



PIABC LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY

(Qualification Number: 600/0017/X)

EXAMINATION PAPER

November 2023

L/502/5924 UNIT 03

Packaging Processes

INSTRUCTIONS TO CANDIDATES

You are required to answer and pass **ALL** the questions

Write your answers in the answer book provided

Wherever possible, use diagrams to illustrate your answer

This is a closed book examination

Examination Time: 3 Hours

Issued under the authority of the
PACKAGING ASSESSMENT BOARD
24 October 2023

**PIABC Level 5 Diploma in Packaging Technology
Unit 3 – Packaging Processes
November 2023**

INSTRUCTIONS TO CANDIDATES

You are required to answer **ALL** the questions on this paper

LEARNING OUTCOME 1

**Understand the packaging design and development process
(20 marks)**

Question 1

- A) Describe the stages of the design and development process to launch single portion, snacking, bars of cheese from initial concept to launch. (9 marks)
- B) Identify and describe the roles of SIX associated disciplines involved in the process. (6 x 1 mark)
- C) Identify, and briefly explain, FIVE different tests that could be used to show the compatibility of the cheese and packaging through life. (5 x 1 mark)

LEARNING OUTCOME 2

**Understand the main printing and decoration processes used in packaging
(20 marks)**

Question 2

- A) Explain how the three primary colours are mixed to form the three process colours. (1 mark)
- B) Explain how printing uses these three process colours to produce photographic images. (3 marks)
- C) What is the key colour and what is its function? (1 mark)
- D) Describe, with aid of diagrams, the flexographic printing and finishing process for a 4-colour, varnished and foil blocked reel of pressure sensitive labels. (11 marks)
- E) The above label could be produced on digital equipment. What are the advantages and disadvantages of this process compared to flexographic printing? (4 marks)

Turn over for the next question

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LEARNING OUTCOME 3
Understand packaging machinery and packaging line operations
(40 marks)

Question 3

- A) Describe a production line for packing sliced cooked meats, from the supply of packaging materials into the store to finished product ready to despatch to the customer. (14 x 1 mark)
- B) A key performance indicator for the packer filler is the overall operating efficiency (OEE). Discuss what OEE is (2 marks) and how it can be improved (4 marks).

Question 4

- A) Gravity, vacuum, or pressure can be used to fill liquids into containers. Describe these filling methods and discuss their relative merits. (3 x 3 marks)
- Ba) Describe the operation of a thermoform fill and seal machine, which is used to produce and pack single serving pots of milk for the catering market. (6 marks)
- b) What are the advantages and disadvantages of the above process compared to using bought in preformed pots? (5 x 1 mark)

LEARNING OUTCOME 4
Understand how quality systems impact on packaging
(20 marks)

Question 5

- A) Discuss what is meant by QUALITY in a quality management system. (2 marks)
- B) Identify (5 x ½ mark) and discuss FIVE core areas which need to be addressed in a quality and process control manual (5 x 1½ marks).
- C) Discuss the factors that need to be considered to determine the cost of quality. (8 marks)

END OF EXAMINATION PAPER