



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

FINAL EXAMINATION
OCTOBER 2025 SEMESTER

COURSE CODE : CFD30103
COURSE TITLE : FOOD PACKAGING
PROGRAMME NAME : DIPLOMA IN CHEMICAL ENGINEERING TECHNOLOGY (FOOD)
DATE : 02 FEBRUARY 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. Section A consist 25 MCQ or EMQ questions. Answer ALL questions.
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: 25 marks)

Answer ALL questions.

Please use the objective answer sheet provided.

1. Identify the packaging method that will remove air before sealing.
 - A. Metal canning
 - B. Vacuum packaging
 - C. Aseptic packaging
 - D. Ordinary packaging

2. Modified atmosphere packaging (MAP) is an example of a packaging method. Identify the word "**MODIFIED**" refers to what.
 - A. Replace carbon dioxide with oxygen to prevent banana chips from becoming stale.
 - B. Replace nitrogen with oxygen to prevent the meat from discolouring.
 - C. Including reactive sachets preventing food from crushing during transportation.
 - D. Include scavengers to remove ethylene and moisture produced by fruit and vegetables.

3. Rigid or flexible containers from which substantially all air has been removed before sealing and a mixture of gases such as carbon dioxide or nitrogen may be introduced to the container. Identify this type of packaging.
 - A. Vacuum Packaging
 - B. Modified Atmosphere Packaging
 - C. Controlled Atmosphere Packaging
 - D. Aseptic Packaging

4. Select the type of active packaging that applies to horticultural products.
 - A. Ethylene absorbers
 - B. Oxygen absorbers
 - C. Moisture absorbers
 - D. Carbon dioxide absorbers

5. Select the example(s) of convenience-focused packaging.
 - A. On-the-go packaging
 - B. Single-serve packaging
 - C. All above
 - D. Easy-to-open design

6. Choose which of the following is prohibited claims in the Malaysian Food Act 1983.
 - A. Nutrition function claim
 - B. Disease risk reduction claim
 - C. Nutrition content claims
 - D. Nutrition comparative claim

7. Exhausting is one of the steps in food canning. Identify the function of exhausting.
 - A. It functions to arrange the food in a more presentable way
 - B. It sterilises the packaging materials
 - C. It removes the air from the food before the sealing process
 - D. It adjusts the headspace height

8. A plastic bottle was tinted. Identify the purpose of performing tinting on the transparent bottle.
- A. Provides light barrier
 - B. For moisture barrier
 - C. For oxygen barrier
 - D. For microorganism barrier
9. Identify active packaging from the following.
- I. Ethylene absorbers
 - II. Antimicrobial agents
 - III. Oxygen scavengers
 - IV. Odour absorbers
- A. All above
 - B. I, II and IV
 - C. II, III and IV
 - D. I, II, and III
10. Distinguish which is **TRUE** on Good Manufacturing Practices (GMPs) Certification.
- A. Regulated by the Department of Islamic Development Malaysia (JAKIM) and the Ministry of Health Malaysia (MOH)
 - B. Regulated by the Ministry of Health Malaysia (MOH) only
 - C. Based on Islamic laws and incorporates Halal & Hazard Analysis and Critical Control Points (HACCP)
 - D. Adheres to the Malaysian Standard MS 1500:2019: Halal Food – Production, Preparation, Handling, and Storage – General Guidelines

11. Identify the required information on labels on food packaging.
- A. All above
 - B. Allergen information
 - C. Nutritional information
 - D. All ingredients list
12. Indicates the **WRONG** statement on date marking.
- A. Written as "BEST BEFORE"
 - B. Written as "CONS BY"
 - C. Either small or capital bold-faced
 - D. Written as "EXP DATE"
13. Identify which packaging type can be considered primary packaging.
- A. Pellets with cartons of aseptic almond milk
 - B. Cartons of carbonated drinks
 - C. Plastic film wrapping of candy
 - D. All above
14. Identify the **CORRECT** general-level health claims.
- A. A relationship between the consumption of food and serious disease
 - B. The amount of nutrients or biologically active substances present in the food
 - C. A relationship between the consumption of a food, or a component in a food, and a health benefit it can provide
 - D. A relationship between nutrient content and energy expenditure

15. Select the function of the Temperature Time Indicator (TTI) in food packaging.
- A. Containment
 - B. Communication
 - C. Convenience
 - D. Protection
16. Choose which of the following packaging materials is chemically inert.
- A. Metal
 - B. Paper
 - C. Glass
 - D. Plastics
17. Select the tertiary packaging from the following.
- A. Shrink wraps of cartons of carbonated drinks
 - B. Aseptic cartons of fruit juice
 - C. A packet of biscuits consists of ten individual packed biscuits
 - D. A box contains pouches of granola
18. Identify packaging materials used in flexible packaging.
- A. Laminated pouches
 - B. Paperboard
 - C. Vacuum canisters
 - D. Aseptic cartons

