TECHNIQUES
Oct./Nov. 2021
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN APPLIED BIOLOGY
MODULE I

ANIMAL HUSBANDRY, MUSEUM AND HERBARIUM TECHNIQUES

3 hours

INSTRUCTIONS TO CANDIDATES

This paper consists of TWO sections; A and B.

Answer ALL questions in section A and any THREE questions from section B in the answer booklet provided.

Each question in section A carries 4 marks while each question in section B carries 20 marks.

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This question paper consists of 3 printed pages.

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

SECTION A (40 marks)

Answer ALL questions in this section.

1. Define each of the following terms in relation to herbarium specimen:
 - (a) type specimen; (2 marks)
 - (b) sterile specimen. (2 marks)
2. State the uses of each of the following equipment in botanical field work:
 - (a) secateurs; (1 mark)
 - (b) polythene bags; (1 mark)
 - (c) Global Positioning System (GPS) Unit; (1 mark)
 - (d) pruner. (1 mark)
3. (a) Give the reason why wood is not suitable for constructing museum display cases. (1 mark)
(b) State **three** advantages of glass material in constructing display cases. (3 marks)
4. Outline the process of maceration in bone preparation. (4 marks)
5. State **four** methods used to control pests in the museum. (4 marks)
6. State **four** uses of laboratory bred hamsters. (4 marks)
7. (a) Distinguish between stunning and pithing methods of humane killing. (2 marks)
(b) Describe the process of decapitation of a laboratory animal. (2 marks)
8. State the effects of light in an animal house. (4 marks)
9. (a) Distinguish between concentrates and supplements. (2 marks)
(b) State **two** consequences of deficiency of nutrients in laboratory animals feeds. (2 marks)
10. State **four** possible modes of transmission of diseases in animal house. (4 marks)

SECTION B (60 marks)

*Answer any **THREE** questions from this section.*

11. (a) State **five** characteristics of metal as choice for material for display cases and storage shelves in the museum. (5 marks)
- (b) Describe preparation and display of entomological specimen in the museum. (15 marks)
12. (a) Describe the process of receiving a specimen to the museum. (4 marks)
- (b) (i) State the role of fixation in museum specimen preparation. (3 marks)
- (ii) Explain the Kaiserling's technique as used in preparation of museum specimen. (13 marks)
13. (a) State **six** uses of a herbarium. (6 marks)
- (b) Identify the storage of each of the following herbarium specimens:
- (i) conifer cones;
- (ii) fruits;
- (iii) mosses. (3 marks)
- (c) Outline the procedure of assembling a plant press. (11 marks)
14. (a) Describe the various classes of type specimens in a herbarium. (16 marks)
- (b) List any **four** types of herbaria. (4 marks)
15. (a) State **three** advantages and **three** disadvantages of using wood for construction of laboratory animal cages. (6 marks)
- (b) Differentiate between behaviour of a laboratory rat and mouse. (14 marks)

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