SUMMER EXAMINATIONS 2017

EXAMINATION: **UNIT 1 Fundamentals of Packaging Technology and Packaging in the Supply Chain**

COURSE: **CPD Diploma in Packaging Technology**

DATE: **10th May 2017**
10 am to 12pm

EXAMINERS: Colm Munnelly, Tony Duffy

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) Briefly describe 4 methods of preserving foods. What are the packaging requirements of each of these methods?

(16 marks - 4 x 4 marks)

b) Discuss how the primary pack for cooked ham performs the functions of packaging.

(9 marks)

Question 2 (25 marks)

a) Briefly describe the functions of packaging

(7 marks)

b) Describe how a supermarket own brand paracetamol tablet is packed. How does this pack perform the functions of packaging?

(11 marks)

c) Using the primary pack described in part (b) above, describe how the secondary and tertiary packaging contribute to the packaging system performing the functions of packaging.

(7 marks)

Question 3 (25 marks)

a) Products can be distributed through various distribution channels. Describe 5 ways how different distribution channels will change the risks of damage to product.

Distribution channel examples could include.
- Industrial bulk delivery,
- Direct home delivery through courier,
- Delivery to consumers through major national retailers,
- International deliveries by sea freight
- Business to Business transfers
- Cash and Carry Operations

(15 marks, 5 x 3 marks)

b) Identify 5 hazards faced by a bottle of whiskey during distribution. How can these be mitigated or managed?

(10 marks, 5 x 2 marks)

Question 4 (25 marks)

a) Calculate the fragility factor, G for a cup dropped from a height of 1 metre that decelerates to 0 on impact in 0.002 seconds.

   Note: $v^2 = u^2 + 2as$ and $v = u + a\tau$ where:

       v: final velocity (m/s)
       u: initial velocity (m/s)
       a: acceleration (m/s/s)
       s: distance travelled (m)
       τ: time taken(s)
       g: acceleration due to gravity (9.81m/s/s)

   (13 marks)

b) What thickness of Polyethylene foam (EPE) would be required to protect this cup, knowing that the cushion factor for EPE is 3.1

   (4 marks)

c) What are the internal dimensions of a case required to pack this cup in EPE if the dimensions of the cup are 140 x 120 x 100 mm

   (4 marks)

d) Name 4 typical types of testing carried out on finished packages.

   (4 marks)

Question 5 (25 marks)

a) Briefly discuss five ways in which packaging has supported the development of modern societies.

   (5 x 3 marks)

b) Packaging is often considered to be environmentally wasteful by the general public. Discuss how packaging can become more environmentally friendly.

   (10 marks)