

# Food and Nutrition

## Singapore-Cambridge General Certificate of Education Normal (Academic) Level (2019) (Syllabus 6072)

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## **AIMS**

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1. To develop candidates' understanding of the concepts of nutrition and meal planning
2. To develop candidates' understanding of the link between diet and health
3. To introduce the principles of food science
4. To equip candidates with the knowledge and skills to make informed decisions concerning food and nutrition

## **ASSESSMENT OBJECTIVES**

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The assessment objectives for this subject are classified into two main areas:

### **(i) Knowledge and Understanding (Paper 1)**

Candidates should be able to demonstrate knowledge and understanding of the following.

1. The principles of nutrition and the concept of a balanced diet in meal planning
2. The relationship between nutrition and health
3. Making informed food choices regarding a healthy diet
4. The basic principles underlying food preparation

### **(ii) Analysis, Planning, Application and Evaluation in a given Coursework Task (Paper 2)**

Candidates should be able to demonstrate the following process skills in a given coursework task.

1. Define and analyse task question/problem situation
2. Gather, manage and process information
3. Investigate and develop ideas towards a solution
4. Use appropriate nutritional tools in meal planning and evaluating food products
5. Make informed decisions with appropriate justifications
6. Demonstrate good organisational and time management skills in planning for a task
7. Apply food preparation techniques and use different cooking methods in preparing dishes/meals for different situations
8. Demonstrate proficient use of equipment and good management of resources in food preparation
9. Demonstrate the ability to evaluate and draw conclusions
10. Communicate ideas effectively

## SCHEME OF ASSESSMENT

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There will be **TWO** papers.

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

### **Paper 1** (1 hour 30 minutes) – Written Paper

This will test the candidates' knowledge of theory and practice in response to the assessment objectives. Candidates are to answer all questions in Sections A and B. Candidates are to answer two questions in Section C consisting of a compulsory question and either part (a) or (b) of the final question.

Section A: consisting of short answer type questions      (20 marks)

Section B: consisting of data-response questions      (28 marks)

Section C: consisting of open-ended type questions      (32 marks)

### **Paper 2** – Coursework

Candidates will be given an assignment at the beginning of the examination year which must be completed for assessment by July of the examination year. The assignment is a study which will require the candidates to apply their knowledge and understanding in relation to the subject content. A total of **10–12 hours** must be assigned during curriculum time to facilitate the completion of the assignment.

Assessment will focus on the analysis of the given assignment; the ability to select and identify relevant information related to the assignment; the planning and execution of the task; and the ability to review the processes pertaining to the execution of the task.

|   |                               |                   |
|---|-------------------------------|-------------------|
| Task Analysis                             |                               | (6 marks)         |
| Research (gather and process information) |                               | (8 marks)         |
| Decision Making                           |                               | (8 marks)         |
| Planning                                  |                               | (8 marks)         |
| Execution                                 | – organisation and management | (8 marks)         |
|   | – manipulation                | (8 marks)         |
|   | – product and presentation    | (8 marks)         |
| Evaluation                                |                               | (6 marks)         |
|   |                               | <b>(60 marks)</b> |

### **Presentation of Coursework Folio**

Concise written accounts of the tasks for the coursework are to be submitted. The coursework folios should be securely bound or filed in a flat A4 folder. Ring folders should not be used. Documentation can either be handwritten or word processed. The recommended typeface is Arial, minimum font size 11, or Times New Roman, minimum font size 12. Only A4 plain white or lined sheets should be used. All pages should be clearly numbered. The folio must not exceed **30** pages. Centres must submit the folios for moderation by the end of August of the examination year.

