

2913/305
FOOD ENGINEERING III AND
TECHNOLOGY OF SPECIFIC PRODUCTS II
Oct./Nov. 2022
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN FOOD SCIENCE AND PROCESSING TECHNOLOGY

MODULE III

FOOD ENGINEERING III AND TECHNOLOGY OF SPECIFIC PRODUCTS II

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 15 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 questions in this section.

1.
 - (a)
 - (i) Define pickling; (2 marks)
 - (ii) State **three** roles of sodium chloride in production of pickles. (3 marks)
 - (b) Describe the following methods of flavour recovery in processing of fruit concentrates:
 - (i) Add-back process; (3 marks)
 - (ii) Cut-back process. (3 marks)
 - (c) State **four** ways of controlling enzymatic browning of cut fruits and vegetables. (4 marks)
2.
 - (a) State **five** objectives for cleaning, sorting and grading cereal grains before milling. (5 marks)
 - (b) Explain why wheat flour is preferred cereal flour for biscuit making. (5 marks)
 - (c) State **five** possible causes of a “too pale crust colour” defect in bread. (5 marks)
3.
 - (a) Describe the processing of cacao beans into nibs. (5 marks)
 - (b) Explain the **five** stages of drying coffee beans in wet processing method. (10 marks)
4.
 - (a) State **three** advantages and **two** disadvantages of freezing foods. (5 marks)
 - (b) With the aid of labelled diagrams, explain how heat economy is achieved during evaporation of sugar juice in triple effect evaporators. (10 marks)

SECTION B (40 marks)

Answer any TWO questions from this section.

5. (a) Describe each of the following methods of dehydration of foods:
- (i) puff drying; (5 marks)
 - (ii) freeze drying. (5 marks)
- (b) Explain **five** factors considered in the choice of storage conditions for fresh vegetables. (10 marks)
6. (a) Explain the influence of quality of ingredient water on carbonated soft drinks. (8 marks)
- (b) Explain the quality control measures taken in each of the following stages of tea processing:
- (i) plucking; (6 marks)
 - (ii) fermentation. (6 marks)
7. (a) Define each of the following as used in sugar processing:
- (i) seeding; (2 marks)
 - (ii) imbibition; (2 marks)
 - (iii) evaporation. (2 marks)
- (b) Explain **four** causes of low yield of sucrose during cane sugar processing. (8 marks)
- (c) State the uses of the following by-products from sugarcane processing:
- (i) bagasse; (3 marks)
 - (ii) molasses. (3 marks)
8. (a) Explain **five** factors which limit the utilization of root and tuber crops in Kenya. (10 marks)
- (b) Describe **five** methods of peeling root and tuber crops during processing. (10 marks)

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