



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : FUNCTIONAL FOODS AND
NUTRACEUTICALS

COURSE CODE : BWD 30703

PROGRAMME CODE : BWD

EXAMINATION DATE : DECEMBER 2019 / JANUARY 2020

DURATION : 3 HOURS

INSTRUCTIONS : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

- Q1** (a) Define whole grain. Give **TWO (2)** examples of whole grain. (6 marks)
- (b) Illustrate the components and/or structure of whole grain. Point out only the major bioactive compounds in each components and/or structure of whole grain. (9 marks)
- (c) Discuss the relationship between whole grain intake and human's health. (10 marks)
- Q2** (a) Explain and relate the effects of following bioactive compounds on human's health.
(i) Phytosterol
(ii) Omega-6 fatty acids (10 marks)
- (b) Compare and contrast between trans fat, saturated fat and polyunsaturated fat in term of their impact on health and also distribution in foods. (9 marks)
- (c) Describe the importance of fat replacer in food application. (6 marks)
- Q3** (a) Compare and contrast between prebiotic and probiotic. (5 marks)
- (b) By choosing **ONE (1)** type of Malaysian traditional food that contains probiotic, explain the type of microorganism present in the food and its potential health benefits. (5 marks)
- (c) Imagine you are working as a supplement product developer in a nutraceutical company. You are assigned to design a nutraceutical herbal product that can be used as anti-diabetic and anti-gout agent. Recommend medicinal plants that can be incorporated in your product and highlight major compounds that have the potential to show such effects. (15 marks)

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- Q4** (a) Compare and contrast the process and manufacturing aspect between green, black and oolong tea. Point out the major phytochemicals in each tea. (15 marks)
- (b) *Allium sativum* (lili family) produce edible aromatic bulb that is rich in organosulphur compounds.
- (i) List **TWO (2)** classes of organosulphur compounds. (2 marks)
- (ii) Illustrate and differentiate the release mechanism between fat-soluble organosulphur compounds and water-soluble organosulphur compounds. (8 marks)

- **END OF QUESTIONS** -

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