



Singapore Examinations and Assessment Board



Cambridge Assessment  
International Education

**Singapore–Cambridge General Certificate of Education  
Normal (Technical) Level (2023)**

# **Nutrition and Food Science (Syllabus 5979)**

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## AIMS

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- Lead a healthier lifestyle proactively through proper diet and nutrition.
- Advocate sustainable food consumption by planning and making appropriate food choices.
- Apply principles of culinary science creatively in food preparation and cooking.

## ASSESSMENT OBJECTIVES

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The examination will assess:

### **AOA Knowledge with understanding**

Candidates should be able to demonstrate knowledge and understanding of facts, concepts, and terminology in relation to:

- (i) nutrition and health
- (ii) food literacy and consumer literacy
- (iii) food science.

### **AOB Handling and applying information**

Candidates should be able to:

- locate and select information
- interpret information
- present reasoned explanations.

### **AOC Application of skills, knowledge and understanding in a variety of contexts**

Candidates should be able to extend the learnt knowledge to carry out coursework involving the following processes:

- define, gather and process information on the coursework task
- justify selection of three appropriate dishes
- observe and record sensory outcomes with explanation from exploring one dish
- demonstrate good organisational and time management skills
- apply various food preparation techniques and use different cooking methods in preparing dishes/meals for different situations
- demonstrate proficient use of equipment and good management of resources in food preparation
- demonstrate the ability to evaluate the sensory outcome of the dishes.

## SCHEME OF ASSESSMENT

All candidates will offer Paper 1 and Paper 2. All questions are compulsory in both papers.

Paper 1 40% (80 marks)  
Paper 2 60% (60 marks)

Paper	Assessment Objectives			Total
	AOA	AOB	AOC	
1 (Written Examination)	~25%	~15%	N.A.	40%
2 (Coursework)	~10%	~10%	~40%	60%
Overall	35%	25%	40%	100%

### Paper 1 (1½ hours) – Written Paper

This will test the candidates' knowledge of theory and practice in response to the assessment objectives. Candidates are to answer all questions.

Section A: 16 marks (multiple choice type questions)  
Section B: 32 marks (short-answer type questions)  
Section C: 32 marks (structured type questions)  
Sub-total: 80 marks

### Paper 2 – Coursework

Candidates will be given an assignment at the beginning of the examination year which must be conducted under teacher supervision. It should be completed for assessment by the end of July of the examination year. The assignment will have a practical focus where candidates are required to apply their knowledge and understanding in relation to the subject content. It will provide candidates with the opportunity to display their abilities to improve/modify/create interesting dishes. A total of **35 hours** of curriculum time must be assigned to discuss, facilitate and carry out the exploration and practical work required.

Assessment will focus on the background study of the task; decision making process of the three final dishes based on the task in relation to the food preparation skills set list; ability to record observations and explain learning acquired from the outcomes of exploration; ability to record a methodical approach in the production and presentation of the final products. The evaluation will require candidates to record the sensory evaluation of the dishes prepared presented either in video or prose.

Background Study (B)		(6 marks)
Decision Making (DM)		(6 marks)
Exploration (E)		(6 marks)
Planning (P)		(6 marks)
Execution (Exe)	– Organisation and Management	(10 marks)
	– Manipulation	(12 marks)
	– Product and Presentation	(8 marks)
Evaluation (Eva)		(6 marks)
		(60 marks)

### Presentation of Coursework Report

The coursework report must be in presentation format and submitted electronically. The recommended typeface is Arial, font size range between 18–22. The page/slide requirement of the report is between **25–35 slides**, including digital photographic evidence of the Exploration, final dishes in the Execution and video/prose mode for Evaluation criteria.

