Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2016/20167

COURSE NAME	:	FUNDAMENTAL OF FOOD SCIENCE AND TECHNOLOGY
COURSE CODE	:	DAU 25403
PROGRAMME	:	2 DAU
EXAMINATION DATE	:	DECEMBER 2016 / JANUARY 2017
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **FIVE (5)** QUESTIONS ONLY

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

Q1 (a) Elaborate the specific aims of research and development in food science and technology.

(5 marks)

(b) (i) List the five sensory properties related to food products quality evaluation.

(5 marks)

(ii) Explain the important of food sensory analysis in determining the quality of a food product.

(5 marks)

(c) Food safety and quality activities in Malaysia is under the administration and supervision of Ministry of Health (MOH).

(i) Name the Act and the Regulation related to the above statement.

(2 marks)

(ii) Discuss the area cover under the Act and the Regulation in maintaining food safety and quality to Malaysian consumers.

(3 marks)

Q2 (a) Explain the following:

(i) Diet

(2 marks)

(ii) Malnutrition

(2 marks)

(iii) Undernutrition

(2 marks)

(b) Differentiate between Marasmus and Kwashiorkor disease.

(6 marks)

(c) Based on 2000 calorie per day intake which contain 60 % carbohydrate, 30 % fat and 10 % protein, calculate the amount (in gram) of protein, carbohydrate and fat needed for an adult in daily dietary. Calorie conversion: protein = 4 cal/gram, carbohydrate = 4 cal/gram and fat = 9 cal/gram.

(8 marks)

Q3 (a) Explain the main functions of water in human body.

(4 marks)

(b) Differentiate between healthy and unhealthy fats.

(4 marks)

(c) Foods are grouped together because they provide similar amounts of the key nutrients of that food group. Discuss any three of the groups and food items involved in each group.

(12 marks)

Q4 (a) Name the four structures of protein molecule.

(4 marks)

(b) Combination between amino acids to form peptide bond through condensation reaction is by removing a water molecule. Draw the formation of peptide bond between amino acids alanine and and lysine. The structural formula of both amino acids is given in Table Page 5.

(4 marks)

(c) Describe the occurrence of rancidity in oils and fats.

(4 marks)

(d) Explain the function of vitamin C in human body.

(2 marks)

(e) (i) Define water activity.

(2 marks)

(ii) Elaborate the role of water activity in food preservation.

(4 marks)

Q5 (a) (i) State the five microorganism groups.

(5 marks)

(ii) Explain briefly any three of the microorganism group.

(6 marks)

(b) Discuss the effect of temperature on the microbial growth.

(3 marks)

(c) Elaborate the positive and negative aspects of microorganisms presents in food systems.

(6 marks)

Q6 (a) Discuss the following:

(i) Food processing

(3 marks)

(ii) Food preservation

(3 marks)

(b) Explain the following food preservation methods.

(i) Canning

(2 marks)

(ii) Cooling and freezing

(2 marks)

(c) Name four types of materials used in food packaging.

(4 marks)

(d) Illustrate how packaging of foods can promote product selling points.

(6 marks)

Q7 (a) Outline the processing and preservation involved in fresh milk production.

(8 marks)

(b) Suggest a suitable drying technique for a production of egg powder.

(4 marks)

(c) Illustrate the units operation involved in production of table sugar from sugar cane.

(8 marks)

– END OF QUESTION –

FINAL EXAMINATION

SEMESTER / SESSION: I/ 2016/2017 PROGRAMME : 2 DAU

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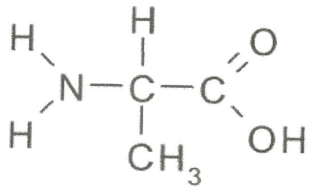
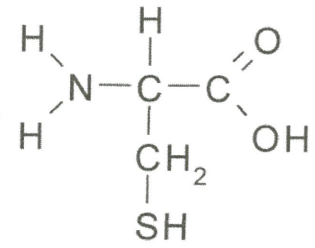
Structure Formula of Amino Acid



Alanine



Cysteine