



CARIBBEAN EXAMINATIONS COUNCIL

CAPE® Food and Nutrition

**SYLLABUS
SPECIMEN PAPER
MARK SCHEME
SUBJECT REPORTS**

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CAPE® Food and Nutrition Free Resources

LIST OF CONTENTS

CAPE® Food and Nutrition Syllabus Extract	3
--	----------

CAPE® Food and Nutrition Syllabus	5
--	----------

CAPE® Food and Nutrition Specimen Papers:

Unit 1	60
--------	----

Unit 2	66
--------	----

CAPE® Food and Nutrition Keys:

Unit 1	75
--------	----

Unit 2	76
--------	----

CAPE® Food and Nutrition Subject Reports:

May/June 2004	77
---------------	----

May/June 2005	101
---------------	-----

May/June 2006	120
---------------	-----

May/June 2007	138
---------------	-----

May/June 2008 Trinidad and Tobago	158
-----------------------------------	-----

May/June 2008 Rest of Caribbean	176
---------------------------------	-----

May/June 2009	196
---------------	-----

May/June 2010	216
---------------	-----

May/June 2011	235
---------------	-----

May/June 2012	253
---------------	-----

May/June 2013	276
---------------	-----

May/June 2014	295
---------------	-----

May/June 2015	314
---------------	-----

Food and Nutrition Syllabus Extract

Food and Nutrition is a technical discipline that involves the study of food and its relation to health. Its purview is on the raising of standards in food science, food preparation and service. Substantial priorities are, therefore, placed on the development of competencies in food science, functional foods, food and nutrition technology, food production and security and food preparation. The emphasis of food preparation is placed on meal planning, preparation, service and analysis. Integral to these are nutritional principles and values, food habits, healthy eating and physical activity.

This syllabus in Food and Nutrition is designed to prepare students for employment in the rapidly growing hospitality service industry, to change attitudes and to empower individuals and communities to exercise control over their health. The syllabus seeks to provide problem-based and experiential learning in eating choices, weight outcomes, diet quality, prevention of increase in lifestyle diseases, staying healthy rather than treating illnesses. In addition, the syllabus provides additional opportunity for access to an advanced standing in existing tertiary level education programmes, to allow graduates to enter the world of work and be better prepared to pursue a wide range of contemporary careers related to diet, fitness and well-being.

The syllabus consists of two Units, each containing three Modules. Students are required to choose **ONE** of the **TWO** Options in Unit 2.

Unit 1: Fundamentals of Food and Nutrition

- Module 1 – Principles of Nutrition and Health
- Module 2 – Food Selection and Planning
- Module 3 – Food Preparation and Service

Unit 2A: Nutritional Science

- Module 1 – Application of Nutritional Science in everyday life
- Module 2 – Non-communicable Diseases (NCDs)
- Module 3 – Nutrition throughout the Lifecycle

Unit 2A: Food Preparation and Technology

Module 1 – Caribbean Food Ways and Food Systems

Module 2 – Food Management and Technology



CARIBBEAN EXAMINATIONS COUNCIL

Caribbean Advanced Proficiency Examinations
CAPE[®]

FOOD AND NUTRITION SYLLABUS

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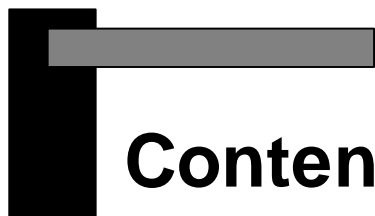
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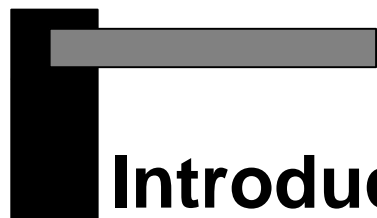
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Contents

RATIONALE	1
AIMS	2
SKILLS AND ABILITIES TO BE ASSESSED.....	2 - 3
PRE-REQUISITES OF THE SYLLABUS.....	4
STRUCTURE OF THE SYLLABUS.....	4
UNIT 1: FOOD, NUTRITION AND HEALTH	
MODULE 1: PRINCIPLES OF NUTRITION AND HEALTH	5 - 9
MODULE 2: FOOD SELECTION AND MEAL PLANNING	10 - 14
MODULE 3: FOOD PREPARATION AND SERVICE: PRINCIPLES AND METHODS.....	15 - 19
UNIT 2: FOOD TECHNOLOGY	
MODULE 1: CARIBBEAN FOODWAYS AND FOOD SYSTEMS.....	20 - 24
MODULE 2: FOOD SCIENCE AND TECHNOLOGY.....	25 - 28
MODULE 3: FOOD PREPARATION AND SERVICE: LARGE QUANTITY AND COMMERCIAL	29 - 34
OUTLINE OF ASSESSMENT	35 - 41
REGULATIONS FOR PRIVATE CANDIDATES.....	42
REGULATIONS FOR RE-SIT CANDIDATES.....	42
ASSESSMENT GRID	42
MINIMUM EQUIPMENT LIST.....	43 - 44
GLOSSARY	45 - 48



Introduction

The Caribbean Advanced Proficiency Examination (CAPE) is designed to provide certification of the academic, vocational and technical achievement of students in the Caribbean who, having completed a minimum of five years of secondary education, wish to further their studies. The examinations address the skills and knowledge acquired by students under a flexible and articulated system where subjects are organised in 1-Unit or 2-Unit courses with each Unit containing three Modules. Subjects examined under CAPE may be studied concurrently or singly.

The Caribbean Examinations Council offers three types of certification. The first is the award of a certificate showing each CAPE Unit completed. The second is the CAPE diploma, awarded to candidates who have satisfactorily completed at least six Units, including Caribbean Studies. The third is the CAPE Associate Degree, awarded for the satisfactory completion of a prescribed cluster of seven CAPE Units including Caribbean Studies and Communication Studies. For the CAPE diploma and the CAPE Associate Degree, candidates must complete the cluster of required Units within a maximum period of five years.

