Level 4 Award in Managing the HACCP System

Paper B: Scenario Paper Number: SPECIMEN

<u>IMPORTANT</u> READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. **Candidates should complete the candidate details section below**
2. **This paper must be left on your desk at the end of the examination**
3. **You should write all your answers in the space provided on this exam paper**
4. **You are allowed 60 minutes to complete the examination**
5. **This exam paper consists of FIVE questions. *(It should be noted in this specimen paper there is only one scenario, in the live paper candidates must answer <u>ALL</u> of the questions from the Manufacturing scenario or <u>ALL</u> of the questions from the Catering scenario)***
6. **The Pass mark for this paper is 50%**
7. **Throughout this paper °C refers to temperatures in degrees Celsius**
8. **You will need to read the scenario and process flow diagram in order to be able to answer the questions**
9. **The Codex Decision Tree and information about bacteria is provided at the end of this paper**

Candidate's details:	
First name:	Surname:
Exam date :	Cohort number:

Manufacturing Scenario

You are the HACCP team leader in a small manufacturing unit producing a range of cooked meat pies for sale to catering and independent retail outlets in your local area. The business is currently expanding and new equipment is being installed in response to additional orders from major retailers.

There is already a comprehensive prerequisite programme in place which operates alongside an established food safety management system based on HACCP principles.

A pie production line is currently being installed for the manufacture of a new range of pies, one of which is a steak pie. The steak pie filling is made from fresh beef, a dry mix (containing thickener and seasonings) and water. The fresh beef is supplied to you diced and ready to use by an approved local meat supplier and the dry mix is blended to your specification by an approved supplier. Short-crust pastry for the pie base and lid is mixed in a separate part of the manufacturing unit and is held in chilled storage until required on the pie production line. Packaging includes an aluminium foil base for the pie and a pre-printed display carton. The pies are packed for delivery to the customer in a returnable plastic shipping tray.

The scope of the HACCP study is to include the contamination, multiplication and survival of pathogens (for example: Salmonella sp., Campylobacter sp. and E. coli O157 and Clostridium perfringens) as these have been identified as potential microbial hazards in the manufacture of the steak pie. In addition, physical hazards such as metal, glass/hard brittle plastic, stones and bone fragments are also to be considered.

After reviewing the process flow diagram, it is realised that there is no step which would control contamination of the product by metal. It is therefore decided to install a metal detector.

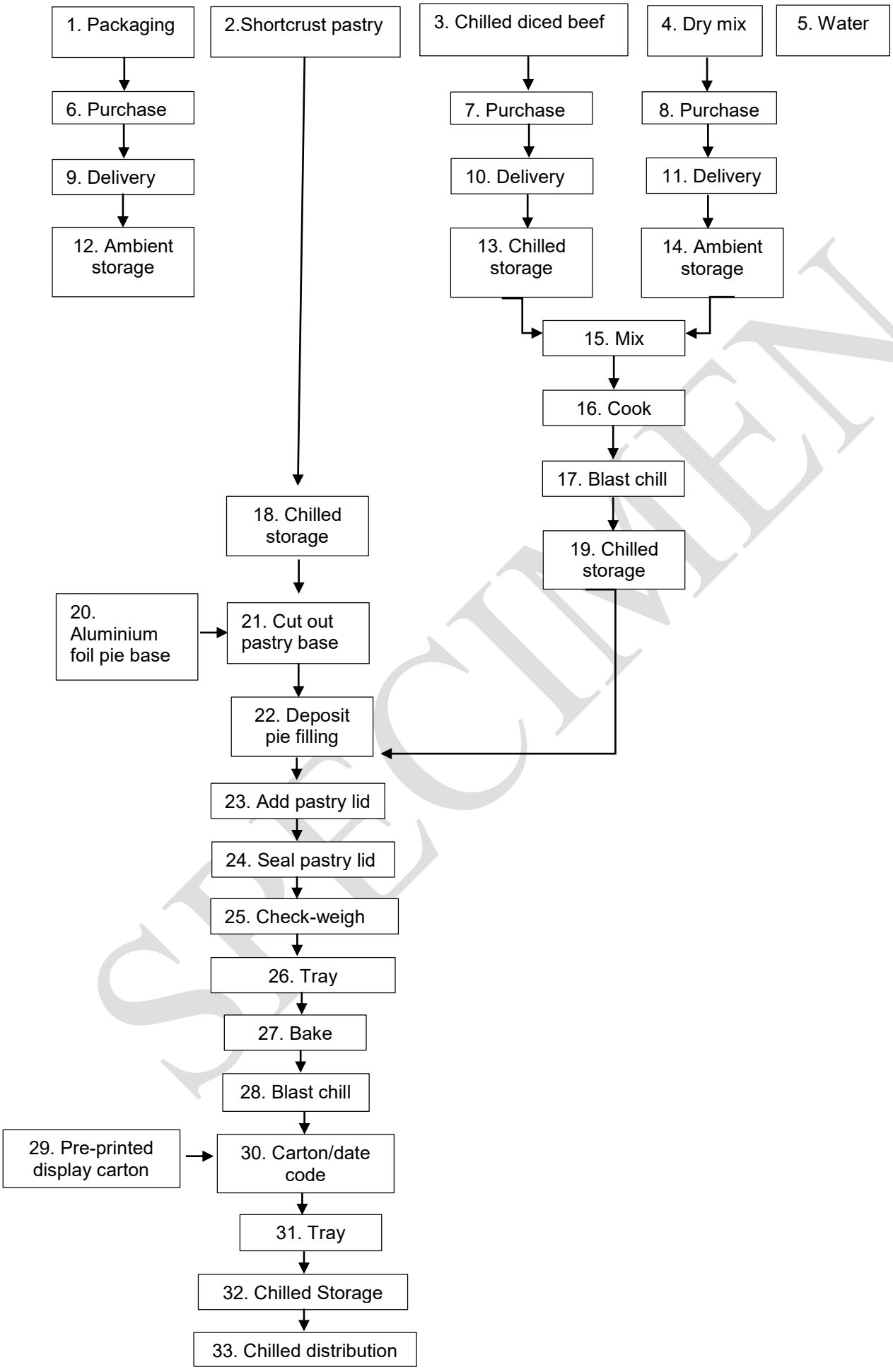
The company you have chosen to install the metal detection equipment advise you that their units need to be checked on a regular basis to confirm that they are working to optimum sensitivity. They recommend this takes place at the start and end of a production run and at pre-determined intervals in between as a minimum frequency.