## ASSESSMENT CRITERIA FOR PAPER 2: COURSEWORK

| Process/Tasks        | Indicators<br>The candidate:  |   |   |  |
|----------------------|---|---|---|--|
|                      | NO MARKS  | LOW   | MEDIUM  | HIGH   |
| <b>TASK ANALYSIS</b> | <ul style="list-style-type: none"> <li>No evidence of task analysis</li> </ul> <p>0 marks</p> | <ul style="list-style-type: none"> <li>Identifies few key and related factors with no elaboration</li> <li>Identifies few priorities for the task question</li> </ul> <p>1–2 marks</p>  | <ul style="list-style-type: none"> <li>Identifies some key and related factors with little explanation</li> <li>Sets some priorities for the task question but lacks clarity</li> <li>Shows some organisation of ideas and concepts</li> </ul> <p>3–4 marks</p>   | <ul style="list-style-type: none"> <li>Identifies majority of the key factors and provides a comprehensive and relevant list of related factors with sufficient elaboration</li> <li>Sets clear priorities for the task question</li> <li>Shows clear understanding of the task requirements</li> </ul> <p>5–6 marks</p>   |
| <b>RESEARCH</b>      | <ul style="list-style-type: none"> <li>No evidence of research</li> </ul> <p>0 marks</p>      | <ul style="list-style-type: none"> <li>Conducts a shallow research of the factors and priorities identified</li> <li>Selects and uses a limited amount of relevant information</li> <li>Includes information that is irrelevant</li> <li>Shows little or no focus in the research</li> <li>Shows no interaction with information gathered</li> </ul> <p>1–2 marks</p> | <ul style="list-style-type: none"> <li>Conducts an adequate research of the factors and priorities identified</li> <li>Selects and uses some relevant information from a range of sources</li> <li>Shows some ability to summarise information gathered</li> <li>Shows some interaction with the information gathered</li> </ul> <p>3–5 marks</p> | <ul style="list-style-type: none"> <li>Conducts a thorough research of the factors and priorities identified</li> <li>Selects and uses relevant information from a range of sources</li> <li>Shows ability to summarise information effectively</li> <li>Shows ability to interact effectively with relevant information gathered</li> <li>Shows clearly the relevance of the research information to the task</li> </ul> <p>6–8 marks</p> |

## 6072 FOOD AND NUTRITION GCE NORMAL (ACADEMIC) LEVEL SYLLABUS (2019)

| Process/Tasks  | Indicators<br>The candidate:  |  |  |  |
|--|---|--|--|--|
|  | NO MARKS  | LOW  | MEDIUM   | HIGH   |
| <b>DECISION MAKING</b>                                   | <ul style="list-style-type: none"> <li>No evidence of decision making</li> </ul> <p>0 marks</p>             | <ul style="list-style-type: none"> <li>Makes some decisions and choices but decisions made are not appropriate for the task question</li> </ul> <p>1–2 marks</p>   | <ul style="list-style-type: none"> <li>Makes decisions and choices that are partly appropriate for the task question</li> <li>Makes decisions and choices that are based on some factors that are related to the task</li> <li>Justifies decisions and choices with reasons that are supported by a limited amount of research</li> </ul> <p>3–5 marks</p>   | <ul style="list-style-type: none"> <li>Makes decisions and choices that are appropriate for the task question</li> <li>Makes decisions and choices that are based on a wide range of factors that are related to the task</li> <li>Justifies decisions and choices with well-supported reasons that are based on previous research</li> </ul> <p>6–8 marks</p> |
| <b>PLANNING</b>  | <ul style="list-style-type: none"> <li>No evidence of planning</li> </ul> <p>0 marks</p>                    | <ul style="list-style-type: none"> <li>Develops an overall work plan with few details and no evidence of forward planning</li> <li>Develops a simple time plan with insufficient work for the time allocated</li> <li>Prepares an incomplete list of ingredients, materials, equipment, and methods to be used</li> </ul> <p>1–2 marks</p> | <ul style="list-style-type: none"> <li>Develops a clear overall work plan with some details and shows some forward planning</li> <li>Develops a clear time plan that shows some sequencing and sufficient work for the time allocated</li> <li>Lists in some detail the ingredients, materials, equipment and methods to be used</li> </ul> <p>3–5 marks</p> | <ul style="list-style-type: none"> <li>Develops a detailed and logical overall work plan that shows forward planning</li> <li>Develops a well-sequenced, concise and logical time plan showing efficient use of the time allocated</li> <li>Lists in detail ingredients, materials, equipment and methods to be used</li> </ul> <p>6–8 marks</p>               |
| <b>EXECUTION</b><br>– <i>Organisation and Management</i> | <ul style="list-style-type: none"> <li>No evidence of organisation and management</li> </ul> <p>0 marks</p> | <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> <p>1–2 marks</p>  | <ul style="list-style-type: none"> <li>Works in an organised manner with some initiative</li> <li>Shows fairly effective and economical use of time and resources</li> </ul> <p>3–5 marks</p>  | <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> <p>6–8 marks</p>  |