Recognized educational institutions presenting candidates for CAPE Associate Degree in one of the nine categories must, on registering these candidates at the start of the qualifying year, have them confirm in the required form, the Associate Degree they wish to be awarded. Candidates will not be awarded any possible alternatives for which they did not apply.



Food and Nutrition Syllabus

◆ RATIONALE

In the light of increasing nutrition-related illnesses in the world, it is necessary to find new ways to empower individuals and communities to exercise control over their health. Proper nutrition practices hold the key to the prevention and treatment of the chronic degenerative diseases that affect families globally.

It is now well established that the achievement and maintenance of optimal physical and mental health, and the prevention of disease, are integral to the economic and social development of the people of the Caribbean Region. The integration of preventive and therapeutic nutrition into contemporary health care and food production and service is pivotal to this process.

Food and Nutrition involves the study of food and its relation to health. The primary focus of the subject is the raising of standards in food science, food preparation and service.

This syllabus in Food and Nutrition is designed to prepare students for employment in the rapidly growing hospitality service industry. The syllabus also seeks to change attitudes and to improve the health status of both the individual and the community. In addition, the syllabus seeks to provide additional opportunity for access to, and advanced standing in existing tertiary level education programmes. Students will be exposed to the main aspects of food science, including safety practices, standards, purchasing, planning, preparing, storing and serving.

The syllabus also contributes to the development of selected attributes from the CARICOM Ideal Person document as articulated by the CARICOM Heads of Government. This person is one who demonstrates emotional security with a high level of self-confidence and self-esteem, is aware of the importance of living in harmony with the environment and nurtures its development in the economic and entrepreneurial spheres in all other areas of life (CARICOM Education Strategy, 2000).

This holistic development of students aligns with selected competencies advocated in the UNESCO Pillars of learning. These are learning to be, learning to do, and learning to transform one's self and society.

Students who complete this programme in Food and Nutrition will be beneficiaries of knowledge and skills that would help them to secure good health and well-being for themselves and their families. Such knowledge and skills, once acquired, would allow graduates to enter the world of work and be better prepared to pursue a wide range of contemporary careers related to diet, fitness and well-being.

◆ AIMS

The syllabus aims to:

1. promote an understanding of the cultural, environmental, socio-economic and other factors that influence Food and Nutrition practices in the Caribbean;
2. develop Food and Nutrition related skills and attitudes which will enhance the quality of life of peoples in the Caribbean;
3. enable the making of informed choices regarding food consumption and physical activity patterns that contribute to optimal health, and prevention of disease;
4. prepare students to take advantage of various career opportunities in the field of Food and Nutrition.

◆ SKILLS AND ABILITIES TO BE ASSESSED

The skills students are expected to develop on completion of this syllabus, have been grouped under three headings:

- (i) Knowledge and Comprehension;
- (ii) Use of Knowledge;
- (iii) Practical and Experimental Skills.

Knowledge and Comprehension (KC)

Knowledge	The ability to identify, remember, and grasp the meaning of basic facts, concepts and principles.
Comprehension	<p>The ability to:</p> <ul style="list-style-type: none">- select appropriate ideas, match, compare and cite examples of facts, concepts and principles in familiar situations;- explain familiar phenomena in terms of theories, laws and principles.

Use of Knowledge (UK)

Application	<p>The ability to:</p> <ul style="list-style-type: none">- use facts, concepts, principles and procedures in unfamiliar situations;- transform data accurately and appropriately;- use common characteristics as a basis for classification;- use formulae accurately for computations.
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Analysis and Interpretation

The ability to:

- identify and recognise the component parts of a whole and interpret the relationships between those parts;
- identify causal factors and show how they interact with each other;
- infer, predict and draw conclusions;
- make necessary and accurate calculations and recognise the limitations and assumptions of data.

Synthesis

The ability to:

- combine component parts to form a new meaningful whole;
- make predictions and solve problems.

Evaluation

The ability to make reasoned judgements and recommendations based on the value of ideas and information and their implications.

Practical and Experimental Skills (PXS)

Observation/Recording/Reporting

The ability to:

- recognise, identify and interpret signs and symptoms of nutrition related conditions;
- present a written report, drawing or other graphical representation, which is clear, concise, accurate and relevant to an investigation, including the use of scientific and quantitative treatment if applicable;
- make written presentations;
- record and report unexpected results;
- record accurately microscopic and field observations;
- provide a bibliography in an appropriate format to accompany written reports.

Manipulation/Measurement

The ability to:

- handle tools and equipment with care;
- assemble and use simple apparatus and measuring instruments;
- handle foods with care.

Planning/Designing

The ability to:

- recognise the problem and formulate valid hypotheses;
- choose appropriate experimental research methods and sampling techniques;
- choose appropriate practical equipment and instruments for data collection;
- plan and execute procedures in a logical sequence within the time allotted;
- modify experimental methods after initial or unexpected outcomes.

◆ PRE-REQUISITES OF THE SYLLABUS

Any person with a good grasp of the Caribbean Secondary Education Certificate (CSEC) Food and Nutrition, or Chemistry, or Biology, or Integrated Science syllabuses or the equivalent, should be able to pursue the course of study defined by this syllabus. However, successful participation in the course of study will also depend on possession of good verbal and written communication skills.

◆ STRUCTURE OF THE SYLLABUS

The syllabus is divided into two Units. Each Unit comprises three Modules.

Unit 1, FOOD, NUTRITION and HEALTH, contains three Modules, each requiring 50 hours. Total time is expected to be 150 hours.

Module 1	-	Principles of Nutrition and Health
Module 2	-	Food Selection and Meal Planning
Module 3	-	Food Preparation and Service: Principles and Methods

Unit 2, FOOD TECHNOLOGY, contains three Modules, each requiring 50 hours. Total time is expected to be 150 hours.

