



SUMMER EXAMINATIONS 2022

EXAMINATION: UNIT 4 Package Printing and Decorating & Packaging Machinery

COURSE: CPD Diploma in Packaging Technology

**DATE: May 13th 2022
2pm to 4pm**

EXAMINERS: Tony Duffy, David Little

TIME ALLOWED: 2 hours

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

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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) Explain the following terms used in colour printing

- Dot Gain
- Special Colour
- Density
- L*a*b*
- Colour Separation

(10 marks).

b) Compare and contrast the Lithographic printing plate with the Flexographic printing plate and discuss the impact of the plates on print quality and ink type.

(15 marks)

Question 2 (25 marks)

a) Discuss the key elements of pack graphic design and explain the importance of these elements for the recognition, impact, promotion and sale of the product. Using a well-known product as an example, describe the pack and why you think this works.

(15 Marks)

b) Discuss Brand Equity and describe why you feel it is so important for multi-national brands, and how this can impact on a company's share price.

(10 marks)

Question 3 (25 marks)

a) Select two printing processes suitable for printing flexible film and compare the processes. Discuss which you would use to print a high quality stand-up pouch product.

(15 marks)

b) Describe the role of the Anilox in Flexo printing and explain how Anilox volume specifications alone can have an impact on improved quality, production efficiency and profitability.

(10 marks)

Question 4 (25 marks)

- a) Describe how 200g of nuts can be measured for high speed filling of product.
(8 marks).
- b) The pack for this product can be produced at the point of filling in either a sachet filling or vertical form fill seal operation. Explain both of these processes.
(12 marks)
- c) Describe two methods of adding variable data to these packs.
(5 marks)

Question 5 (25 marks)

- a) Discuss the factors and options to be considered when filling liquids into bottles.
(10 marks)
- b) Overall equipment effectiveness (OEE) is often used to monitor the operation of packing lines. Discuss how OEE is determined and how each factor can be improved.
(8 marks)
- c) A simple line consists of 5 operations running at the given performances.

Bottle De-palletiser	120 packs / min at 90% efficiency
Filler.	80 packs/min at 85% efficiency
Capper	100 packs/ min at 95% efficiency
Labeller	120 packs/min at 90% efficiency
Collator	150 pack /min at 80% efficiency

Calculate the line output.

(4 marks)

- d) If an accumulator is added between the filler and the capper, calculate how this will affect output.
(3 marks)