

1903/103  
AGRICULTURAL PRODUCTION  
AND MICROBIOLOGY  
June/July 2023  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**CRAFT CERTIFICATE IN FOOD PROCESSING AND PRESERVATION  
TECHNOLOGY**

**MODULE I**

AGRICULTURAL PRODUCTION AND MICROBIOLOGY

3 hours

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

*Answer booklet;*

*Non-programmable scientific calculator.*

*This paper consists of TWO sections; A and B.*

*Answer ALL the questions in section A and any TWO 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 as shown.*

*Candidates should answer the questions in English.*

**This 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 (60 marks)**

*Answer ALL the questions in this section.*

1. State **four** characteristics of French alpine goats. (4 marks)
2. State **four** factors considered when selecting a nursery site. (4 marks)
3. State **four** factors which determine the method of harvesting used by a farmer. (4 marks)
4. Differentiate between roguing and gapping. (4 marks)
5. Explain the importance of soil in crop production. (4 marks)
6. Explain **two** safety precautions observed when handling bees. (4 marks)
7. State **four** signs of parturition in sheep. (4 marks)
8. State **four** reasons why burning should be avoided in field preparation. (4 marks)
9. (a) Define sexual reproduction. (1 mark)  
(b) Name **three** method of sexual reproduction. (3 marks)
10. Describe the first **two** phases of bacterial growth. (4 marks)
11. State **four** principles of binomial nomenclature. (4 marks)
12. Describe the following types of microscopes:
  - (a) phase contrast microscope; (2 marks)
  - (b) electron microscope. (2 marks)
13. Explain the importance of classification of living organisms. (4 marks)
14. Describe the following parts of a light microscope:
  - (a) Iris diaphragm; (2 marks)
  - (b) Nose piece. (2 marks)
15. State **four** dry heat methods of sterilization. (4 marks)

**SECTION B (40 marks)**

*Answer any TWO questions from this section.*

16. Describe **ten** cultural methods used to control pest population in crop field. (20 marks)
17. (a) State **five** factors that are essential for clean milk harvest. (5 marks)
- (b) List **five** factors influencing milk letdown. (5 marks)
- (c) Outline the procedure of hand-milking a cow. (10 marks)
18. (a) Describe the following types of stains:
- (i) basic stain; (2 marks)
- (ii) acidic stain; (2 marks)
- (iii) neutral stain. (2 marks)
- (b) Describe the functions of **seven** parts of an autoclave. (14 marks)
19. Describe the following types of culture media:
- (a) Differential media; (3 marks)
- (b) Selective media; (4 marks)
- (c) Transport media; (3 marks)
- (d) Enrichment media; (4 marks)
- (e) Enriched media; (3 marks)
- (f) Basic media. (3 marks)

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