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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017**

COURSE NAME : FOOD PROCESSING TECHNOLOGY I
COURSE CODE : BWD 21003
PROGRAMME CODE : BWD
EXAMINATION DATE : JUNE 2017
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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

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- Q1** (a) Explain **THREE (3)** purposes of coating roasted nuts with chocolate. (6 marks)
- (b) Panning is a process of controlled technique for building up layers of sugar, sweetener or chocolate coating on cores of fondant, fruits or nuts, using a revolving copper or stainless steel pan. Explain how the coating pan works. Use an illustration to aid your explanation. (6 marks)
- (c) Give **THREE (3)** differences of coacervation, extrusion and spray drying in flavour encapsulation. (8 marks)
- Q2** There are two main methods of commercial frying which are shallow and deep-fat frying. Deep-fat frying is widely used to fry chicken in order to satisfy consumers' needs. However, there are pros and cons of frying the chicken.
- (a) Discuss what would happen to the deep-fat fried chicken. (10 marks)
- (b) Compare and contrast between shallow and deep-fat frying. (10 marks)
- Q3** Chilling is the unit operation in which the temperature of a food is reduced to between 1°C and 8°C. Its equipment is classified by the method used to remove heat, into mechanical refrigerator and cryogenic system.
- (a) Explain how the mechanical refrigerator works. Provide an illustration to support your answer. (10 marks)
- (b) Why do you think cook-chill process of sliced roast meats is better than the cook-freeze process? Explain **FIVE (5)** reasons. (10 marks)
- Q4** Freezing is the unit operation in which the temperature of a food is reduced below its freezing point and a proportion of the water undergoes a change in state to form ice crystals. Recently, the demand on the frozen food has increased due to the reduction of preparation and cooking time. Donut is one of the most popular frozen food, which has been precooked and frozen to make it available all year round.
- (a) Discuss what changes that can take place in the frozen donuts. (10 marks)

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- (b) There are various types of freezers which have been used depending mainly on its efficiency and the food characteristics. Compare and contrast between scraped-surface, immersion and blast freezers.

(10 marks)

- Q5** (a) Food irradiation has played an essential role in improving food safety and security. Irradiation equipment consists of a high-energy isotope source to produce γ -rays or a machine source to produce a high-energy electron beam. Explain how both isotope and machine sources work.

(6 marks)

- (b) There are two methods of processing foods in high pressure vessels, which are in-container and bulk processing. Give **TWO (2)** differences between in-container and bulk high pressure processing?

(4 marks)

- (c) Dielectric and ohmic heating technologies have been developed to replace the conventional heating method in food industry. Compare and contrast between dielectric and ohmic heating.

(10 marks)

– END OF QUESTIONS –

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