Module 1	-	Caribbean Foodways and Food Systems
Module 2	-	Food Science and Technology
Module 3	-	Food Preparation and Service: Large Quantity and Commercial

◆ UNIT 1 : FOOD, NUTRITION AND HEALTH

MODULE 1: PRINCIPLES OF NUTRITION AND HEALTH

GENERAL OBJECTIVES

On completion of this Module, students should:

1. appreciate the importance of early eating habits on the shaping of later eating behaviour and health status;
2. understand how food nourishes the body;
3. develop skills to assess and apply nutrition standards and guidelines for achieving optimum human nutrition and health;
4. develop awareness of current nutritional concerns in the Caribbean, and the appropriate approaches to prevention, control and management at the individual and community levels.

SPECIFIC OBJECTIVES

Students should be able to:

1. distinguish among satiety, hunger and appetite;
2. explain how various factors affect eating behaviour;
3. classify foods on the basis of major dietary components;
4. evaluate the dietary sources, roles and functions of key nutrients;
5. evaluate the role of digestion, absorption and metabolism of nutrients in human health;
6. calculate food and energy requirements based on recommendations of Caribbean Recommended Dietary Allowances (RDA) for nutrient requirements and physical activity levels;
7. compare food needs of individuals at different stages of the life cycle;
8. evaluate the importance of mixing a variety of foods in the diet to achieve nutritional balance at the lowest possible cost;
9. explain the importance of balance between food or energy intake and energy expenditure;

UNIT 1

MODULE 1: PRINCIPLES OF NUTRITION AND HEALTH (cont'd)

10. describe the benefits of breastfeeding and appropriate complementary feeding from the perspectives of the child, mother and society;
11. assess criteria for determining nutritional status throughout the life cycle;
12. describe the relationship between growth and development, and adequate food intake;
13. describe the nutrition-related diseases that constitute health problems in the region;
14. describe the various approaches to prevention, control and management of nutrition-related diseases;
15. analyse the synergistic relationship between malnutrition and infections, and develop simple guidelines for prevention;
16. use a growth chart as a tool for monitoring the health and nutritional status of young children;
17. determine follow-up action needed for improvement of children's health and nutrition at the individual, family and community level;
18. explain the role that diet and other life style practices play in the management and prevention of adult chronic diseases, including human immunodeficiency virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS);
19. identify reliable sources of nutrition information.

CONTENT

1. **Eating Behaviour**
 - (i) Definition of satiety, hunger and appetite.
 - (ii) Physiological, psychological, biochemical factors.
2. **How Food Nourishes the Body**
 - (i) Physical and chemical properties: classification; functions; interdependence and metabolism in the human body.
 - (ii) Food as a source of nutrients.

UNIT 1

MODULE 1: PRINCIPLES OF NUTRITION AND HEALTH (cont'd)

3. Dietary Guides and Nutrition Standards

- (i) Definition and uses of Recommended Dietary Allowances (RDA).
- (ii) Classification of foods into food groups: Caribbean food groups; exchange lists; substitutions.
- (iii) The Multi-Mix Principle for combining foods into a nutritionally balanced diet.
- (iv) Use of Food Composition Tables.

4. Food and Nutrient Requirements

- (i) Factors influencing food and nutrient requirements: growth, physical activity levels, pregnancy, and chronic diseases.
- (ii) Nutritional outcome in respect of different levels of food or nutrient intake with specific reference to energy and nutrient balance, and physical activity.

5. Feeding the Child During the First Year of Life

- (i) Breastfeeding: factors that contribute to successful breastfeeding.
- (ii) Benefits to child and mother.
- (iii) Myths and misconceptions.
- (iv) Complementary feeding.
- (v) Factors that influence nutritional status.
- (vi) Strategies for the promotion and protection of breast feeding.

6. Nutritional Status of Children

- (i) Anthropometric measurements and assessment: nutritional status indicators.
- (ii) Plotting weight at different ages on the growth chart.

UNIT 1

MODULE 1: PRINCIPLES OF NUTRITION AND HEALTH (cont'd)

- (iii) Use of the growth curve to interpret nutritional status.
- (iv) Methods of improving nutritional status of children at the individual, family and community levels.

7. Nutrition-Related Disorders

- (i) Deficiency diseases which are health problems common in the region.
- (ii) Synergistic relationship between diarrhoea and under-nutrition.
- (iii) Adult chronic diseases common in the Caribbean: diabetes; obesity; hypertension; heart disease; certain cancers.
- (v) Factors contributing to the life-style diseases.
- (vi) Approaches to prevention, control and management of nutrition-related disorders.

8. Reliable Sources of Nutrition Information

- (i) Identification of reliable sources.
- (ii) Agencies involved in nutrition-related research or education.
- (iii) Accessing and using scientifically reliable sources: scientifically reliable websites; scientific journals; textbooks.

Suggested Teaching and Learning Activities

To facilitate students' attainment of the objectives of this Module, teachers are advised to engage students in the teaching and learning activities listed below.

1. Encourage students to attend lectures and demonstrations on topics related to nutrition and health.
2. Assign students to participate in class discussions on issues related to nutrition and health.
3. Encourage students to become familiar with issues of nutrition and health through case studies.
4. Assign students to participate in group work and presentations on issues related to nutrition and health.

UNIT 1

MODULE 1: PRINCIPLES OF NUTRITION AND HEALTH (cont'd)

5. Assign practical work for students to apply their skills and technique.
6. Assign students to conduct laboratory exercises.
7. Engage students in conducting surveys and interviews.
8. Encourage students to practise report writing.
9. Engage students in panel discussions and seminars.
10. Assign students to participate in field trips.