## 6072 FOOD AND NUTRITION GCE NORMAL (ACADEMIC) LEVEL SYLLABUS (2019)

| Process/Tasks                                  | Indicators<br>The candidate:   |   |   |   |
|--|--|---|---|---|
|  | NO MARKS   | LOW   | MEDIUM  | HIGH  |
| <b>EXECUTION</b><br>– Manipulation             | <ul style="list-style-type: none"> <li>No evidence of manipulation</li> </ul> <p style="text-align: right;">0 marks</p>            | <ul style="list-style-type: none"> <li>Applies processes and methods appropriately when preparing food products but requires some assistance</li> <li>Handles equipment appropriately when provided with some assistance</li> </ul> <p style="text-align: right;">1–2 marks</p>   | <ul style="list-style-type: none"> <li>Shows a moderate level of proficiency in the selection, application of processes and methods in the preparation of food products</li> <li>Shows a moderate level of proficiency in the selection, use and handling of equipment</li> </ul> <p style="text-align: right;">3–5 marks</p>   | <ul style="list-style-type: none"> <li>Selects and shows a high level of proficiency in the application of processes and methods in the preparation of food products</li> <li>Selects and shows a high level of proficiency in the handling and use of equipment</li> </ul> <p style="text-align: right;">6–8 marks</p>   |
| <b>EXECUTION</b><br>– Product and Presentation | <ul style="list-style-type: none"> <li>No evidence of food products presented</li> </ul> <p style="text-align: right;">0 marks</p> | <ul style="list-style-type: none"> <li>Produces food products that meet a basic standard</li> <li>Presents food products appropriately when provided with some assistance</li> </ul> <p style="text-align: right;">1–2 marks</p>  | <ul style="list-style-type: none"> <li>Produces food products that are of a satisfactory quality and standard</li> <li>Presents food products appropriately</li> </ul> <p style="text-align: right;">3–5 marks</p>  | <ul style="list-style-type: none"> <li>Produces food products that are well-prepared and of a high quality and standard</li> <li>Presents food products attractively and appropriately, meeting the requirements of the task question</li> </ul> <p style="text-align: right;">6–8 marks</p>  |
| <b>EVALUATION</b>                              | <ul style="list-style-type: none"> <li>No evidence of evaluation</li> </ul> <p style="text-align: right;">0 marks</p>              | <ul style="list-style-type: none"> <li>Produces a simple report covering few aspects of the Execution processes and product</li> <li>Identifies few strengths and weaknesses of the Execution processes and product with little or no explanation</li> <li>Shows little or no comments on how well the requirements of the task were met</li> </ul> <p style="text-align: right;">1–2 marks</p> | <ul style="list-style-type: none"> <li>Produces an adequate review of some aspects of the Execution processes and product</li> <li>Identifies some strengths and weaknesses of the Execution processes and product with some explanation provided</li> <li>States briefly how well the Execution processes and product meet the requirements of the task</li> </ul> <p style="text-align: right;">3–4 marks</p> | <ul style="list-style-type: none"> <li>Produces a detailed and thorough review of the Execution processes and product</li> <li>Identifies and explains in detail the strengths and weaknesses of the Execution processes and product</li> <li>Establishes clearly how well the Execution processes and product meet the requirements of the task</li> </ul> <p style="text-align: right;">5–6 marks</p> |

**Total marks: 60**

# SUBJECT CONTENT

| TOPIC                          | LEARNING OUTCOMES<br>Candidates will be able to:  |
|--------------------------------|---|
| <b>1. Nutrition and Health</b> |   |
| <b>1.1 Nutrients</b>           |   |
| a) Proteins                    | i) Name the sources of protein<br>ii) Explain the functions of protein in the body<br>iii) Define: <ul style="list-style-type: none"> <li>– essential and non-essential amino acids and give examples</li> <li>– high and low biological value proteins and give examples</li> </ul>  |
| b) Carbohydrates               | i) Name the sources of carbohydrate<br>ii) Explain the functions of carbohydrate in the body<br>iii) Define the different types of carbohydrate (monosaccharide, disaccharide and polysaccharide) and give examples   |
| c) Fats                        | i) Name the sources of fat<br>ii) Explain the functions of fat in the body<br>iii) Classify the different types of fat (saturated, monounsaturated and polyunsaturated) and give examples   |
| d) Vitamins                    | i) Name the sources of the following vitamins: A, B, C, D and E<br>ii) Explain the functions of the different vitamins in the body<br>iii) Classify vitamins into fat-soluble vitamins (A, D and E) and water-soluble vitamin B (thiamine, riboflavin, nicotinic acid, folic acid, B <sub>6</sub> , B <sub>12</sub> ) and vitamin C (ascorbic acid)   |
| e) Minerals                    | i) Name the sources of the following minerals: calcium, phosphorus, iron, sodium chloride, potassium and iodine<br>ii) Explain the functions of the different minerals in the body  |
| f) Water                       | Explain the importance of water in the body   |
| g) Dietary fibre               | i) Define dietary fibre (non-starch polysaccharide)<br>ii) Classify dietary fibres and name their sources <ul style="list-style-type: none"> <li>– soluble (non-cellulose, e.g. pectin and gums in fruit, vegetables, legumes and cereals)</li> <li>– insoluble (cellulose, e.g. stems, leaves of vegetables, coverings and seeds of grains)</li> </ul> iii) Explain the functions of dietary fibre in the body                         |
| <b>1.2 Diet and Health</b>     | i) Define the term malnutrition (as a lack of balance in the diet due to a shortage/excess of particular nutrients)<br>ii) Explain the link between inadequate/excessive intake of nutrients and health problems such as obesity, hypertension, diabetes, colorectal cancer, coronary heart diseases, osteoporosis, anaemia<br>iii) List the causes and effects of common eating disorders such as anorexia nervosa and bulimia nervosa |
| <b>1.3 Energy Balance</b>      | i) State the unit measurement for energy (kilojoules, kilocalories)<br>ii) Explain the factors that influence an individual's energy requirements<br>iii) Explain the concept of energy balance and how it can be achieved  |