Checking is usually carried out by passing a ‘dummy’ steak pie through the unit which contains a plastic test rod with a sphere of ferrous metal embedded into it. The size of the ferrous metal sphere corresponds to the minimum size that can be reasonably expected to be detected in the product.

The ‘dummy’ steak pie should be rejected every time it passes through the metal detection unit.

(NB: detecting for non-ferrous metal would not be appropriate for this product as it is baked and packed in an aluminium foil pie base – i.e. a non-ferrous metal).

Outline flow diagram for production of steak pie



1 a **The hazard of metal could occur at a number of process steps. Define the hazard of metal, to include the cause/source, at the following process steps.** **5 marks**

7 Purchase (chilled diced beef)
8 Purchase (dry mix)
15 Mix
21 Cut out pastry base
22 Deposit pie filling

Answer

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1 b **Outline the control measure(s) that should be in place, prior to installing the metal detector, to prevent or reduce the hazard of metal at each of the FIVE process steps outlined above.** **5 marks**

Answer

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2 a **The HACCP team decide that a new process step of sieving should be added to the process, after process step 14 and before process step 15. They believe this step will be a critical control point, explain how they could have reached this conclusion.** **5 marks**

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2 b **Explain how the HACCP team could determine the critical limit for process step 16 Cook.** **5 marks**

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3 a **Explain the factors that would need to be considered when developing the monitoring procedure for process step 16 Cook.** **5 marks**

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3 b **At a routine temperature measurement at process step 32, chilled storage, the temperature of the store was found to be above the set critical limit. Describe the corrective actions that would be needed.** **5 marks**

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4	a	The HACCP team decide that process step 16 is a critical control point (CCP). Describe how this CCP could be validated.	5 marks

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4	b	Describe the verification activities that the HACCP team could utilise for this step.	5 marks

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5 a With the addition of the process step of sieving outline the impact on HACCP documentation and records. 5 marks

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5 b In addition to the HACCP plan outline the HACCP documentation and records that would be relevant to this scenario. 5 marks