**ASSESSMENT CRITERIA FOR PAPER 2: COURSEWORK**

Criteria	Indicators The candidate:			
	No Marks	LOW	MEDIUM	HIGH
Background Study (B)	No evidence of Background Study  0 marks	<ul style="list-style-type: none"> <li>Identifies and considers few factors</li> <li>Shows little understanding of the task requirements</li> <li>Gathers information but requires help in selecting and presenting relevant information</li> </ul> 1–2 marks	<ul style="list-style-type: none"> <li>Identifies and considers some factors</li> <li>Shows some understanding of the task requirements</li> <li>Gathers, selects and presents some relevant information from a range of sources</li> </ul> 3–4 marks	<ul style="list-style-type: none"> <li>Identifies and considers most factors</li> <li>Shows a clear understanding of the task requirements</li> <li>Gathers, selects and presents relevant information from a range of sources</li> </ul> 5–6 marks
Decision Making (DM)	No evidence of Decision Making  0 marks	<ul style="list-style-type: none"> <li>Selects final dishes that are not so appropriate for the task</li> <li>Provides limited justifications based on a limited range of factors</li> </ul> 1–2 marks	<ul style="list-style-type: none"> <li>Selects final dishes that are mostly appropriate for the task</li> <li>Provides adequate justification based on some factors</li> </ul> 3–4 marks	<ul style="list-style-type: none"> <li>Selects final dishes that are all appropriate for the task</li> <li>Provides detailed justification based on a wide range of factors</li> </ul> 5–6 marks
Exploration (E)	No evidence of Exploration  0 marks	<ul style="list-style-type: none"> <li>Provides few observations on the outcome of one dish</li> </ul> 1–2 marks	<ul style="list-style-type: none"> <li>Provides adequate observations on the outcome of one dish</li> </ul> 3–4 marks	<ul style="list-style-type: none"> <li>Provides detailed observations on the outcome of exploration of one dish</li> </ul> 5–6 marks
Planning (P)	No evidence of Planning  0 marks	<ul style="list-style-type: none"> <li>Includes recipes with incomplete/missing list of ingredients, materials, equipment and methods</li> <li>Develops a time plan that is poorly sequenced and shows inefficient use of time</li> </ul> 1–2 marks	<ul style="list-style-type: none"> <li>Includes recipes with some details of the list of ingredients, materials, equipment and methods</li> <li>Develops a time plan that has some sequencing and shows some efficient use of time</li> </ul> 3–4 marks	<ul style="list-style-type: none"> <li>Includes recipes with a thorough list of ingredients, materials, equipment and methods</li> <li>Develops a time plan that is well-sequenced and shows efficient use of the time</li> </ul> 5–6 marks

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Criteria		Indicators The candidate:			
		No Marks	LOW	MEDIUM	HIGH
Execution (Exe)	Organisation and Management	No evidence of organisation and management  0 marks	<ul style="list-style-type: none"> <li>Works in an organised manner when provided with assistance</li> <li>Shows poor use of time and resources</li> </ul> 1–3 marks	<ul style="list-style-type: none"> <li>Works independently, in an organised manner with some initiative</li> <li>Shows some good use of time and resources</li> </ul> 4–7 marks	<ul style="list-style-type: none"> <li>Works independently with a high level of organisation and initiative</li> <li>Shows effective and economical use of time and resources</li> </ul> 8–10 marks
	Manipulation	No evidence of manipulation  0 marks	<ul style="list-style-type: none"> <li>Carries out the execution processes appropriately when provided with assistance</li> <li>Demonstrates a low level of proficiency in a range of food preparation &amp; cooking skills and the use of equipment</li> <li>Demonstrates a limited range of food preparation skills</li> </ul> 1–4 marks	<ul style="list-style-type: none"> <li>Carries out the execution processes independently without any assistance</li> <li>Demonstrates some proficiency in a range of food preparation &amp; cooking skills and the use of equipment</li> <li>Demonstrates some food preparation skills</li> </ul> 5–8 marks	<ul style="list-style-type: none"> <li>Carries out the execution processes independently without any assistance</li> <li>Demonstrates a high level of proficiency in a range of food preparation &amp; cooking skills and the use of equipment</li> <li>Demonstrates a wide range of food preparation skills</li> </ul> 9–12 marks
	Product and Presentations	No evidence of product and presentation  0 marks	<ul style="list-style-type: none"> <li>Presents food products that are unattractive and uncooked for the task</li> <li>Presents unclear photographic evidence of the final dishes</li> </ul> 1–2 marks	<ul style="list-style-type: none"> <li>Presents food products that are quite attractive and well-cooked for the task</li> <li>Presents clear photographic evidence (including cross section, if necessary) of final dishes</li> </ul> 3–5 marks	<ul style="list-style-type: none"> <li>Presents food products that are very attractive and well-cooked for the task</li> <li>Presents clear photographic evidence (including cross section, if necessary) of final dishes</li> </ul> 6–8 marks
Evaluation (Eva)	No evidence of evaluation  0 marks	<ul style="list-style-type: none"> <li>Provides weak sensory evaluation of all dishes, using limited or inappropriate sensory terms</li> </ul> 1–2 marks	<ul style="list-style-type: none"> <li>Provides adequate sensory evaluation of all dishes, using some appropriate sensory terms</li> </ul> 3–4 marks	<ul style="list-style-type: none"> <li>Provides detailed sensory evaluation of all dishes, using appropriate sensory terms</li> </ul> 5–6 marks	

**Total marks: 60**

**FOOD PREPARATION SKILLS SET**

Candidates are to select recipes that would allow them to demonstrate the food preparation skills set listed below. The skill set mentioned in the Coursework Assessment Task (CAT) would be considered as 1 skill set.

