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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2018/2019**

COURSE NAME : PRINCIPLES OF PACKAGING  
COURSE CODE : BNK 20103  
PROGRAMME CODE : BNK  
EXAMINATION DATE : JUNE 2019 / JULY 2019  
DURATION : 3 HOURS 30 MINUTES  
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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- Q1** (a) List down the **FIVE (5)** types of packaging materials. (5 marks)
- (b) Discuss **THREE (3)** main functions of packaging. (6 marks)
- (c) **Figure Q1(c)** shows the integrated system of packaging and their relationship. Analyze how the elements involve in packaging role to achieve the packaging functions. (9 marks)
- Q2** (a) **Figure Q2(a)** shows the lowest possible cost graph, the lose by damage(%) towards cost of packaging. Discover how the total packaging system cost can be reduced through the following elements:  
(i) the development cost  
(ii) the package cost  
(iii) the packaging cost, and  
(iv) the distribution cost (10 marks)
- (b) **Figure Q2(b)** shows the Damage Boundary Curve (DBC) of shock fragility assessment test, Propose a detail interpretation on the developed curve. (10 marks)
- Q3** (a) Differentiate between food packaging and pharmaceutical packaging. (2 marks)
- (b) Categorize **FIVE (5)** basic categories of distribution depending on the packaging function and product requirements. (5 marks)
- (c) Choose **THREE (3)** types of physical distributions in system packaging. (3 marks)
- (d) Propose the purpose of using cushion on packaging system and describe **TWO (2)** characteristics of cushion material. (10 marks)

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- Q4** (a) Outline **FIVE (5)** factors affecting the product quality and “shelf life”.  
(5 marks)
- (b) Categorise **SIX (6)** the quality assurance of Modified Atmosphere Packaging (MAP).  
(6 marks)
- (c) Apply the concept of **shelf life** and its application in food industry.  
(9 marks)
- Q5** (a) Compare extensively between the physical and chemical properties how to protect the product sensitivity during distribution.  
(10 marks)
- (b) **Figure Q5(b)** shows a marketing strategy model. Using principle 4P, analyze the model how the marketing strategy and application of packaging can increase the customer satisfaction  
(10 marks)

- END OF QUESTIONS -

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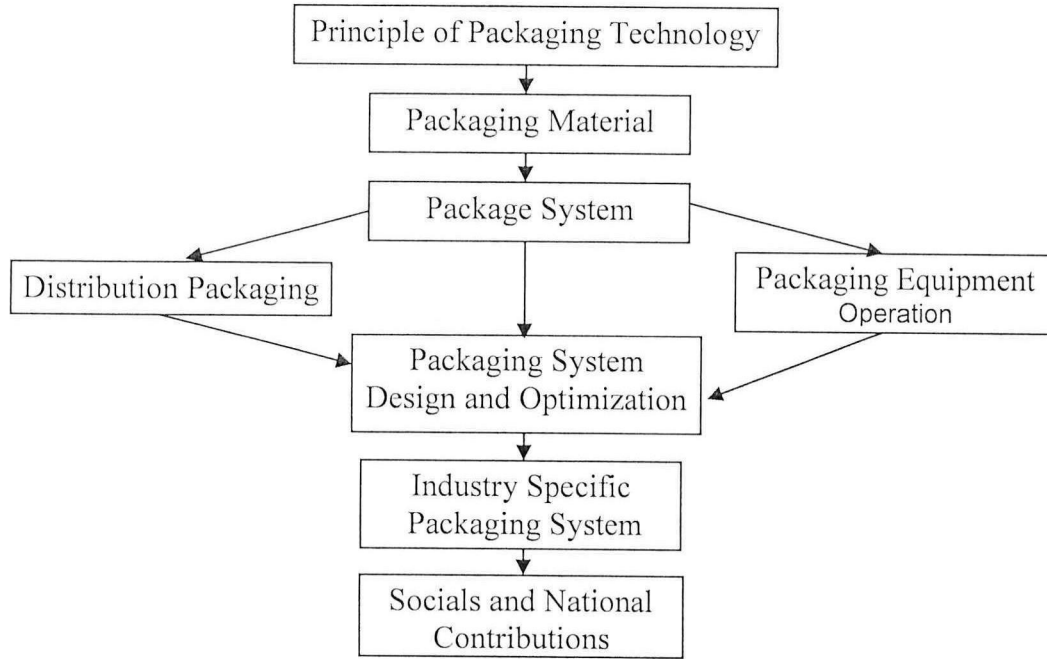
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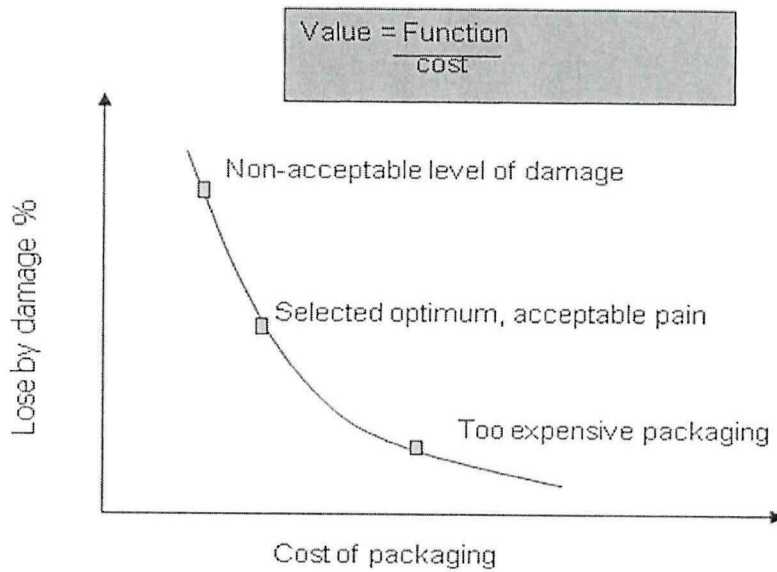
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**Figure Q1(c)**



