

1903/104  
FOOD ENGINEERING I  
June/July 2023  
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

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

**MODULE I**

FOOD ENGINEERING I

**3 hours**

185

**INSTRUCTIONS TO CANDIDATES**

*You should have an answer booklet for this examination.*

*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 from 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** hygiene factors considered in site selection. (4 marks)
2. List **four** properties of a good refrigerant. (4 marks)
3. State **four** roles of food engineering. (4 marks)
4. Name **four** types of injuries that can occur in a food processing factory. (4 marks)
5. State **four** factors which influence the selection of materials handling method. (4 marks)
6. List **four** desirable properties of a chemical designed for use in food plant cleaning. (4 marks)
7. Describe the operation of hoist. (4 marks)
8. Describe water tube boiler. (4 marks)
9. State **four** attributes of a good boiler. (4 marks)
10. Name **four** methods used in acquisition of food raw materials. (4 marks)
11. Explain the effect of geometric property of a food on its suitability for processing. (4 marks)
12. Explain the objectives of cleaning raw food materials. (4 marks)
13. State **four** actions that may cause fire in an industrial establishment. (4 marks)
14. State **four** factors which affect the selection of a boiler. (4 marks)
15. Outline the general sequence of a conventional water treatment. (4 marks)





**SECTION B (40 marks)**

*Answer any TWO questions from this section.*

16. Describe the features of a good plant layout. (20 marks)
17. (a) Name **six** physical indices used in selection of raw materials for processing. (6 marks)
- (b) State **six** factors which affect boiler efficiency. (6 marks)
- (c) Describe **four** types of steam used in boilers in a food factory. (8 marks)
18. (a) Define 'comminution' as used in food food processing. (2 marks)
- (b) Describe the operation of each of the following screens used in sorting:
- (i) Rotary drum screens; (5 marks)
- (ii) Flat bed screens. (5 marks)
- (c) State **four** disadvantages of each of the screens in (b) (8 marks)
19. (a) Name **three** types of fire extinguishers. (3 marks)
- (b) Explain the principle of operation of a fire extinguisher. (5 marks)
- (c) Describe **four** classes of fire. (12 marks)

**THIS IS THE LAST PRINTED PAGE.**