RESOURCES

American Institute of Nutrition	<i>Journal of Nutrition</i> , Dietary Assessment Resource Manual, Volume 124, Supplement 1994.
Caribbean Food and Nutrition Institute (CFNI), Jamaica	<i>Food Composition Tables for Use in the English-Speaking Caribbean</i> , 1995.
Caribbean Food and Nutrition Institute (CFNI), Jamaica	<i>Food Composition Tables for Use in the English-Speaking Caribbean</i> , Supplement 2000.
Caribbean Food and Nutrition Institute (CFNI), Jamaica	<i>Recommended Dietary Allowances for the Caribbean</i> , 1994.
Sinah, P.	<i>Nutrition Made Simple</i> , Jamaica: CFNI, 1994.
Whitney, E., Hamilton, E., and Rolfes, S.	<i>Understanding Nutrition</i> , St. Paul, MN: West Publishing Company, 1990.

UNIT 1

MODULE 2: FOOD SELECTION AND MEAL PLANNING

GENERAL OBJECTIVES

On completion of this Module, students should:

1. develop the skills to plan and prepare nutritious meals for all stages of the life cycle and for various occasions;
2. develop the skills to plan and prepare nutritious meals while maintaining the safety and aesthetic value of food;
3. understand the role of protection agencies and governmental organisations in maintaining acceptable food standards.

SPECIFIC OBJECTIVES

Students should be able to:

1. differentiate among various types of meals and meal patterns;
2. plan nutritionally balanced meals using a variety of foods, including convenience foods;
3. explain why excessive consumption of some nutrients can be dangerous;
4. describe the chief nutrients provided by each category of the six food groups;
5. evaluate the role of chemically and genetically engineered foods in the diet;
6. justify criteria for planning meals with food appeal and palatability;
7. plan meals to satisfy different dietary requirements for persons at different stages of the life cycle;
8. evaluate product quality associated with storage of food;
9. practise and promote proper handling and storage of food as regulated by legislation;
10. assess the role of nutrition information in food labelling;
11. show the relationship between food safety and sanitation;
12. explain the principles underlying nutrient conservation.

UNIT 1

MODULE 2: FOOD SELECTION AND MEAL PLANNING (cont'd)

CONTENT

1. Meal Plans and Meal Patterns

- (i) Types of meal:
 - (a) breakfast;
 - (b) lunch;
 - (c) dinner;
 - (d) supper;
 - (e) snacks;
 - (f) special occasions, for example, weddings and anniversaries.
- (ii) Meal courses:
 - (a) two-course;
 - (b) three-course.
- (iii) Menu formats and construction.

2. Food Guide Systems Available for Meal Planning

- (i) Six food groups (Caribbean Food Guide; Canadian Food Guide; USA Food Pyramid; British Food Guide; Recommended Nutrient Intake (RNI); Dietary Value Intake; Dietary Reference Value).
- (ii) Nutritive values as a basis for classification.
- (iii) Food Exchange lists.
- (iv) Recommended Daily Allowances (RDA).
- (v) Dietary guidelines.

3. Major nutrients in each category of the six food groups.

UNIT 1

MODULE 2: FOOD SELECTION AND MEAL PLANNING (cont'd)

4. Chemically and Genetically Engineered Foods

- (i) Functional foods and genetically engineered foods.
- (ii) Fat replacers.
- (iii) Sugar and salt substitutes.

5. Meal Planning

- (i) Factors to be considered when planning the regular balanced diet: adequacy, balance caloric control, moderation, variety and aesthetics.
- (ii) Meals for persons at all stages of the life cycle.
- (iii) Modification of the regular diet to suit therapeutic and other needs.
- (iv) Vegetarian diets.
- (v) Convenience Foods.
- (vi) Relationship between excessive consumption of nutrients and health.
- (vii) Nutrient supplementation, food fortification.

6. Food Labelling

- (i) Required information and format.
- (ii) Optional nutritional information.
- (iii) Guidelines for use of labelling when investigating nutritional value of foods.

7. Storage and Handling of Food

- (i) Causes of food poisoning:
 - (a) bacteria;
 - (b) moulds;

UNIT 1

MODULE 2: FOOD SELECTION AND MEAL PLANNING (cont'd)

- (c) chemical contaminants.
 - (ii) Procedures for ensuring safety of food:
 - (a) cooking and serving temperatures, degree of doneness, holding time and temperatures;
 - (b) cross contamination in food preparation;
 - (c) thawing and cooling procedures;
 - (d) governmental efforts to promote food safety;
 - (e) role of protection agencies.
8. **Nutrient Conservation**
- (i) Causes of loss of nutrients associated with food preparation and storage-solution, enzymes, temperatures, exposure to air, trace minerals, lights, micro-organisms.
 - (ii) Methods of conserving nutritive value of a variety of dry and frozen foods during storage.

Suggested Teaching and Learning Activities

To facilitate students' attainment of the objectives of this Module, teachers are advised to engage students in the teaching and learning activities listed below.

1. Engage students in class discussions.
2. Assign students to conduct research (for example, hotels) into practices of institutions dealing with food selection and meal planning.
3. Use case studies to develop skills in critical thinking and problem solving in issues related to food selection and meal planning.
4. Assign students to participate in field trips to institutions dealing with food selection and meal planning.
5. Assign students to project work involving selecting foods and planning meals for a variety of occasions.
6. Encourage students to simulate interview sessions.

UNIT 1

MODULE 2: FOOD SELECTION AND MEAL PLANNING (cont'd)

7. Engage students in experimental work on meal planning.
8. Assign students to participate in panel discussions on food selection and meal planning.
9. Invite resource persons to engage students in discussions related to food selection and meal planning.

RESOURCES

Caribbean Food and Nutrition
Institute (CFNI), Jamaica

Meal Planning for Persons with Diabetes, CFNI, 1994.

Whitney, E. Hamilton, E. and Rolfes, S.

Understanding Nutrition, St. Paul, MN: West Publishing
Company, 1990.

