



SUMMER EXAMINATIONS 2015

EXAMINATION: UNIT 2 Packaging Materials and Containers I

COURSE: CPD Diploma in Packaging Technology

**DATE: 20th May 2015
2pm to 4pm**

EXAMINERS: Colm Munnelly, David Little

TIME ALLOWED: 2 hours

INSTRUCTIONS: Please answer four questions. All questions carry equal marks

PLEASE DO NOT TURN OVER THIS PAGE UNTIL YOU ARE INSTRUCTED TO DO SO

The use of programmable or text storing calculators, smart phones etc are expressly forbidden. Please note that where a candidate answers more than the required number of questions, the examiner will mark all questions attempted and then select the highest scoring ones.

Question 1 (25 marks)

- a) Describe with the aid of a diagram how glass is made starting with the raw materials and finishing with the production of a glass gob. Give indications of the temperatures at each stage.

(15 marks)

- b) Describe the main ingredients in a batch of glass and explain what each ingredient is used for

(5 marks)

- c) Discuss FIVE different methods of reducing the energy requirement to manufacture a batch of glass.

(5 marks)

Question 2 (25 marks)

- a) Describe using diagrams, the production of a glass beer bottle from a gob of molten glass to the production of a finished bottle in a modern high speed production facility. Explain why this method is chosen over the more traditional method

(15 marks)

- b) Describe how stresses are induced in cooling glass containers and name the process to relieve these stresses?

(5 marks)

- c) Describe how stress is relieved in glass containers passing through a Lehr oven. Indicate the approximate temperatures of the glass at different stages in the oven profile and why these temperature levels are set.

(5 marks)

Question 3 (25 marks)

- a) Starting with felled trees, describe the fibre preparation and manufacture of a virgin coated folding boxboard (FBB), by the Fourdriner method, suitable for converting into a carton. End with the board, packed ready for delivery to the offset lithographic print converter.

(20 marks)

- b) Name 3 other types of cartonboard.

(5 marks)

Question 4 (25 marks)

- a) What is Aluminium Foil? Describe the two different appearances on the surface of a foil and how they are produced?

(5 marks)

- b) Aluminium sheet can be hot rolled or cold rolled. Explain what happens during each method and the characteristics of the resultant product.

(10 marks)

- c) Explain the reasons why aluminium foil is a commonly used material in flexible packaging.

(10 marks)

Question 5 (25 marks)

For each of the following, briefly describe the materials, flute construction and flute type that would be suitable, giving reasons for your selections:

- a) A printed carton for a one litre gift pack of whisky **(5 Marks)**
- b) A case for bags of frozen vegetables **(5 Marks)**
- c) A reusable transit case for heavy engineering components **(5 Marks)**
- d) A 'carry home' pack for a duvet **(5 Marks)**
- e) A SRP (Shelf Ready Pack) for 12 stand up pouches of cat food **(5 Marks)**