



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : FUNDAMENTALS OF FOOD TECHNOLOGY
COURSE CODE : DAU 21102
PROGRAMME : 2 DAU
EXAMINATION DATE : DECEMBER 2015/JANUARY 2016
DURATION : 2 HOURS 30 MINUTES
INSTRUCTIONS : SECTION A)
ANSWER ALL QUESTIONS

SECTION B)
ANSWER **TWO (2)** QUESTIONS ONLY

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

SECTION A

- Q1** (a) Through the years, fats have served multiple roles in food preparations.
- (i) Differentiate between the two categories of fat. (4 marks)
 - (ii) Name **three (3)** methods used to test the quality of fat. (3 marks)
- (b) (i) Define hydrogenation. (2 marks)
- (ii) Discuss the process of hydrogenation and its effects on the composition and properties of oil. (4 marks)
- (c) You are given a sample of palm oil labelled as refined, bleached and deodorized (RBD).
- (i) Define refining, bleaching and deodorizing. (3 marks)
 - (ii) Discuss in detail the process of refining, bleaching and deodorizing palm oil. (9 marks)
- Q2** (a) Fruits and vegetables may be packed under controlled atmosphere package (CAP) or modified atmosphere package (MAP).
- (i) Describe the changes that occur during the ripening of fruits. (4 marks)
 - (ii) Differentiate between CAP and MAP. (4 marks)
 - (iii) Suggest the application of CAP or MAP in the packaging of a local fruit using a suitable example. (4 marks)

- (b) Fish is perishable which means that it spoils easily.
- (i) Describe the characteristics of spoiled fish. (4 marks)
 - (ii) Curing is one of the preservation techniques to preserve fish. Discuss the process of curing fish. (6 marks)
 - (iii) Suggest a suitable packaging material to pack the cured fish. Give suitable reasons for your choice of the packaging material. (3 marks)

SECTION B

- Q3** (a) Nutrients are food components that nourish the body to provide growth, maintenance and repair.
- (i) List **four (4)** groups of nutrients that are important to human. (4 marks)
 - (ii) Calcium is one of the nutrients required by human. Give **two (2)** reasons why calcium is needed in the human diet. (2 marks)
 - (iii) Water is also classified as a nutrient. Discuss **four (4)** functions of water in the human body. (8 marks)
- (b) Discuss the sensory characteristics of food. (4 marks)
- (c) (i) Describe in detail the importance of a food label. (4 marks)
- (ii) Give your opinion why a person on a low-fat diet and someone trying to lose weight find nutritional information on a label useful. (3 marks)

- Q4** (a) Describe the functions of protein in food. (4 marks)
- (b) Food additives are substances added to food for preserving flavors, or improving taste or appearance. Name an additive, using suitable examples for each of the following additive that functions as :
- (i) Preservative (3 marks)
 - (ii) Flavouring agent (3 marks)
 - (iii) Emulsifiers, stabilizers and thickeners (3 marks)
 - (iv) Nutrients (3 marks)
 - (v) Antioxidants (3 marks)
- (c) (i) Differentiate between enzymatic and non-enzymatic reactions in food. (3 marks)
- (ii) Discuss the advantages and disadvantages of each reaction in a food system. (3 marks)
- Q5** (a) List **four (4)** groups of microorganisms that cause food spoilage. (4 marks)
- (b) (i) Discuss **four (4)** intrinsic factors that affect microbial growth in food. (4 marks)
- (ii) Give **two (2)** examples of preservation method to control factors that affect microbial growth. (4 marks)
- (c) (i) Define microbial fermentation. (2 marks)
- (ii) Elaborate **three (3)** examples of industrially important products produced by fermentation. Give the name of microorganism involved. (6 marks)
- (d) Explain the significance of water activity, A_w in controlling microbial spoilage and thus increase the shelf life of food. (5 marks)

- Q6** (a) The busy lifestyle of the modern world has increased the demand for convenient and processed or preserved foods.
- (i) Give **four (4)** reasons why foods are processed. (4 marks)
 - (ii) Name **two (2)** different methods of preserving milk, fish, chicken and a local fruit. (4 marks)
- (b) Drying is one of the methods used to preserve food. There are various types of dryers.
- (i) Describe factors that influence a drying process. (2 marks)
 - (ii) Discuss the advantages and disadvantages of freeze-drying as compared to hot air drying. (4 marks)
 - (iii) Provide examples of products dried by the above two methods of drying and give suitable reasons. (4 marks)
- (c) In recent years, irradiation has been used to preserve food. Give details on the application of food irradiation. (3 marks)
- (d) Summarize the functional package components referred to as primary, secondary, tertiary, and quaternary. (4 marks)

- END OF QUESTION -