UNIT 1

MODULE 3: FOOD PREPARATION AND SERVICE: PRINCIPLES AND METHODS

GENERAL OBJECTIVES

On completion of this Module, students should:

1. develop the knowledge and skills related to food preparation and service;
2. develop a positive attitude towards food preparation and service;
3. develop the technical and management skills necessary for a variety of careers in the food service industry.

SPECIFIC OBJECTIVES

Students should be able to:

1. organise food preparation areas;
2. select, use and care industrial and small equipment and tools used in food preparation and service;
3. determine the potential danger areas of a kitchen and apply safety measures;
4. administer first aid procedures in a food preparation area;
5. explain the scientific principles underlying food preparation;
6. demonstrate appropriate and safe knife skills;
7. prepare foods using various methods and principles of food preparation;
8. demonstrate skills in the aesthetic presentation and service of foods;
9. create appropriate garnishes using locally grown foods;
10. adapt basic recipes to accommodate various situations;
11. use principles of sensory evaluation in product development.

UNIT 1

MODULE 3: FOOD PREPARATION AND SERVICE: PRINCIPLES AND METHODS (cont'd)

CONTENT

1. Kitchen Planning

- (i) Organisation of food preparation area for efficient work, production flow, work design.
- (ii) Selection, use and care of small and industrial equipment and tools.

2. Kitchen Safety and First Aid

- (i) Safety precautions and measures in the kitchen.
- (ii) First aid principles and practice.
- (iii) Use of fire extinguishers.
- (iv) Occupational health and safety.

3. Scientific Principles Underlying Food Preparation Methods

- (i) Effect of heat on various foods: meats; vegetables; fruits; poultry; eggs.
- (ii) Heat transfer methods and application - dry, moist and combination.
- (iii) Principles involved in different methods of cooking.
- (iv) Effects of heat on nutrients found in foods.
- (v) Food preparation methods to retain nutritive properties, colour and flavour.
- (vi) Economical use of food, equipment and fuel.

4. Knife Skills

- (i) Types of knives in food preparation.
- (ii) Parts of a knife.
- (iii) Knife skills or usage.

UNIT 1

MODULE 3: FOOD PREPARATION AND SERVICE: PRINCIPLES AND METHODS (cont'd)

5. Food Preparation

- (i) Meat, fish, poultry and dairy products - cuts, market forms, method of preparation and service.
- (ii) Stock, sauces, soups - types, ingredients, principles of making, thickening agents, procedures for preparation and service.
- (iii) Baked products - ingredients, uses, baking techniques, process, procedures for preparation and service.
- (iv) Vegetables and fruits - classification, preparation, guidelines for cooking and serving.
- (v) Pasta, grains, (rice, corn), ground provision - types, purchasing and storing, guidelines for cooking and serving.

6. Garnishes

- (i) Types of garnishing.
- (ii) Selection of food items appropriate for garnishes.
- (iii) Making and using garnishes.
- (iv) Basic garnishing skills.

7. Basic Food Service

- (i) Appointments needed for Food Service.
- (ii) Basic table service.
- (iii) Principles of serving food.
- (iv) Suitable temperature for various foods.

UNIT 1

MODULE 3: FOOD PREPARATION AND SERVICE: PRINCIPLES AND METHODS (cont'd)

8. Recipe Modification and Conversion

- (i) Conversion of standardised recipes based on number of persons to be served.
- (ii) Modification of basic recipes to promote healthful food choices.
- (iii) Comparison of nutrient content of original and modified products using Food Composition Tables.

9. Sensory Evaluation of Food Products

- (i) Organoleptic factors: aroma, taste, colour, texture, shape.
- (ii) Sensory appeal.
- (iii) Market feasibility.

Suggested Teaching and Learning Activities

To facilitate students' attainment of the objectives of this Module, teachers are advised to engage students in the teaching and learning activities listed below.

- 1. Encourage students to attend lectures and demonstrations on issues related to food preparation and service.
- 2. Engage students in class discussions.
- 3. Assign students to conduct research on issues related to food preparation and service.
- 4. Encourage students to develop report writing skills.
- 5. Assign students to practical laboratory sessions.
- 6. Assign students to compile a scrapbook of original recipes.
- 7. Assign students to participate in panel discussions on issues related to food preparation and service.
- 8. Invite resource persons to engage students in discussion on issues related to food preparation and service.
- 9. Conduct field trips to institutions engaged in food preparation and services.
- 10. Organise work attachments for students.

UNIT 1

MODULE 3: FOOD PREPARATION AND SERVICE: PRINCIPLES AND METHODS (cont'd)

RESOURCES

- | | |
|--|--|
| Chesser, J. W. | <i>The Art and Science of Culinary Preparation</i> , Florida: The Educational Institute of the American Culinary Federation, 1992. |
| Gisslen, W. | <i>Professional Cooking</i> , New York: John Wiley and Sons, 1999. |
| Mizier, D., Porter, N., and
Sonnier, B. | <i>Food Preparation for the Professional</i> , New York: John Wiley and Sons, 1987. |
| Whitney, E., Hamilton, E.,
and Rolfes, S. | <i>Understanding Nutrition</i> , St. Paul, MN: West Publishing Company, 1990. |

◆ UNIT 2: FOOD TECHNOLOGY

MODULE 1: CARIBBEAN FOODWAYS AND FOOD SYSTEMS

GENERAL OBJECTIVES

On completion of this Module, students should:

1. develop an awareness and appreciation for foods grown locally and regionally;
2. develop an understanding of Caribbean food systems and the impact of these systems on Food and Nutrition security.

