



**PIABC LEVEL 5 DIPLOMA  
IN PACKAGING TECHNOLOGY (QCF)**  
(Qualification Number: 600/0017/X)

**EXAMINATION PAPER**

**June 2017**

**J/502/5923 UNIT 02**

**Packaging Materials and Components**

**Paper B**

Reading Time: 5 minutes

Time Allowed: 2 Hours

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

**PIABC Level 5 Diploma in Packaging Technology (QCF)**  
**Unit 2 – Packaging Materials and Components (Paper B)**  
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**Learning Outcome 4**  
**Understand the raw materials, properties and applications of packaging adhesives**

**Question 1**

- A) Describe TWO theories of adhesion. (2 x 3 marks)
- B) Describe and justify the type of adhesive you would use for the following applications:
- A label for a returnable beer bottle (6 marks)
  - Manufacture of a corrugated board (6 marks)
  - Self-adhesive (pressure sensitive) label (6 marks)
- C) Define the following terms and describe their importance to packaging adhesives:
- Tack (2 marks)
  - Open time (2 marks)
  - Viscosity (2 marks)

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

**Question 2**

- A) For the following types of labels used to decorate a bottle, describe, with the aid of diagrams, the materials used, the methods of manufacture and how they are applied to the container.
- Pressure sensitive label (13 marks)
  - Shrink sleeve (13 marks)
- B) What are the advantages of shrink sleeves over pressure sensitive labels for this type of application? (4 marks)

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

**Question 3**

- A) Discuss SIX key factors affecting the efficiency of a heat seal closure of a multi-layer sachet, and explain how they can be controlled. (18 marks)
- B) For EACH of the following, describe in detail a suitable closure system. Give reasons for your selection and explain how efficient closing is achieved. You must use a different closure system for each.
- a) 250ml PET bottle of shampoo (6 marks)
  - b) 1 litre HDPE bottle of milk (6 marks)