PIABC LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY

(Qualification No. 610/0740/7)

SAMPLE EXAMINATION PAPER

K/650/2134 UNIT 2 (PAPER B)

UNDERSTANDING PACKAGING MATERIALS AND COMPONENTS

INSTRUCTIONS TO CANDIDATES

Write your answers in the answer book provided.

Wherever possible, use diagrams to illustrate your answer.

This is a closed book examination.

100 marks are available in total for this examination.

The number of marks is given in brackets ( ) at the end of each question or part question.

Leave time at the end to check your answers.

This examination paper is worth 50% of the total marks for Unit 2

Examination Time: 2 Hours

Issued under the authority of the
PACKAGING ASSESSMENT BOARD
14 September 2023

SECTION 1

TWO QUESTIONS - 20 MARKS EACH

Question 1

A bottle of wine is labelled with a glue applied metalised paper label, which has been printed and embossed.

A) Describe an appropriate paper for this application. (2 marks)

B) Discuss the material properties to be considered when specifying, manufacturing and applying this label. (6 marks)

C) Discuss the advantages and disadvantages of shrink sleeves compared to self-adhesive (pressure sensitive) paper labels. (12 marks)

Question 2

A) Define and explain the following printing terms:

- Hue (1 mark)
- Brightness (1 mark)
- Saturation (1 mark)

B) Explain how printing processes use the process colours, CMYK, to produce photographic images. (5 marks)

C) Describe, with aid of diagram, the offset lithographic printing process for a 3-colour and varnished carton. (12 marks)

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SECTION 2

SIX QUESTIONS - 10 MARKS EACH

Question 3

A) Describe how an effective closure is achieved for each of the following packs:

- A locking tuck flap carton (3 marks)
- A flexible retortable pouch (3 marks)

B) Identify TWO types of child resistance packaging and explain how child resistance is achieved.

Question 4

A) Describe, with the use of an example, the Diffusion theory of adhesion. (2 marks)

B) Define Open Time describe its importance to packaging adhesives. (2 marks)

C) Describe the characteristics of a Starch adhesive. (2 marks). Explain how these characteristics influence the application to a substrate. (2 marks). Give an example of the use of the adhesive type and explain why it is suitable. (2 marks)

Question 5

A) Describe SIX common printing defects. (6 marks)

B) Briefly describe TWO methods of transferring ink to a substrate using digital printing techniques. (2 x 2 marks)

Question 6

A) For the following packs discuss a suitable label type, substrate and method of application. A different label type must be used. (2 x 3 marks)

- Tub containing a fatty spread (e.g. margarine)
- Can of food

B) Briefly describe two tests that can be used to evaluate the performance of printed labels as part of the development process. (2 x 2 marks)

Question 7

A hot melt adhesive is used to secure the end flaps of a printed high gloss corrugated carton. There are reports of the flaps opening. Returned samples show that all of the adhesive is on one flap and that it has peeled cleanly off the other flap.

Fully discuss the possible reasons for this failure and suggest possible solutions. (10 marks)

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Question 8

Describe, with the aid of a diagram, how aluminium can be combined with paper to form a flexible packaging material by:

- Wet bond lamination (5 marks)
- Vacuum metallisation (5 marks)

Your answer should include a reference to the thickness of the aluminium in both processes and an explanation of why a vacuum is required in the metallisation process.

END OF EXAMINATION PAPER