SPECIFIC OBJECTIVES

Students should be able to:

1. describe the factors that influence food choices and practices;
2. determine the socio-economic and cultural influences on food patterns in the Caribbean;
3. identify a variety of tools and equipment used in preparing indigenous Caribbean dishes;
4. assess the nutritional value of indigenous foods and dishes and the impact on health;
5. develop a variety of uniquely Caribbean recipes using foods that are readily available in the Caribbean;
6. evaluate Caribbean food systems and the impact of these systems on household food security;
7. evaluate food hygiene and sanitation standards and procedures in Caribbean food systems;
8. describe the standards and procedures for regulating and monitoring foods and food establishments in the Caribbean;
9. describe the factors to be considered in maintaining adequate and safe food supply at the household and community levels before, during and after natural disasters;
10. design simple plans for ensuring that approved standards of Food Preparation, Nutrition and Health are maintained in the feeding of families;
11. evaluate cultural beliefs and practices that impact on nutritional quality and status.

UNIT 2

MODULE 1: CARIBBEAN FOODWAYS AND FOOD SYSTEMS (cont'd)

CONTENT

1. Factors influencing food choices and practices

- (i) Individual likes and dislikes.
- (ii) Values and beliefs; religious principles and cultural influences.
- (iii) Agricultural practices.
- (iv) Food availability and accessibility.
- (v) Education, fads and fallacies.
- (vi) Impact of globalization, including trade, media, advertising, migration and tourism.

2. Factors influencing Caribbean Food Patterns

- (i) History of foods.
- (ii) Origin of foods: terminology, method of preparation.
- (iii) Cultural food-related customs and practices.

3. Indigenous Caribbean Foods and Dishes

- (i) Identification of recipes used in various Caribbean countries.
- (ii) Nutritional assessment and modification of these recipes.
- (iii) Preparation, service and presentation (using Caribbean themes) of indigenous dishes.
- (iv) Development and promotion of recipes unique to the Caribbean.

4. Tools and Equipment Used in Cooking Indigenous Caribbean Dishes

- (i) Identification origin and usage of tools and equipment, for example, coal-pot, mortar and pestle, tawah, cocoa mill.

UNIT 2

MODULE 1: CARIBBEAN FOODWAYS AND FOOD SYSTEMS (cont'd)

- (ii) Advantages and disadvantages of:
 - (a) energy use and fuel conservation;
 - (b) environmental and other issues relating to the preparation of indigenous dishes.

5. Food Systems in the Caribbean

- (i) Definition of “food system”.
- (ii) Food Security:
 - (a) Availability of foods:
 - production: growing, rearing, manufacturing, ethical considerations, Genetically Modified Foods, standards relating to additives and pesticide residue;
 - import and export, labeling, standards, expiry dates;
 - distribution networks, marketing, packaging, sizes, labeling standards.
 - (b) Accessibility
 - income and pricing policy;
 - consumer education;
 - infrastructure, markets, transportation;
 - health standards and disease patterns.

6. Food Hygiene Sanitation

- (i) Regulating the standards governing the sale of foods (Education and Certification):
 - (a) Irradiation, fresh milk, meat and poultry; nutrients level in flour, iodine in salt, bottled water (level of additives) food handlers permit, storage of foods.
- (ii) Safe storage of food and disposal of waste.
- (iii) Impact on Nutrition and Health: conservation of nutritive value.

UNIT 2

MODULE 1: CARIBBEAN FOODWAYS AND FOOD SYSTEMS (cont'd)

- (iv) Water supply: regularity; quality.
- (v) The Hazard Analysis Critical Control Points (HACCP) approach to food safety.

7. Food and Nutrition Standards

- (i) Identification of regulatory agencies, for example, Bureau of Standards, Ministry of Health.
- (ii) Food and nutrition standards.
- (iii) Legislation.
- (iv) Monitoring.
- (v) Consumer rights and protection.

8. Factors to be considered before, during and after disasters

- (i) Procurement and preparation of adequate and appropriate foods for all, including vulnerable groups.
- (ii) Labeling and storage of food.
- (iii) Identification of vulnerable groups.
- (iv) Ensuring the safety of the food supply.
- (v) Calculating daily food rations.
- (vi) Planning of the distribution of food.
- (vii) Monitoring of left over foods for quality.
- (viii) Identification of Government and non-Government agencies involved in feeding.

UNIT 2

MODULE 1: CARIBBEAN FOODWAYS AND FOOD SYSTEMS (cont'd)

Suggested Teaching and Learning Activities

To facilitate students' attainment of the objectives of this Module, teachers are advised to engage students in the teaching and learning activities listed below.

1. Collect and analyse information on Caribbean food practices from a variety of sources, including print and electronic media sources.
2. Collect and document information about historical and cultural aspects of food.
3. Invite professionals, for example, historians, sociologists, archaeologists, archivists, curators, anthropologists to interact with class on Caribbean foodways and food systems.
4. Conduct visits to hotels and restaurants offering local cuisine to observe equipment and practices.
5. Conduct field trips to archives, museums, communities of indigenous peoples, senior citizens, archaeological sites, where available, to observe indigenous dishes and equipment and collect information. These can form the basis of class discussions resulting from reports and group activities.
6. Assign students to undertake experimental work in developing recipes.
7. Encourage group reporting on findings from research activities.
8. Assign students to demonstrate techniques, tools and equipment used in food preparation.
9. Employ the use of video presentations on the cultural practices in the region.
10. Conduct visits to agencies responsible for regulating sanitation and food and drug standards and policies relating to consumer reports and disaster preparedness.
11. Conduct field trips to farms, food production and manufacturing factories and agents, street markets, supermarkets to observe factors that impact on food and nutrition security.
12. Assign students to collect and document information on historical and cultural aspects of food.

RESOURCE

Campbell, V.

Caribbean Foodways, Jamaica: Caribbean Food and Nutrition Institute, 1988.

UNIT 2

MODULE 2: FOOD SCIENCE AND TECHNOLOGY

GENERAL OBJECTIVES

On completion of this Module, students should:

1. understand the scientific principles underlying the transmission of diseases through food and the prevention of these diseases;
2. be aware of the impact of advancements in technology on the availability of food, and the consequent social, economic and environmental effects;
3. develop the knowledge, skills and attitudes necessary for the safe preparation and preservation of foods;
4. be aware of acceptable standards for fresh and produced foods.

