



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

FINAL EXAMINATION
OCTOBER 2025 SEMESTER

COURSE CODE	:	CQB 10303
COURSE TITLE	:	FOOD PRODUCT MANUFACTURING
PROGRAMME NAME	:	BACHELOR OF FOOD SAFETY AND QUALITY TECHNOLOGY WITH HONOURS
DATE	:	27 JANUARY 2026
TIME	:	2:00PM - 5:00PM
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*

SECTION A (Total: 40 marks)

Answer ALL questions.

Please use the answer booklet provided.

1. How does yogurt potentially influence intestinal flora?
 - A. It can inhibit tumors and improve lactose resorption
 - B. It causes dehydration and constipation
 - C. It eliminates all bacteria in the intestines
 - D. It increases intestinal acidity excessively

2. What causes the fat globules to break up during homogenization?
 - A. Cooling the milk rapidly
 - B. High shearing stress and microturbulence
 - C. Adding chemical stabilizers
 - D. Heating the milk to a high temperature

3. What characteristic sets the germ apart from other kernel layers?
 - A. Rich in fat and riboflavin
 - B. High starch content
 - C. Low protein content
 - D. Large size

4. Which portion of the kernel contains the most protein?
 - A. Germ
 - B. Outer bran coat
 - C. Endosperm
 - D. Aleurone layer

5. The role played by microbial enzymes, such as lactic acid bacteria, during the fermentation stage of fermented sausages process.
- A. Initiating lipolysis
 - B. Facilitating carbohydrate fermentation
 - C. Enhancing color development
 - D. Catalyzing the breakdown of proteins
6. Compare the effect due to the addition of sodium nitrite during the drying or smoking process towards the nutrient content of fish.
- A. Increases sodium content
 - B. Decreases nitrite content
 - C. Decreases sodium content
 - D. Increases lipid content
7. Term hydrogenation is refers to _____.
- A. Addition of hydrogen atoms for conversion of a liquid oil into a solid fat.
 - B. Removal of hydrogen atoms for conversion of a solid fat into a liquid oil.
 - C. Addition of hydrogen atoms for conversion of a solid fat into a liquid oil.
 - D. Removal of hydrogen atoms for conversion of a liquid oil into a solid fat.
8. Select the correct percentage of the outer bran coat in a wheat kernel.
- A. 2%
 - B. 10%
 - C. 15%
 - D. 5%

9. Which layer of the kernel is primarily responsible for providing dietary fiber?
- A. Germ
 - B. Endosperm
 - C. Aleurone layer
 - D. Outer bran coat
10. Identify from the following culture organisms, combination that are most commonly used to manufacture yogurt.
- A. *Streptococcus thermophilus* and *Bifido-bacterium*
 - B. *Lactobacillus acidophilus* and *Bifido-bacterium*
 - C. *Lactobacillus bulgaricus* and *Streptococcus thermophilus*
 - D. *Streptococcus filant* and *Lactobacillus acidophilus*
11. Which heating method during pasteurization involves temperatures of 62 to 65°C for 30 minutes?
- A. High temperature short time (HTST)
 - B. Flash heating
 - C. Ultra pasteurization
 - D. Batch heating
12. Suitable types of packaging for prepared fruit juices including:
- A. Can and plastic only
 - B. Wax cardboard container only
 - C. Bottle and cans only
 - D. Bottle, cans, plastic and waxed cardboard container.

13. Select the TRUE statement from the following about bottled water regulations.
- A. Bottled water regulations are uniform worldwide
 - B. Only the FDA (Food and Drug Authority) regulates bottled water, regardless of the country
 - C. Bottled water regulations differ between regions, such as the European Union (EU) and the USA
 - D. Bottled water regulations are primarily concerned with the taste and appearance of the water
14. Which species of coffee typically contains more caffeine?
- A. *Coffea robusta*
 - B. *Coffea canephora*
 - C. *Coffea arabica* L.
 - D. All contain the same amount of caffeine
15. What distinguishes the aroma of Arabica coffee from that of Robusta coffee?
- A. Arabica has a more bitter taste
 - B. Arabica has more caffeine
 - C. Arabica has more aroma
 - D. Robusta has more aroma
16. What role does water play in metabolic processes in the body?
- A. It breaks down waste products
 - B. It serves as a transport system for nutrients
 - C. It regulates body temperature
 - D. It provides energy directly

17. According to the American Journal of Clinical Nutrition, which beverage hydrates better than water?
- A. Orange juice
 - B. Cola
 - C. Full-fat milk
 - D. Skim milk
18. Type of muscle fiber that exhibits glycolytic metabolism:
- A. White
 - B. Red
 - C. Intermediate
 - D. Oxidative
19. Select type of enzyme that is primarily responsible for the breakdown of muscle proteins into smaller peptides and amino acids during the processing of fermented sausages.
- A. Cellulase
 - B. Amylase
 - C. Protease
 - D. Lipase
20. Select the primary function of nitrate reductase enzyme that produced by certain bacteria during the processing of fermented sausages.
- A. Enhancing color stability
 - B. Reducing nitrate to nitrite
 - C. Initiating lipid oxidation
 - D. Promoting protein denaturation