<b>Skill Set 1</b>			
Choose any <u>2</u>	Knife Skills (at least 2)  May include: <ul style="list-style-type: none"> <li>• slice, dice, julienne, chop, mince, carve (garnish), grate into appropriate sizes</li> </ul>	Prepare, Combine or Shape  May include: <ul style="list-style-type: none"> <li>• roll, wrap, skewer, coat, layer ingredients</li> </ul>	Setting or Finishing  May include: <ul style="list-style-type: none"> <li>• custard, jelly, pudding: using appropriate quantities of ingredients to achieve required texture setting</li> <li>• preparing and piping of frosting, fruit glaze</li> </ul>
<b>Skill Set 2</b>			
Choose <u>1</u> only	Biscuits and Cakes  To demonstrate: <ul style="list-style-type: none"> <li>• proper techniques to achieve biscuits / cakes with desired sensory qualities</li> </ul>	Pastry  To demonstrate: <ul style="list-style-type: none"> <li>• proper techniques to achieve pastries with desired sensory qualities</li> </ul>	Dough (Yeast and Pasta)  To demonstrate: <ul style="list-style-type: none"> <li>• proper techniques to achieve yeast and pasta dough with desired sensory qualities</li> </ul>
<b>Skill Set 3</b>			
Choose <u>1</u> only	Batters  May include: <ul style="list-style-type: none"> <li>• thick batter: thick consistency: able to coat / bind food</li> <li>• thin batter: pouring consistency</li> </ul>	Sauces  May include: <ul style="list-style-type: none"> <li>• starch-based (e.g. roux / blended sauce): free from lumps</li> <li>• reduction sauce (e.g. compote)</li> <li>• emulsified sauce (e.g. mayonnaise): stabilised emulsion, free from splitting</li> <li>• curry paste / rempah / sambal sauce</li> </ul>	

## SUBJECT CONTENT

TOPIC	LEARNING OUTCOMES Candidates will be able to:
<b>1. NUTRITION AND HEALTH</b>	
<b>A. Nutrients, Water and Dietary Fibre</b>	<b>1. Proteins</b> (a) List the food sources of protein (b) State the functions of proteins in the body (growth of body and repair of cells) (c) Define: (i) high biological value proteins and give food examples (ii) low biological value proteins and give food examples
	<b>2. Carbohydrates</b> (a) List the food sources of carbohydrates (b) State the function of carbohydrates in the body (provide energy) (c) Define: (i) simple carbohydrates and give food examples (ii) complex carbohydrates and give food examples
	<b>3. Fats</b> (a) List the food sources of fats (b) State the functions of fats in the body (rich source of energy; keep the body warm; protect internal organs) (c) Define: (i) fats and give food examples (ii) oils and give food examples (d) State the uses of fats and oils in food preparation and cooking
	<b>4. Vitamins</b> (a) Classify vitamins into fat-soluble vitamins (A and D) and water-soluble vitamins (B-group and C) (b) List the food sources of the following vitamins: A, B-group, C and D (c) State the functions of vitamins A, B-group, C and D in the body (A: for healthy skin and eyes; B-group: releases energy from food; C: acts as an antioxidant; D: helps body to absorb calcium)
	<b>5. Minerals</b> (a) List the food sources of the following minerals: calcium, iron, sodium chloride (b) State the functions of calcium, iron, sodium chloride in the body (calcium: forms strong bones and teeth; iron: makes red blood cells; sodium chloride: maintains fluid balance)
	<b>6. Water</b> (a) State the factors that affect water intake (state of health, diet, level of activity and environment) (b) List the food sources of water in the diet (c) State the functions of water in the body (maintains body temperature; removes waste; transports nutrients)
	<b>7. Dietary Fibre</b> (a) List the food sources of dietary fibre (b) State the functions of dietary fibre in the body (increases satiety value; removes waste)



