



PIABC LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY

(Qualification Number: 600/0017/X)

EXAMINATION PAPER

June 2019

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) Describe the differences between mechanical and specific (chemical) adhesion. (2 x 3 marks)
- B) Define the following terms (3 x 1 marks) and describe their importance to packaging adhesives (3 x 2 marks):
- Tack
 - Open time
 - Viscosity
- C) Identify and briefly describe the factors that affect the choice of an adhesive type for a packaging application. (5 marks)
- D) What is a hot melt adhesive? (2 mark)
- E) Identify the constituent parts of a typical hot melt adhesive used on an 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) What are the factors to be considered when storing self-adhesive labels? (6 x 1 mark)
- B) Discuss the differences between performance in paper and plastic as materials for labels. (6 x 1 mark)
- C) Discuss the advantages and disadvantages of injection in-mould labelling for dairy spread tubs. (6 x 1 mark)
- D) Discuss the merits of using a shrink sleeve to decorate a soft drinks bottle. (6 x 1 mark)
- E) What are the differences in the construction of linerless and conventional pressure sensitive labels? (6 x 1 mark)

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

Question 3

- A) Using examples, explain how a package closing system contributes to the functions of packaging. (8 x 1 marks)
- B) For the **closure** on a PET bottle for a carbonated drink:
- Describe the FOUR key dimensions. (4 marks)
 - Explain why there is often a vertical channel through the threads. (1 mark)
 - How is an effective seal achieved? (3 marks)
- Ca) Define what torque is. State the unit(s) of measurement. Explain why torque is important. (3 x 1 mark)
- b) Identify THREE factors about a finish which will impact on the amount of torque a typical consumer can apply to a closure. (3 marks)
- D) Briefly describe FOUR types of tamper evident closing systems. (8 marks)