SPECIFIC OBJECTIVES

Students should be able to:

1. describe the physical and chemical properties of food constituents;
2. describe the principles and procedures of food preparation and preservation;
3. describe the principles involved in the processing of foods from field to consumer;
4. explain the positive and negative aspects of the use of biotechnology and food additives;
5. describe the process used to improve the nutrient content of food;
6. explain the purpose and use of the information required on food labels;
7. assess the appropriateness and effectiveness of various food packaging materials;
8. evaluate activities of protection agencies in ensuring quality products and the safety of the public food supply;
9. evaluate various methods of food preservation;
10. develop a pricing system for home and commercially processed foods.

UNIT 2

MODULE 2: FOOD SCIENCE AND TECHNOLOGY (cont'd)

CONTENT

1. Constituents of Food

- (i) Carbohydrates, proteins, fats, vitamins, minerals, water, phytochemicals.
- (ii) Changes in physical and chemical properties during food preparation and processing.

2. Food Additives

- (i) Definition and classification: types; active ingredients; purpose.
- (ii) Biotechnology: engineered foods; genetically modified organisms; nutraceuticals, functional foods.
- (iii) Nutrient improvement of food: enrichment; fortification; supplementation.
- (iv) Standards for regulating the use of food additives: the use of food additives, bio-safety.

3. Food Processing and Preservation

- (i) Reasons for processing and preservation of food.
- (ii) Principles of processing various categories of foods: animal foods, cereals; fruits; vegetables: harvesting, transportation, cleaning, preparation: heat treatment, moisture treatment and packaging.
- (iii)
 - (a) Methods of food preservation: chemical, heat, acids, sugar and salt, freeze drying, dehydration, smoking fermentation, irradiation;
 - (b) Advantages and disadvantages of food preservation:
 - the role of micro-organisms (bacteria, yeast, moulds) in food processing and preservation;
 - quality standards for a safe food product.

UNIT 2

MODULE 2: FOOD SCIENCE AND TECHNOLOGY (cont'd)

4. Food and Nutrition Labelling

- (i) Standard labelling information and format.
- (ii) Storage use and care instructions.
- (iii) Nutrition Facts Panel.
- (iv) Standards and regulations: ingredients, health claims, expiry date.
- (v) The use of food labeling in consumer education.

5. Food Merchandising

- (i) Packaging:
 - (a) materials: appropriateness of packaging materials for a variety of foods and method of processing, for example, metal, glass, flexibility pouches, plastic, microwavable containers and edible films;
 - (b) criteria for effective packaging:
 - non toxic;
 - barriers to moisture loss, oxidation and microbial contamination;
 - ease of opening;
 - ease of resealing;
 - environmentally-friendly;
 - pricing: factors contributing to costs.

UNIT 2

MODULE 2: FOOD SCIENCE AND TECHNOLOGY (cont'd)

Suggested Teaching and Learning Activities

To facilitate students' attainment of the objectives of this Module, teachers are advised to engage students in the following teaching and learning activities.

1. Assign class to conduct research and experimentation on food processing practices.
2. Encourage class discussion and debates.
3. Conduct field trips to food manufacturing and processing companies and cottage industries to observe manufacturing processes.
4. Assign class to view video films on activities of micro-organisms and food processing.
5. Conduct interactive sessions on food preservation techniques.
6. Encourage practical applications of techniques by students.
7. Encourage group work and presentations.
8. Allow students to conduct interviews with food protection agencies or institutions and food manufacturers.

RESOURCE

Desrosier, N.W. and Desrosier, J.N.

The Technology of Food Preservation, Westport: Connecticut Publishing Company, 1997.

UNIT 2

MODULE 3: FOOD PREPARATION AND SERVICE: LARGE QUANTITY AND COMMERCIAL

GENERAL OBJECTIVES

On completion of this Module, students should:

1. develop knowledge and skills necessary to prepare, cook and present meals in large quantity and with appropriate quality control;
2. develop an appreciation for the aesthetic and economic value of preparing, cooking and serving wholesome food in a safe environment;
3. promote nutritive benefit as the focal point in planning meals and preparing food in large quantities;
4. develop an appreciation of the uniqueness of traditional Caribbean cuisine.

SPECIFIC OBJECTIVES

Students should be able to:

1. apply the Hazard Analysis Critical Control Point (HACCP) approach to safety in handling large quantities of food;
2. apply the Multi-Mix principle as the basis for planning meals for large groups;
3. analyse menus to ensure that recommended nutrient standards are met for people of various age groups and health conditions;
4. state the principles of menu planning;
5. plan multi-course menus for various occasions and settings incorporating a variety of cooking methods;
6. apply portion control in food service and presentation;
7. calculate and compare the real cost of offering different types of menus;
8. incorporate culturally acceptable dishes in planning and serving meals for different occasions and settings;
9. describe rules and regulations for maintaining a safe work environment;
10. plan and organize work for preparation and serving of large quantities of food;

UNIT 2

MODULE 3: FOOD PREPARATION AND SERVICE: LARGE QUANTITY AND COMMERCIAL (cont'd)

11. describe procedures for quality assurance in preparing, cooking and serving foods in large quantities.

CONTENT

1. Meal Planning

- (i) Nutritive value of foods based on the Caribbean food group classification.
- (ii) Principles of meal planning to promote nutritional balance in meals for persons of various ages and health conditions, including nutrition-related chronic diseases, iron deficiency anemia.
- (iii) Minimizing nutrient-loss through the proper selection and handling of food.
- (iv) Controlling or modifying energy and nutrient levels of fat, sugar, salt and sodium, fiber in dishes and meals.