TOPIC	LEARNING OUTCOMES Candidates will be able to:
<b>B. Diet and Health Problems</b>	<b>8. Diet and Health Problems</b> (a) State the common health problems associated with an excessive or insufficient intake of some nutrients in Singapore: (i) obesity (ii) hypertension (iii) type 2 diabetes (iv) coronary heart disease
<b>2. FOOD LITERACY</b>	
<b>A. Food Management</b>	<b>9. Diet &amp; Meal Planning</b> (a) Explain the term balanced diet (b) Explain the factors to consider when planning meals: (i) age (school children, teenagers, adults and elderly) (ii) gender (iii) level of physical activity (iv) religions (Buddhism, Christianity, Hinduism, Islam) (v) vegetarianism (vegetarians, vegans) (vi) budget (including considerations for sustainability e.g., buying just enough, buying ugly produce at a discounted price, buying from nearby sources and/or locally at cheaper price)
	<b>10. Meal Analysis</b> (a) Plan and modify recipes / meals using the food guide recommended by HPB to meet different dietary / nutritional needs
<b>B. Smart Consumer</b>	<b>11. Convenience Food</b> (a) List the different types of convenience food (ready-to-cook and ready-to-eat: bottled / canned food, dried food, frozen / chilled food) (b) Explain the advantages and disadvantages of convenience food (c) State the types of information found on food and nutrition labels (d) Interpret and apply information found on food and nutrition labels

TOPIC	LEARNING OUTCOMES Candidates will be able to:
<b>3. FOOD SCIENCE</b>	
<b>A. The Science of Food Preparation and Cooking</b>	<p><b>12. Food Safety</b></p> <p>(a) State how to avoid and reduce the risk of food spoilage and food contamination when preparing, cooking and storing food (including hygienic practices)</p> <hr/> <p><b>13. Preparation and Cooking of Food</b></p> <p>(a) State the reasons for cooking food (makes food easier to chew and digest; improves appearance and flavour of food; makes food safe to eat)</p> <p>(b) State types and uses of the following food commodities:</p> <ul style="list-style-type: none"> <li>(i) meat</li> <li>(ii) poultry</li> <li>(iii) seafood</li> <li>(iv) eggs</li> <li>(v) dairy products</li> <li>(vi) cereals</li> <li>(vii) fruit</li> <li>(viii) vegetables</li> <li>(ix) pulses and legumes</li> </ul> <p>(c) Identify the structure of meat, eggs and cereals</p> <p>(d) Explain the points to note when preparing and cooking the food commodities</p>

TOPIC	LEARNING OUTCOMES Candidates will be able to:
<b>B. Reactions in Food during Preparation and Cooking</b>	<p><b>14. Methods of Cooking</b></p> <ul style="list-style-type: none"> <li>(a) Explain how heat is transferred (conduction, convection and radiation) in the different methods of cooking (grilling, baking, dry-frying, stir-frying / sautéing, shallow-frying, deep-frying, boiling, simmering, steaming, microwave cooking)</li> <li>(b) State the advantages and disadvantages of each method of cooking</li> </ul> <p><b>15. Reactions in Food during Preparation and Cooking</b></p> <ul style="list-style-type: none"> <li>(a) Demonstrate the skills required in the preparation and cooking of the following products (including local dishes): <ul style="list-style-type: none"> <li>(i) cakes, biscuits (creaming, rubbing-in, whisking)</li> <li>(ii) shortcrust pastry</li> <li>(iii) batters (thin and thick)</li> <li>(iv) sauces (roux and blended)</li> </ul> </li> <li>(b) State the reasons for the following procedures: <ul style="list-style-type: none"> <li>(i) Creamed cakes: cream butter and sugar in creamed cakes to incorporate air into the mixture</li> <li>(ii) Rubbed-in cakes, biscuits and shortcrust pastry: use hard fat to achieve a breadcrumb consistency</li> <li>(iii) Whisked cakes: whisk eggs and sugar until light and fluffy to introduce air; fold in flour gently to whisked egg whites to prevent air bubbles in the mixture from being knocked out</li> <li>(iv) Batters: add liquid to flour gradually while stirring to prevent lumps</li> <li>(v) Sauces: cook on low heat with constant stirring to prevent lumps</li> </ul> </li> <li>(c) State the common faults and causes of the following: <ul style="list-style-type: none"> <li>(i) Cakes: cracked cake, sunken cake, sunken fruits</li> <li>(ii) Biscuits: flat biscuit, hard and dry biscuits</li> <li>(iii) Batters: soggy texture, undercooked food within the cooked batter</li> <li>(iv) Pastries: tough and hard pastry, shrunken pastry</li> <li>(v) Sauces: lumpy sauce, dried sauce</li> </ul> </li> </ul> <p><b>16. Sensory Evaluation</b></p> <ul style="list-style-type: none"> <li>(a) State sensory properties (texture, flavour, appearance, aroma) that are used to conduct sensory evaluation of food products</li> <li>(b) Evaluate the sensory properties (texture, flavour, appearance, aroma) of food products</li> </ul>