



# **PIABC LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY**

(Qualification Number: 600/0017/X)

## **EXAMINATION PAPER**

**November 2020**

**J/502/5923 UNIT 02**

**Packaging Materials and Components**

**Paper B**

### **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

This examination paper is worth 30% of the total marks for Unit 2

Reading Time: 5 minutes

Examination Time: 2 Hours

**INSTRUCTIONS TO CANDIDATES**

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

**Learning Outcome 4  
Understand the raw materials, properties and applications of packaging adhesives**

**Question 1**

- A) Using examples, what are the differences between the mechanical and specific (chemical) adhesion theories? (2 x 3 marks)
- B) Define the following terms and describe their importance to packaging adhesives:
- Tack (3 marks)
  - Open time (3 marks)
  - Viscosity (3 marks)
- C) Describe the factors that affect the choice of an adhesive type for a packaging application. (6 marks)
- D) What is a hot melt adhesive? (1 mark)
- E) Identify the constituent parts of a typical hot melt adhesive used on a typical automated packing line for sealing corrugated cartons and explain their properties. (8 marks)

**Learning Outcome 5  
Understand the different types of labels and the materials used**

**Question 2**

A soft drink is packed in a glass bottle with an oval shaped label.

- A) a) Discuss FIVE important properties of the paper substrate for an oval wet glue paper label. (5 x 1 mark)
- b) How would these properties be assessed? (5 x 1 mark)
- B) Describe the production process for an oval wet glue paper label from concept to labels ready for despatch (excluding paper manufacture). (10 marks)
- C) Discuss the advantages and disadvantages of the following as an alternative method of decoration:
- Pressure sensitive labels (5 x 1 mark)
  - Shrink sleeves (5 x 1 mark)

Continues on next page

**Learning Outcome 6**  
**Understand closure systems and the factors that affect seals**

**Question 3**

- A) Describe, with the use of appropriate labelled diagrams, the closure system (including materials, design, and application method) for the following seal types and give ONE example of use for EACH closure type:
- Roll on pilfer proof closure (5 marks)
  - Induction heat seal (5 marks)
  - Crown closure (5 marks)
- B) Describe FOUR different tamper evident closure systems, explaining how tamper evidence is achieved and give an example of where each may be used (4 x 2 marks). **(Note: Examples provided in Part A are not acceptable.)**
- C) Describe THREE types of child resistance packaging and explain how child resistance is achieved. (3 x 2 marks)
- D) Outline how child resistant closures are assessed. (1 mark)

**END OF EXAMINATION PAPER**