21. Select the stage that involves with the incorporation of starter cultures, typically lactic acid bacteria during the production of yogurt.
- A. Grinding and mixing
 - B. Filling
 - C. Drying
 - D. Fermentation
22. Which of the following is removed during the surimi washing process?
- A. Minerals
 - B. Carbohydrates
 - C. Myofibrillar protein
 - D. Sarcoplasmic protein
23. Select the typical method used to cook traditional Japanese gelled products made from surimi.
- A. Steaming or broil-cooking
 - B. Boiling
 - C. Baking
 - D. Deep frying
24. Select the fish species that is commonly used in the production of commercial surimi.
- A. Tuna
 - B. Cod
 - C. Salmon
 - D. Alaska Pollock

25. Choose the primary purpose of adding cryoprotectants to surimi before freezing process.
- A. To improve texture of semi-finish and finish goods
 - B. To enhance flavor to the end product
 - C. To increase gel-forming ability of semi-finish goods.
 - D. To prevent deterioration of functional properties during frozen storage
26. Select the type of biochemical material in marine products that is affected due to biochemical changes in its hemoglobin.
- A. Glycogen
 - B. Pigment
 - C. Lipid
 - D. Proteins
27. Choose the preservation method that involves the removal of moisture from fish to prolong its shelf life, process often through exposure to low temperatures.
- A. Freeze drying
 - B. Covering with layers of ice
 - C. Smoking
 - D. Canning
28. What method is typically employed for long-term preservation of fish by reducing its water content and inhibiting microbial growth?
- A. Conservation and storage
 - B. Smoking
 - C. Salting
 - D. Cleaning and gutting

29. Select the method of preservation that is most suitable for short-term preservation of fish, such as for transporting landed fish to nearby markets.
- A. Cleaning and gutting
 - B. Freeze drying
 - C. Canning
 - D. Covering the fish with layers of ice
30. Compare the quality of fish sauce between the undiluted filtrate of the autolysate and the brine extract of the nonhydrolyzed residue.
- A. Both have similar sensory quality and nutritional value
 - B. The undiluted filtrate is considered first-grade with higher sensory quality
 - C. The undiluted filtrate has lower sensory quality
 - D. The brine extract has higher nutritional value
31. Which type of bottled water must undergo a qualifying period of two years and be repeatedly analyzed before being officially recognized?
- A. Spring water
 - B. Natural mineral water
 - C. Distilled water
 - D. Table water
32. Select the non-enzymatic reaction that contributes to the development of brown color and flavor compounds during the processing of fermented sausages.
- A. Hydrolysis
 - B. Oxidative phosphorylation
 - C. Glycation
 - D. Maillard reaction

33. What structural characteristic does yogurt exhibit?
- A. Liquid consistency
 - B. Crystalline structure
 - C. Powdery texture
 - D. Gel structure
34. What is the primary purpose of homogenization in milk processing?
- A. To improve the flavor of the milk
 - B. To increase the milk's shelf life
 - C. To prevent or delay the formation of a cream layer
 - D. To reduce the milk's nutritional content
35. How does water impact the olfactory experience when mixed with alcohol?
- A. Softens the alcohol's impact
 - B. Alters the alcohol's chemical composition
 - C. Masks the alcohol's presence
 - D. Intensifies the alcohol's impact
36. Which of the following is NOT a role of water in the body?
- A. Providing energy for cellular functions
 - B. Facilitating nutrient absorption
 - C. Regulating body temperature
 - D. Lubricating joints

37. How does the body primarily dispose of water?
- A. Sweat and urine
 - B. Respiration
 - C. Digestion
 - D. All of the above
38. Test that is used to detect mastitis in milk.
- A. pH test
 - B. Freezing point
 - C. Catalase activity
 - D. Cl-lactose ratio
39. Standardization in milk processing is used to:
- A. Increase bacteria count
 - B. Lower pH
 - C. Improve taste
 - D. Adjust fat content
40. Identify the primary raw material used in the production of fish sauce.
- A. Freshwater prawns
 - B. Seaweed
 - C. Salted small marine fish
 - D. Crushed shellfish

SECTION B (Total: 60 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

Marine products composition:

- i. State the typical nutritional composition and lipid forms found in fish.
- ii. Briefly discuss about health benefits that are associated with the specific fatty acids present in pelagic fish.

(20 marks)

Question 2

Briefly discuss how each factor in the fermentation stage of fermented sausage processing influences the development of sensory characteristics such as flavor, texture, and pH.

(20 marks)

Question 3

State and briefly discuss **FIVE (5)** important characteristics for each amylose and amylopectin.

(20 marks)

Question 4

Visualize with a suitable process diagram that shows sequential steps for traditional method for manufacturing of fish sauce or budu. Briefly explain each steps involved accordingly.

(20 marks)

END OF EXAMINATION PAPER

