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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(TAKE HOME)
SEMESTER I
SESSION 2020/2021**

COURSE NAME : PRINCIPLE OF PACKAGING
COURSE CODE : BNM31103
PROGRAMME CODE : BNM
EXAMINATION DATE : JANUARY / FEBRUARY 2021
DURATION : 3 HOURS
INSTRUCTION : ANSWERS ALL QUESTIONS
OPEN BOOK EXAMINATION

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THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

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- Q1**
- (a) Describe the definition of packaging. (2 marks)
- (b) Interpret **THREE (3)** levels of packaging system. (6 marks)
- (c) High energy consumption (embodied) and environmental problems are associated with packaging materials, which underscores the need to regard the proper use of packaging materials from an environment point of view. Debate on followings:
- (i) Current and future global packaging market size and growth. (4 marks)
- (ii) **FIVE (5)** impacts of packaging on the environment. (5 marks)
- (iii) **FOUR (4)** current industrial sustainable packaging trends with an example that each should be implemented to reduce the impacts on the environment. (8 marks)
- Q2**
- (a) Discuss **THREE (3)** basic functions of packaging with given example. (6 marks)
- (b) A new packaging company is in a stage to develop a cushioning material for their new product packaging design. As a packaging consultant that was hired by the company, propose the followings:
- (i) A correct method sequence with in-depth discussion for each steps in developing the cushioning material. (14 marks)
- (ii) **FIVE (5)** types of protective packaging for shipping the product. (5 marks)

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- Q3** (a) List out **THREE (3)** extrinsic factors that a product may encountered during its life cycles. (3 marks)
- (b) Modified atmosphere packaging (MAP) is defined as the packaging of a perishable product in an atmosphere which has been modified. As packaging engineer, identify **THREE (3)** factors that must be considered when selecting package materials for MAP applications. (6 marks)
- (c) Specification is one of the important documents in a package system. As a packaging quality control (QC) engineer, inspect a package system specification for a bottle packaging for your company based on the followings:
- (i) **SIX (6)** basic requirements for a bottle packaging. (6 marks)
- (ii) **FIVE (5)** elements that should be written in the bottle package system specification. (10 marks)
- Q4** (a) List out **FIVE (5)** types of packaging system test with its standard. (5 marks)
- (b) Demonstrate the procedure for repetitive shock test for Method A1 and Method A2 in ASTM D999 (10 marks)
- (c) As a packaging graphic designer, debate on how 'Package Graphic Design' works as a marketing tool. (10 marks)

-END OF QUESTIONS

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