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UNIVERSITY OF GHANA

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B.Sc. SECOND SEMESTER FINAL EXAMINATION: 2015/2016

DEPARTMENT OF NUTRITION AND FOOD SCIENCE

FOSC 402: FOOD PROCESSING PLANT OPERATIONS AND SANITATION

(2 CREDITS)

INSTRUCTIONS

ANSWER THREE (3) QUESTIONS FROM SECTION A (QUESTION 1 AND ANY TWO OTHER) AND ANY ONE (1) QUESTION FROM SECTION B (I.E. ANSWER A TOTAL OF 4 QUESTIONS).

ANSWER SECTIONS A AND B ON SEPARATE ANSWER BOOKLETS

TIME ALLOWED: 2 HOURS

SECTION A

ANSWER QUESTION 1 AND ANY TWO (2) OTHER QUESTIONS

1. The scope of the HACCP study is physical and biological hazards in the production of ham and cheese pizza. The production premises is a medium scale food manufacturing plant that operates comprehensive prerequisite programmes.

Ingredients: Pizza base mix: Pizza flour, water, yeast, sugar, vegetable oil, salt, skim milk powder, lecithin, cornstarch, shortening, sodium aluminium phosphate. **Pizza sauce:** Water, tomato paste, pizza seasoning, vegetable oil **Ham:** Cooked and diced **Cheese products:** Grated cheese **Packaging:** Polypropylene tray base, flo-wrap and labels.

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- a. The pizza sauce is obtained from approved suppliers that produce the sauce to high hygiene standards and have a fully documented and validated HACCP system. The sauce is delivered in sealed containers and is poured into hoppers when required for addition to the pizza base. The HACCP team does not think that the sauce application step is a critical control point (CCP) for microbiological hazards. Explain why this step is not a CCP. (5 marks)
- b. Suggest three (3) records that can be presented as evidence that the pizza has been produced safely. (3 marks)
- c. The HACCP team has identified ham at delivery to be a CCP for microbiological hazard if the temperature is in the danger zone. What correction and corrective action will you take if the temperature of the ham is at 12°C? (6 marks)
- d. Identify gaps in the Flow chart in Figure 1. (6 marks)

2. You have recently been employed by a small scale juice processor that specializes in production of pasteurized pineapple juice in 1 liter glass bottles. You are to head the quality section of the technical department. The two year plan for the company is to significantly increase market share of the juice in Ghana and possibly enter the West African regional market. Top management has a marketing strategy to achieve this goal. The company has a good sanitation program in place however you know that HACCP implementation is required to fully achieve its goal.

- a. How will you convince top management to buy into HACCP implementation. (6 marks)
- b. What resources would you require for effective implementation of HACCP? (6 marks)
- c. Will the existing sanitation program suffice as prerequisite program for HACCP? Justify your answer. (8 marks)

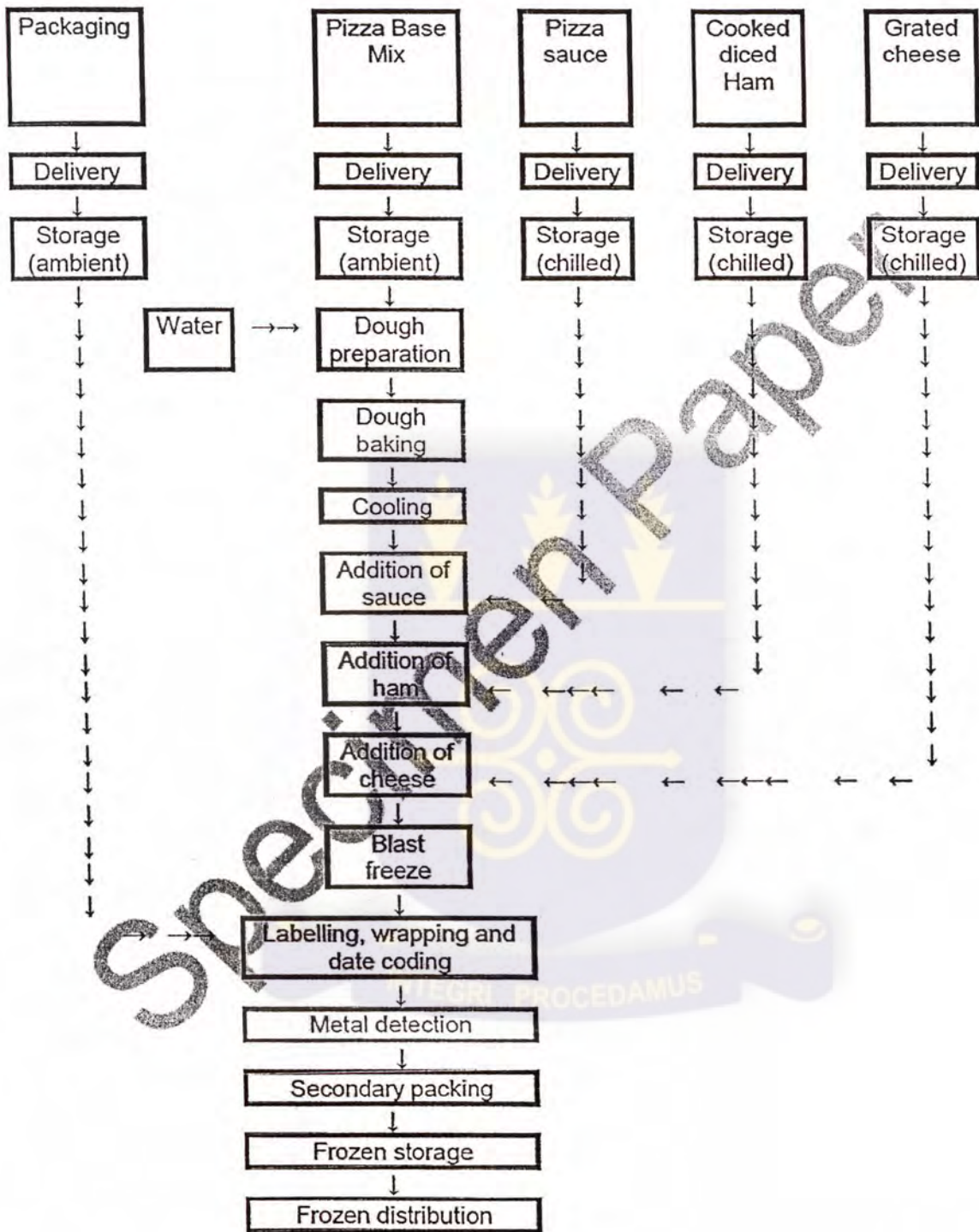


Figure 1: Flow chart for production of frozen pizza

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3. It is a statutory requirement that food operations comply with national food laws
 - a. Differentiate between laws, regulations and Guidelines and give examples of each. (6 marks)
 - b. Discuss the importance of food laws and regulations in food operations and food trade. (6 marks)
 - c. How is Ghana affected by the guidelines developed by Codex Alimentarius Commission? (8 marks)
4. Develop sanitation standards and appropriate deficiency ratings for a medium scale drinking yoghurt manufacturing company for the following sanitation modules:
 - a. Pest control (5 marks)
 - b. Personnel hygiene (5 marks)
 - c. Process waste disposal (5 marks)
 - d. Equipment maintenance (5 marks)

SECTION B

ANSWER ANY ONE QUESTION FROM THIS SECTION.

5. List and discuss the sanitary design principles for a cassava flour processing facility
6. As the production manager of a Tuna Packing factory, discuss the principles of sanitary design of equipment used in the factory, and explain the choice of material for construction of the food contact surfaces.