



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH

BACHELOR OF SCIENCE HONOURS DEGREE IN PUBLIC HEALTH

FOOD HYGIENE AND NUTRITION EPH2102

EXAMINATION PAPER

OCTOBER 2024

This examination paper consists of 3 pages

Time Allowed : 3 hours  
Total Marks : 100  
Special Requirements : None  
Examiner's Name : Mrs P Garamumhango

**INSTRUCTIONS**

1. Answer any **FOUR** questions
2. Each question carries 25 marks

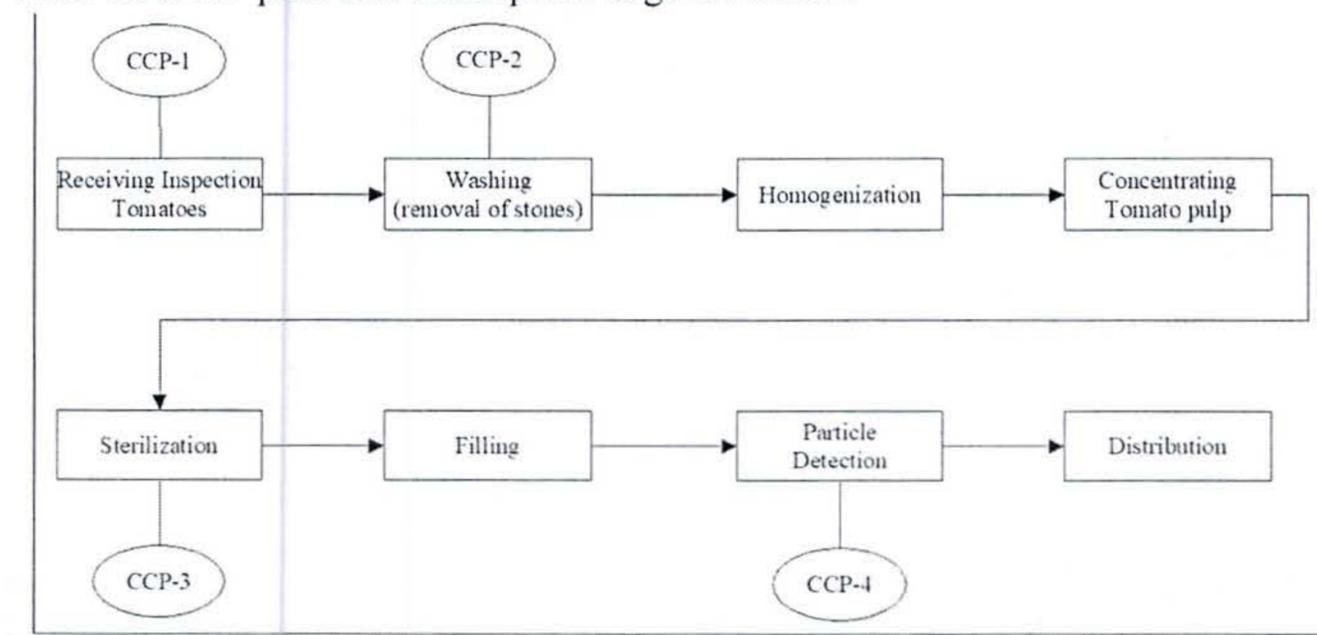
**MARK ALLOCATION**

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

### Question 1

Nyamboe Pvt Ltd is a company that produces tomato ketchup. To better position their brand in the market, the management has decided to improve on the quality and safety of their tomato sauce. A HACCP plan was proposed but the management team doesn't have enough confidence in the proposed HACCP system and they require advice. You have been tasked to be the consultant.

Their HACCP plan and description is given below.



#### Function description at different steps:

- Receiving Inspection: control of incoming tomatoes for each batch (visual, tests, check specifications)
- Washing: with drinking water quality to remove stones and other foreign particles (visually inspected)
- Homogenization, involves cutting and mixing of the tomatoes to obtain a homogenous tomato slurry
- Concentrating, involves is removal of water to obtain a thicker tomato slurry.
- Sterilization, involves a heat treatment of 115<sup>0</sup> C for 60 sec to inactivate pathogen and spoilage bacteria
- Filling includes filling of the tomato ketchup in sterile bottles
- Particle detection, with the aid of a special X-ray equipment particles of metal, stone, wood and glass can be detected.

(a) The management team wants to know if the CCPs are properly allocated. Consider for each mentioned CCP if it is a CCP and which hazard(s) is (are) controlled. **(15 marks)**

(b) The Director of Nyamboe also wants to implement the ISO 22000 system. Can the HACCP system be used as start for ISO 22000? Motivate your answer. **(10 marks)**

### Question 2

- (a) Explain the role of food legislation in safeguarding public health. (15 marks)  
(b) Describe the procedure for food outbreak investigation (10 marks)

### Question 3

You have been tasked to inspect a food manufacturing premise in order to grant permission to operate.

- a) Outline the important features to be considered in the design, equipment and layout of the food processing plant. (15 marks)  
b) Based on the factors which affect effectiveness of cleaning, suggest a cleaning and sanitation program for their operations. (10 marks)

### Question 4

Discuss nutrient deficient disorders, highlighting measures a nation can put in place to mitigate them. (25 marks)

### Question 5

- a) Explain the importance of food legislation (9 marks)  
b) Outline how the Food and Foods Standard Act and the Public Health protects the health of the consumer (16 marks)

### Question 6

Give an account of the factors determining food security in Zimbabwe. (25 marks)