



UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF CHEMICAL AND BIO-ENGINEERING TECHNOLOGY

FINAL EXAMINATION
OCTOBER 2025 SEMESTER

COURSE CODE : CQB 20403
COURSE TITLE : FOOD INGREDIENTS
PROGRAMME NAME : BACHELOR OF FOOD SAFETY AND QUALITY TECHNOLOGY
DATE : 27 JANUARY 2026
TIME : 9:00AM - 12:00PM
DURATION : 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Answer ALL questions for Section A.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet. ☐ *Tick if applicable*
9. Refer to the attached Formula/ Appendies. ☐ *Tick if applicable*

THERE ARE 5 PAGES OF QUESTIONS INCLUDING THIS PAGE

SECTION A (Total: 40 marks)

Answer ALL questions.

Please use the answer booklet provided.

Question 1

Food additives are intentionally incorporated into food products to enhance quality, safety, stability, and consumer acceptability. Understanding how food additives are classified based on their function and purpose is essential for effective food formulation and regulatory compliance.

- (a) Classify food additives according to their functional roles in food formulation.
(5 marks)
- (b) Explain the purpose of these functional classes listed in (a) and provide a suitable example of the food additive for each category.
(5 marks)

Question 2

Emulsifiers are important food additives used to stabilize mixtures of immiscible phases, such as oil and water, in many food systems.

- (a) Explain the mechanism of action of emulsifiers in food systems and how they contribute to emulsion stability.
(5 marks)
- (b) Classify the main types of emulsifiers used in food formulation and provide suitable examples of food products in which they are applied.
(5 marks)

Question 3

Food additives play a crucial role in the processing and preservation of meat products by enhancing safety, extending shelf life, improving sensory qualities, and maintaining nutritional value.

- (a) Demonstrate the role of food additives in meat products by identifying at least two commonly used additives and explaining their technological functions.

(5 marks)

- (b) Discuss the potential health concerns associated with these additives and the measures taken to ensure their safe use in meat products.

(5 marks)

Question 4

Starch is one of the most widely used ingredients in food systems due to its versatility and functionality. It plays a crucial role in determining the texture, stability, and overall quality of many food products.

- (a) Explain the importance and functional roles of starch in food systems.

(5 marks)

- (b) Provide TWO (2) specific examples of food products in which starch is used in the formulation and explain its role in each product.

(5 marks)

SECTION B (Total: 60 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

Explain the role of sweeteners in food formulation and the food industry. Discuss the different types of sweeteners, including natural and artificial, their functional properties, potential health effects, and the key factors that influence their selection and use in various food products.

(20 marks)

Question 2

Explain the conversion of starch into maltose, glucose, mixed, and fructose syrups. Explain the processing steps, the enzymes responsible for each transformation, and describe the properties and applications of each syrup type.

(20 marks)

Question 3

Examine the role of antioxidants in the processing of cooking oil. Discuss why they are used, their effects on health and safety, and identify commonly used antioxidants in the industry, including both synthetic and natural types.

(20 marks)

Question 4

Examine the significance of Vitamin C in human nutrition. Describe its role as an antioxidant, dietary sources, consequences of deficiency, stability during food processing, and applications as a food additive in the industry.

(20 marks)

END OF EXAMINATION PAPER