



Queen Margaret University
EDINBURGH

SCHOOL OF HEALTH SCIENCES

**DIVISION OF DIETETICS, NUTRITION AND BIOLOGICAL SCIENCES,
PHYSIOTHERAPY, PODIATRY, RADIOGRAPHY**

LEVEL 2 / DIET 1

D2155/ Introduction to Food Science

DATE: 11/12/2017	TIME: 09:30
WRITING TIME: 2 hours	READING TIME: 5 minutes

INSTRUCTIONS:

Candidates should attempt ALL questions in section A. (20 marks)

Circle the correct answer.

Candidates should answer 3 questions out of the 4 ones presented in section B. (60 marks)

Answer each question in a separate answer book.

PAPER SETTER: Julien Lonchamp

MATRICULATION NUMBER: _____

Section A

Answer all questions. 2 marks for each question

1. What is the main family of proteins present in milk?
 - a. Glutenins
 - b. Caseins
 - c. Albumins
 - d. Glycinins

2. In bread making, fermentation by yeast produces
 - a. CO₂ and alcohol
 - b. Water and alcohol
 - c. Alcohol and Lactic Acid
 - d. CO₂ and water

3. The main ingredient used in the curing or pickling of meat is
 - a. Potassium chloride
 - b. Sodium nitrate/nitrite
 - c. Potassium nitrate
 - d. Monosodium glutamate

4. Oxidative rancidity is
 - a. The process by which peeled potatoes go brown
 - b. The process by which fats and oils produce off-flavours
 - c. The process by which foods go brown on baking (e.g. the crust on baked bread)
 - d. The process by which fruit is ripened

5. The Maillard reaction occurs between
 - a. amino groups of proteins and carboxyl groups of reducing sugars
 - b. amino groups of reducing sugars and carboxyl groups of proteins
 - c. amino groups of proteins and carboxyl groups of non-reducing sugars
 - d. amino groups of non-reducing sugars and carboxyl groups of proteins

6. In the breadmaking process starch is responsible for
 - a. the creation of flavour
 - b. the elasticity of the dough
 - c. the gelatinisation during baking
 - d. the shortening of the dough

7. A faulty canned fish product should not be consumed because of the potential harmful effects of
 - a. *Bacillus stearothermophilus*
 - b. *Clostridium botulinum*
 - c. *Clostridium thermosaccharolyticum*
 - d. *Lactococcus roqueforti*

8. The second principle of a HACCP plan is to establish

- a. critical limits
- b. corrective actions
- c. critical control points
- d. corrective measures

9. The UHT treatment of milk is

- a. 135°C for 1 second
- b. 120°C for 15 minutes
- c. 72°C for 15 seconds
- d. 63°C for 30 minutes

10. What is the major protein present in egg white?

- a. Gliadin
- b. Ovalbumin
- c. Lysozyme
- d. Myoglobin

End of section A

Section B

Answer 3 questions out of the 4 ones presented in this section.

Question 1

1.a. Define the main groups of sensory attributes of food products, describe how we perceive them and provide a characteristic example of each attribute in food formulations **(10 marks)**

1.b. Describe the different types of sensory analysis tests that can be used to evaluate food products, highlight the specificities of each test **(10 marks)**

Question 2

2.a. Describe the structure of the major types of lipid compounds that can be found in food sources **(5 marks)**

2.b. Describe how the nature of fatty acid chains can determine a range of properties of lipidic materials **(10 marks)**

2.c. Explain the concept of hydrogenation of oils and its impacts on unsaturated fatty acid chains **(5 marks)**

Question 3

Fully describe the cheese making process starting with pasteurized whole milk, highlighting the different ingredients and mechanisms involved at each step **(20 marks)**

Question 4

5.a. Describe the main functional properties of food ingredients **(4 marks)**

5.b. Explain the mechanisms leading to each of these functional properties **(12 marks)**

5.c. Provide specific examples of functional ingredients contributing to food formulations **(4 marks)**

End of Examination