



SUMMER EXAMINATIONS 2020

EXAMINATION: **UNIT 4 Package Printing and Decorating & Packaging Machinery**

COURSE: **CPD Diploma in Packaging Technology**

DATE: **May 14th 2020**
 2pm to 4pm

EXAMINERS: Tony Duffy, David Little, Ron Gardiner

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 (10 marks)

TERM	EXPLANATION
CMYK	
Dot Gain	
Special Colour	
Density	
Full Colour Half Tone	
Spot Colour	
L*a*b*	
Saturation	
Pantone Colour	
Hue	

- b) What is the role of the anilox in the flexographic printing process? With the aid of an annotated print unit diagram, describe how the anilox works and the impact it has on the colour reproduction. Mention the impact, of a dirty anilox and of changing the anilox to a different screen or volume.

(15 marks)

Question 2 (25 marks)

- a) Washed salad leaves are filled on a vertical form fill seal bagging machine. Describe the operation of this equipment and any specific considerations required for this product. (15 marks)

- b) Horizontal form fill seal (flow-wrapping) is a common packaging format which is similar to vertical form fill seal. Discuss the differences in product characteristics which would indicate a preference for one each of these techniques.

(5 marks)

- c) Discuss the options for date / batch coded the salad leaf pack. (5 marks)

Question 3 (25 marks)

- a) Describe the packing line for packaging individually wrapped cereal bars in a collation carton of six bars, from receipt of packaging materials to finished packed products ready for dispatch.

(16 marks)

- b) Discuss three factors which contribute to overall equipment effectiveness of the line and provide an example how each could be improved.

(3 x 3)

Question 4 (25 marks)

- a) Discuss how the correct amount of individually frozen prawns could be metered.
(5 marks)
- b) Discuss the mechanisms and merits of level and volume filling for correct amount of olive oil into a glass bottle.
(10 marks)
- c) Describe a volumetric filling system suitable for the filling the correct amount talc into a tub.
(3 marks)
- d) Discuss the difficulties of volume filling this type of product.
(3 marks)
- e) Compare the use of fixed weight and variable weight approaches to retailing prepacked meat steaks.
(4 marks)

Question 5 (25 marks)

- a) For the following printed packs, list the typical printing process used, for large scale production (i.e. not digital).

Full colour printed pack	Typical process used
Crisp bag	
Folding carton	
Corrugated case / Outer	
Stand-up pouch (high quality)	
Self-adhesive labels	
Yogurt pot (direct printed)	
Shelf-ready display pack	
Carton for heavy valve	
Beer bottle (direct printed)	
Large TV screen outer	

(10 marks)

- b) Choose one of the above printing processes and describe the process fully with the aid of an annotated diagram. Include details on the plate type, ink type, drying method and typical substrates along with a brief description with of the transfer / application method for that process.

(15 marks)