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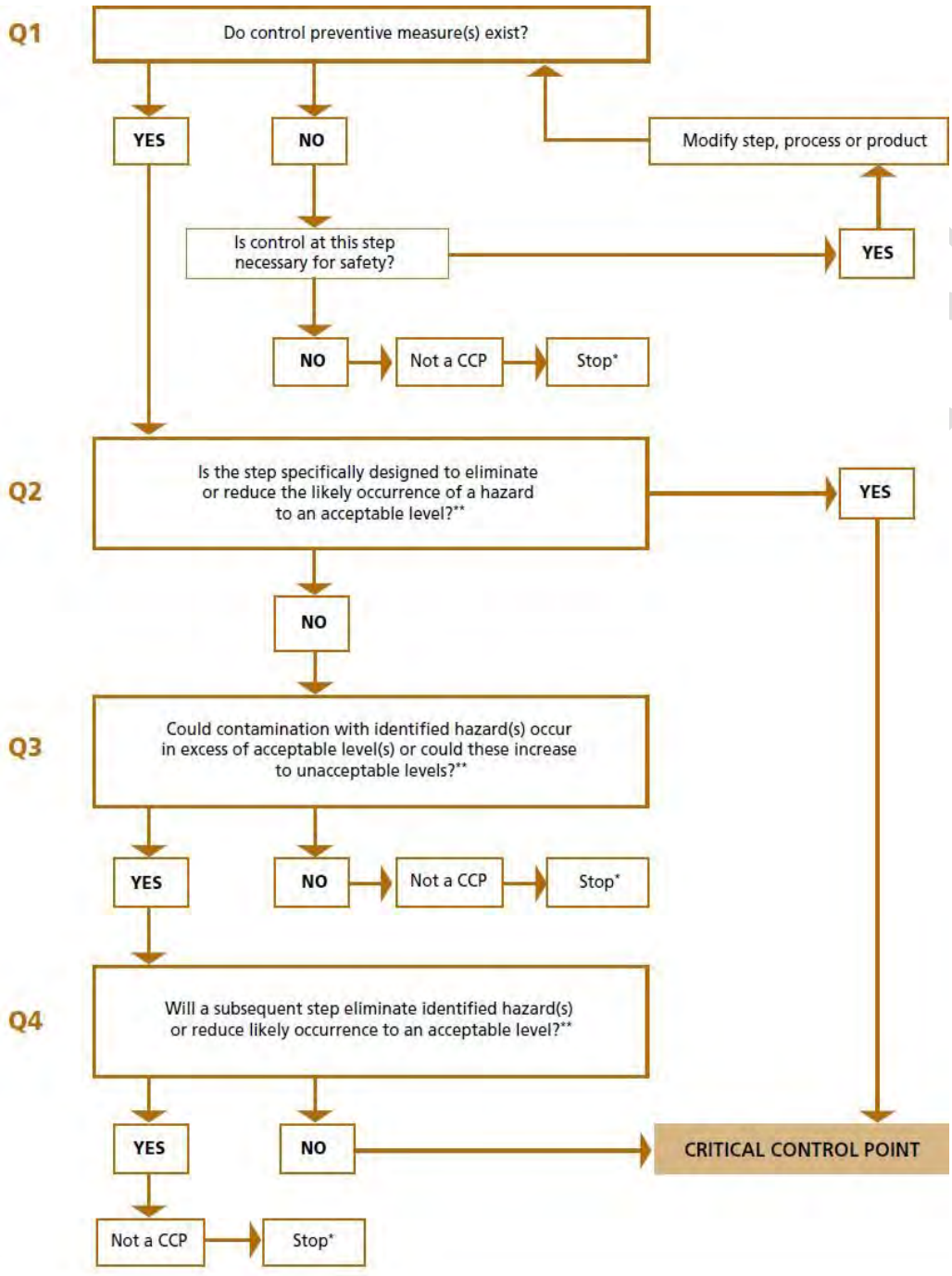
END OF PAPER B

Example of decision tree to identify CCPs

(Answer questions in sequence)



* Proceed to the next identified hazard in the described process.

** Acceptable and unacceptable levels need to be defined within the overall objectives in identifying the CCPs of HACCP plan.

Growth Requirements of Bacteria

In order to grow bacteria require a source of nutrients, an appropriate atmosphere, neutral or alkaline conditions, available moisture and an appropriate temperature.

A large number of bacteria are able to grow with or without oxygen. Some bacteria (known as obligate aerobes) will only grow if oxygen is present. Other bacteria (obligate anaerobes) will only grow in the absence of oxygen.

Most bacteria grow best in a neutral or alkaline environment. Bacteria do not grow well in foods which are too acidic ((with a pH of less than 4.5)), the more acidic the food, the less likely they are to support the growth of bacteria.

Foods that are dried or high in salt or sugar have reduced available moisture content. Bacteria will grow poorly on these foods.

Most bacteria will not grow in cold conditions, or will only grow and divide slowly. High temperatures will also inhibit the growth of bacteria, most food poisoning bacteria are killed if exposed to a temperature of 70°C for two minutes or more. The optimum temperature range for the growth of most bacteria is 5°C to 63°C. This is known as the ‘temperature danger zone’.

Spore Production by Bacteria

Some bacteria are able to produce spores. These are highly resistant structures that allow the bacterial cell to survive adverse conditions such as high temperatures, lack of moisture and disinfectants. Normal cooking and processing temperatures may not be high enough to destroy any spores present in food. If cooking and processing is followed by slow cooling the spores may germinate, allowing rapid multiplication of bacteria.

Some spore formers are obligate anaerobes. The presence of oxygen will stimulate spore production in these bacteria. These spores may later germinate if the environment becomes anaerobic.

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