**Figure Q2(a)**

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DAMAGE BOUNDARY

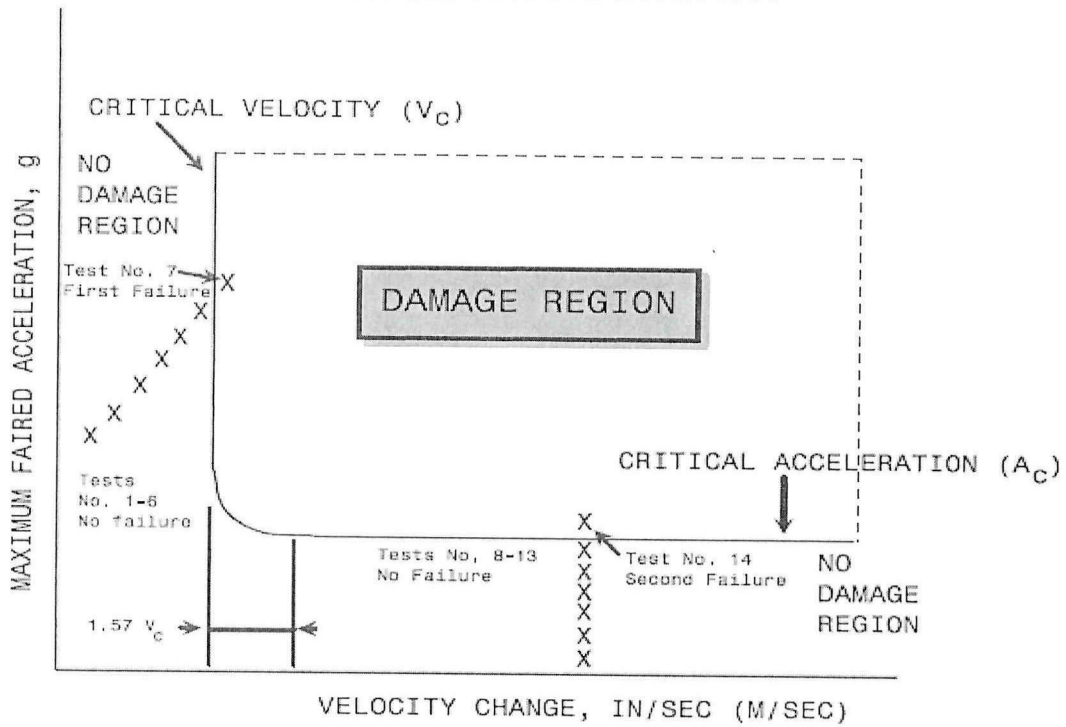


Figure Q2(b)

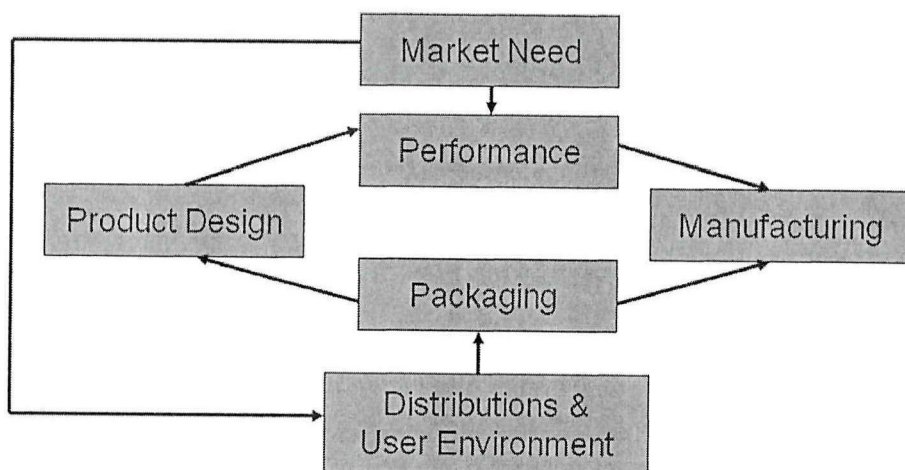


Figure Q5(b)