19. Distinguish the purpose of barrier packaging.
- I. Provide physical protection to the food products
 - II. Control the growth of aerobic microorganisms
 - III. Prevent vitamins from damaging due to light from the environment
 - IV. Preservation of flavours and nutrients from oxidation due to oxygen from the environment
- A. I, II and III
 - B. I, III and IV
 - C. I, II and IV
 - D. All above
20. Distinguish the factors that affect the temperature of sterilisation.
- I. Food acidity
 - II. Heat resistance of the microorganisms
 - III. Packaging materials
 - IV. Heating medium
- A. I, II and IV
 - B. All above
 - C. I, III and IV
 - D. I, II and III
21. Indicate the function of packaging in food products.
- A. protect, preserve, contain, communicate information and convenience
 - B. protect, preserve, clean, communicate information and convenience
 - C. classify, contain, communicate information, convenience and preserve
 - D. contain, communicate information, prepare, process and preserve

22. Give the purpose of food packaging.
- A. Protecting the food from contamination
 - B. Providing information to consumers
 - C. All above
 - D. Enhancing the visual appeal of the product
23. Identify which is **TRUE** on food quality.
- A. It refers to the cold chain temperature requirement for snacks.
 - B. It refers to the moisture level of the almond milk.
 - C. It refers to the perishability of the raw meats.
 - D. It refers to the oxygen sensitivity of instant oats.
24. Select which of the following functions of food packaging is fulfilled by aseptic packaging technology.
- A. Protection
 - B. Communication
 - C. Containment
 - D. Convenience
25. Distinguish the **SUITABLE** beverages packed using aseptic packaging.
- I. Carbonated drinks
 - II. Ultra-high-temperature (UHT) milk
 - III. Almond milk
 - IV. Fruit juice
- A. All above
 - B. I, II, and III
 - C. II, III and IV
 - D. I, II and IV

SECTION B (Total: 75 marks)

Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

Food packaging is a complex and dynamic system aiming to safely prepare foods for transportation, distribution, storage, retailing, handling, and end-use, and safely deliver these foods to the consumer in their best quality at an optimum cost.

- (a) Explain **SIX (6)** functions of food packaging.

(18 marks)

- (b) Shelf life can be determined using two methods, direct method or indirect method.

- i. Briefly explain **FIVE (5)** main steps in direct methods.

(5 marks)

- ii. Distinguish **TWO (2)** most common indirect methods.

(2 marks)

Question 2

Double seaming is a method used to seal metal cans, typically for food, beverages, and other products, ensuring they are airtight and leak-proof. It is a critical part of canning that prevents spoilage, contamination, and loss of product quality

- (a) With the aid of an illustration, explain the double-seaming operation.

(15 marks)

- (b) Seam evaluation involves inspecting and analysing the double seam of a can to ensure its quality, integrity, and compliance with safety and industry standards. Distinguish **FOUR (4)** double seam measurements.

(4 marks)

- (c) With the aid of illustration, show the following.

- Seam height
- Seam thickness
- Countersink
- Body hook
- Overlap
- Cover hook

(6 marks)

Question 3

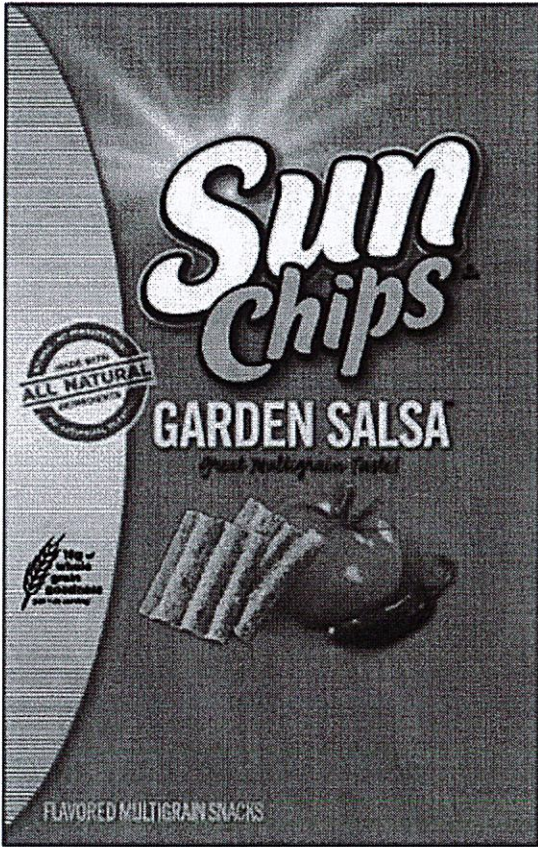
The food packaging journey refers to the entire process a food product undergoes from production to consumption, encompassing packaging, transportation, storage, and retail. At each stage, hazards can arise that may compromise the safety, quality, or integrity of the food or its packaging.

