



LEVEL 5 DIPLOMA IN PACKAGING TECHNOLOGY (QCF)

(Qualification Accreditation Number: 600/0017/X)

EXAMINATION PAPER

November 2016

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

Level 5 Diploma in Packaging Technology (QCF)
Unit 2 – Packaging Materials and Components (Paper B)
November 2016

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) What are the differences between mechanical and specific (chemical) adhesion theories? (2 x 3 marks)
- B) Describe the factors that affect the choice of an adhesive for TWO of the following packaging application (2 x 5 marks):
- Wrapper for an ice cream bar (single serve)
 - Wet glue label on a glass beer bottle
 - Production of corrugated board
 - Clear label on a shampoo bottle
- C) Apart from the factors above, identify what other detailed information would you expect to see in an Adhesive Data Sheet and why is it important? (7 x 1 mark)
- D) a) What is a hot melt adhesive? (1 mark)
- b) Identify the constituent parts of a typical hot melt adhesive used on an automated packing line for sealing corrugated cartons and explain their functions. (4 x 1½ marks)

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

Question 2

- A) Discuss the advantages and disadvantages of injection in-mould labelling for the manufacture of a biscuit box. (6 marks)
- B) Discuss the advantages and disadvantages of a shrink sleeve to decorate a shampoo bottle. (6 marks)
- C) Discuss the differences between the performance of paper and plastic labels. (6 marks)
- D) Discuss how grain direction affects how labels should be orientated for application as a wet glue label to a cylindrical glass bottle. (6 marks)
- E) Describe (with the aid of a diagram) a typical construction and manufacturing process of a self adhesive label. (6 marks)

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

Question 3

- A) Using examples; briefly discuss and justify SEVEN ways you could seal a pack without using heat in the process. (7 x 2 marks)
- B) For the following THREE packs, describe in detail using diagrams, how you would achieve an effective seal:
- a) Induction seal on a coffee jar (4 marks)
 - b) Heat seal on a plastic sachet of sugar (4 marks)
 - c) Hot melt adhesive patterned seal on an end load carton flap (4 marks)
- C) Describe TWO ways you could verify the integrity of the closure seal for the following packs:
- a) A three piece metal can of pet food. (2 x 1 mark)
 - b) A modified atmosphere tray and lid pack of red meat (e.g. beef) (2 x 1 mark)