| TOPIC                                      | LEARNING OUTCOMES<br>Candidates will be able to:  |
|--|---|
| <b>1.4 Meal Planning and Meal Analysis</b> |   |
| a) Balanced diet                           | <ul style="list-style-type: none"> <li>i) Explain the term 'balanced diet'</li> <li>ii) Explain the importance of having a 'balanced diet'</li> </ul>   |
| b) Factors to consider                     | Identify the factors to consider when planning meals: <ul style="list-style-type: none"> <li>– body needs: age, gender, metabolic rate, level of physical activity, health status</li> <li>– personal needs: individual preferences, emotional needs, food as punishment/reward</li> <li>– social: ethnic customs and traditions, religions, parental/peer/media influence</li> <li>– economic: value for money, demand and supply</li> </ul>   |
| c) Nutritional tools                       | <ul style="list-style-type: none"> <li>i) Explain the uses of nutritional tools when planning recipes/meals, e.g. ABCs of Healthy Eating, Birth to Eighteen Years: Dietary Tips for Your Child's Wellbeing, My Healthy Plate, Recommended Dietary Allowances (RDA) and Food Composition Tables</li> <li>ii) Use nutritional tools to analyse, modify, create and evaluate recipes/meals to meet different dietary needs</li> </ul>  |
| <b>2. Food Choices</b>                     |   |
| <b>2.1 Main Food Commodities</b>           | <ul style="list-style-type: none"> <li>i) List the nutritional composition of the following: meat, fish, eggs, dairy products, cereals, fruit, vegetables, pulses and legumes</li> <li>ii) Explain the choice of food commodities (fresh and processed) in relation to cost, quality, quantity and nutritional value</li> <li>iii) Explain how different food commodities should be stored</li> <li>iv) Use a variety of food commodities in the preparation of meals</li> </ul>  |
| <b>2.2 Food Labels</b>                     | <ul style="list-style-type: none"> <li>i) Identify the basic information found on a food label</li> <li>ii) Differentiate between a food label and a nutrition label</li> <li>iii) Interpret and apply information found on nutrition labels, e.g. serving sizes, list of nutrients, % daily values, calorie conversion guide</li> <li>iv) Differentiate and verify the following nutritional claims used on food labels:               <ul style="list-style-type: none"> <li>– 'free', e.g. sugar free, cholesterol free</li> <li>– 'low', 'light', 'lite', e.g. lightly salted, low cholesterol</li> <li>– 'less', 'reduced', 'lower in', e.g. less salt, reduced fat</li> <li>– 'increased', 'enriched', 'fortified', 'added', e.g. enriched with vitamin C, fortified with calcium</li> <li>– 'high in', 'rich in', e.g. high in fibre, rich in calcium</li> </ul> </li> </ul> |



| TOPIC   | LEARNING OUTCOMES<br>Candidates will be able to:  |
|---|---|
| <b>3. Food Science</b>                                      |   |
| <b>3.1 The Science of Food Preparation and Cooking</b>      |   |
| a) Reasons for cooking food                                 | Explain the reasons for cooking food  |
| b) Heat transference  | Describe how heat is transferred when food is cooked by conduction, convection and radiation  |
| c) Methods of cooking                                       | <ul style="list-style-type: none"> <li>i) Explain the principles of different methods of cooking (frying, steaming, stewing, baking, grilling and microwaving)</li> <li>ii) Use a variety of cooking methods in the preparation of meals/dishes including: <ul style="list-style-type: none"> <li>– pastries: shortcrust and rough puff</li> <li>– cakes and biscuits: rubbed-in, creamed, one stage, whisked</li> <li>– sauces: roux, blended</li> <li>– batters: thin and thick</li> <li>– local cakes and desserts: steamed, baked, boiled, fried</li> </ul> </li> </ul> |
| <b>3.2 Reactions in Food during Preparation and Cooking</b> | <ul style="list-style-type: none"> <li>i) Define the following terms: coagulation, gelatinisation, dextrinisation, caramelisation, enzymic browning, rancidity, smoking point</li> <li>ii) State the occurrences of the above reactions in the preparation and cooking of food</li> </ul>   |
| <b>3.3 Evaluation of Food</b>                               | Compare and evaluate the sensory properties (texture, flavour, appearance, aroma) and nutritional value of food   |