- (a) Identify **FOUR (4)** assessments made to analyse the distribution systems.
(4 marks)
- (b) Explain briefly **FOUR (4)** key journey hazards.
(16 marks)
- (c) Explain briefly **FIVE (5)** common sources of journey hazards.
(5 marks)

Question 4

Food labelling provides essential information for consumers, ensuring transparency and compliance. Different types of food have specific packaging requirements. The following questions are related to food labelling and packaging requirements for horticultural products.

- (a) Figure 1 shows the partial labelling information of a snack. Identify **NINE (9)** energy information from the label.



INGREDIENTS: Whole Corn, Sunflower and/or Canola Oil, Whole Wheat, Whole Oat Flour, Rice Flour, Sugar, Corn Bran, Tomato Powder, Salt, Natural Flavors, Maltodextrin (Made From Corn), Cheddar Cheese (Milk, Cheese Cultures, Salt, Enzymes), Dextrose, Buttermilk, Onion Powder, Whey, Yeast Extract, Romano Cheese (Part Skim Cow's Milk, Cheese Cultures, Salt, Enzymes), Whey Protein Concentrate, Corn Oil, Spices (Including Jalapeño Pepper), Citric Acid, Paprika Extracts, and Lactic Acid.
CONTAINS WHEAT AND MILK INGREDIENTS.

Nutrition Facts

Serving Size 1 oz. (28g/About 15 chips)

Amount Per Serving	
Calories 140	Calories from Fat 60
% Daily Value*	
Total Fat 6g	9%
Saturated Fat 1g	5%
Trans Fat 0g	
Polyunsaturated Fat 1.5g	
Monounsaturated Fat 3.5g	
Cholesterol 0mg	0%
Sodium 140mg	6%
Potassium 70mg	2%
Total Carbohydrate 19g	6%
Dietary Fiber 3g	10%
Sugars 2g	
Protein 2g	
Vitamin A 0%	Vitamin C 0%
Calcium 0%	Iron 2%
Vitamin E 6%	Thiamin 2%
Riboflavin 2%	Niacin 2%
Vitamin B ₆ 4%	Phosphorus 6%
Magnesium 4%	Zinc 2%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories:	2,000	2,500
Total Fat	Less than	65g	80g	
Sat Fat	Less than	20g	25g	
Cholesterol	Less than	300mg	300mg	
Sodium	Less than	2,400mg	2,400mg	
Potassium		3,500mg	3,500mg	
Total Carbohydrate		300g	375g	
Dietary Fiber		25g	30g	

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Figure 1: Partial information on a snack label

(9 marks)

- 

NUTRIFAST

THE NUTRITIOUS & DELICIOUS

Soya Chunks

₹10

★ ★ ★ ★ ★

20% EXTRA FREE

★ ★ ★ ★ ★

Ingredients:
De-fatted Soya Flour

Allergen Information:
Contains Soya

Storage tip: Once opened, transfer the contents in an airtight container.

NUTRITIONAL INFORMATION
(Per 100g serving)

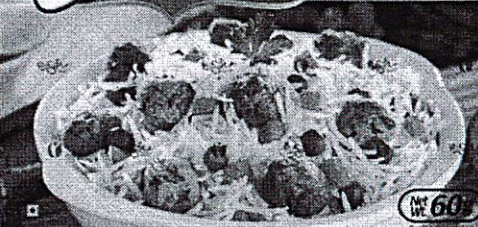
Energy	236 kcal
Protein	52g
Fat	1g
Carbohydrate	35g
Crude Fiber	4g
Dissolved Fiber	15g
Calcium	140mg
Iron	21mg

100% Vegetarian Rich in Vitamins, Minerals & Fibre


PREMIUM QUALITY


HIGH PROTEIN


MORE TASTY



COMPARATIVE CHART FOR PROTEIN CONTENT

WHEAT	14%
WHEAT	12%
EGG	14%
MEAT	22%
NUTRIFAST SOYA CHUNKS	52%

COOKING INSTRUCTIONS:

STEP 1



Add 2 cups of water & cook for 5-6 minutes.

STEP 2



Add a pinch of salt & cook for 5-6 minutes.

STEP 3



Drain & serve with your favorite sauce & vegetables.

PACKET & MASTERED BY: GRAND NUTRI LABS,
122, Vardaan Market, Ram Vihar, Delhi-110092

For Feedback & Queries, write to the above address or contact us at Customer Care

☎ 011-21222223 Email: info@grandnutrilabs.com
 🌐 www.grandnutrilabs.com 📱 @grannutrilabs

ISO 9001 LICENSE NO: 100160100000

Manufactured by: **SRI AMBIKA SOLVER LIMITED,**
Near Industrial Area, Janta, District Raigarh,
Madhya Pradesh

ISO 9001 LICENSE NO: 10014026000637

Net Weight: 50g ± 10g - 40g

Lot No.:

Date of packing:

Batch No.:



SEEKING TIMOTHY

MAHARAJA

PRODUCT OF INDIA

(8 marks)

- (8 marks)

" This space is intentionally left blank "