2. Menu Planning

- (i) Types of menus: à la carte; table d'hôte; Du Jour; theme, static, cycle.
- (ii) Menus for breakfast; lunch and supper; brunch; dinner; cocktail in various settings, for example, full dining for schools, cafeterias, senior citizens and children's homes.
- (iii) Two to five-course menus.
- (iv) Principles of menu balance:
 - (a) aesthetics; cooking methods and processes; format; light to heavier-light;
 - (b) menu design: size, language, layout, print, material.
- (v) Adapting standardized recipes for preparing food in large quantity.
- (vi) Specialty menus; local cuisine and adapting traditional Caribbean dishes in meal presentation for various occasions.
- (vii) Facilities and equipment required for preparation and service of meals; large and small equipment used for different methods and batch sizes.

UNIT 2

MODULE 3: FOOD PREPARATION AND SERVICE: LARGE QUANTITY AND COMMERCIAL (cont'd)

3. Costing, Budgeting and Control

- (i) Purchasing requirements, forecasting, sources of supply, frequency of purchasing, storage conditions, commodity turnover, perishable and non-perishable food, methods of purchase: wholesale; retail, bulk purchase.
- (ii) Purchasing procedures and controls-purchasing specifications, ordering, delivery, pickup, inventory keeping.
- (iii) Costing of menus and use of standard menu; hidden costs and real cost.

4. Portion Control in preparation and serving food in large quantity

- (i) Determine portion sizes within a food establishment.
- (ii) Proportioning based on cost, nutritive content, clientele need and satisfaction.
- (iii) Sectioning techniques before and after preparation.
- (iv) “Batching” in preparation, cooking and serving - determining batch size.

5. Safety and sanitation in quantity food preparation and service

- (i) Causes and prevention of food-borne illnesses:
 - (a) micro-organisms and food spoilage;
 - (b) insect vectors;
 - (c) personal hygiene standards;
 - (d) selection, use and maintenance of utensils and equipment used in food preparation and service.

UNIT 2

MODULE 3: FOOD PREPARATION AND SERVICE: LARGE QUANTITY AND COMMERCIAL (cont'd)

- (ii) Analysis of critical control points to prevent hazards using the Hazard Analysis Critical Control Points (HACCP).
 - (iii) Time and temperature control in cooking, storing and serving food:
 - (a) methods, techniques and procedures; preventing cross-contamination;
 - (b) cooling or refrigeration before and after cooking, freezing, thawing, reheating, micro-waving.
 - (iv) Rules and regulations for maintaining a safe working environment:
 - (a) prevention and management of: fire, falls, cuts, scalds, electrical shock, explosions, chemical hazards, injuries;
 - (b) First Aid procedures;
 - (c) resuscitation techniques.
 - (v) Public Health Regulations.
- 6. Preparing, cooking and serving various dishes and meals**
- (i) Planning and organizing work in a commercial kitchen.
 - (ii) Preparation and cooking methods: various baked goods, stocks, soup, sauces, hot and cold beverage; sandwiches; snacks, for various occasions.
 - (iii) Preparing, cooking and serving various foods (available locally):
 - (a) meat; fish; poultry; eggs; cheese; milk; yoghurt;
 - (b) legumes; pulses and meat alternates;
 - (c) vegetables (dark green leafy, yellow, other);
 - (d) ground provision, rice, cornmeal, pasta;
 - (e) fruit (mature and immature).

UNIT 2

MODULE 3: FOOD PREPARATION AND SERVICE: LARGE QUANTITY AND COMMERCIAL (cont'd)

- (iv) Using different types of meal service on various occasions: Buffet, American or Plate, English, Family, French and Russian; Ethnic variations.
- (v) Product modification and development:
 - (a) sensory evaluation;
 - (b) advertising and sales;
 - (c) packaging and display of food products.

Suggested Teaching and Learning Activities

To facilitate the achievements of the objectives outlined in this Module, teachers are advised to engage students in the following teaching and learning activities.

1. Assign students to conduct research projects on menu planning.
2. Invite specialists to give lectures and demonstrations.
3. Assign students to work on practical laboratories and planning sessions.
4. Conduct field trips to institutions that prepare food on a large scale.
5. Engage students in class discussions.
6. Assign students to compile original recipes.

UNIT 2

MODULE 3: FOOD PREPARATION AND SERVICE: LARGE QUANTITY AND COMMERCIAL (cont'd)

RESOURCES

Chesser, J.W.

The Art and Science of Culinary Preparation, Florida: The Educational Institute of the American Culinary Federation, 1992.

Gisslen, W.

Professional Cooking, New York: John Wiley and Sons, 1999.

Kinton, R. and Ceserrari, V.

Theory of Catering, United Kingdom: Hodden and Stoughton, 2002.

Midzer, D., Porter, N., and Sonnier, B.

Food Preparation for the Professional, New York: John Wiley and Sons, 1987.

◆ OUTLINE OF ASSESSMENT

Each Unit of the syllabus will be assessed separately. The same scheme of assessment will be applied to both Units. Candidates' performance will be reported as a grade for each Module, as well as an overall grade for each Unit completed. There will be two components of assessment in each Unit as set out below:

- (i) External Assessment, undertaken on completion of the Unit. This component contributes 70% to the candidate's overall Unit grade.
- (ii) Internal Assessment, undertaken throughout the course of the Unit. This component contributes 30% to the candidate's overall Unit grade.

EXTERNAL ASSESSMENT

(70%)

On completion of a Unit, the candidate is expected to write two papers.

Paper 01 (1 hour 30 minutes)	This paper will consist of 45 multiple-choice items, 15 items based on each of the three Modules in the Unit. All items are compulsory.	30%
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Paper 02 (2 hours 30 minutes)	This paper comprises seven essay questions. There is one compulsory question on the three Modules and two optional questions on each of the three Modules. Candidates are required to answer one compulsory question and three other questions.	40%
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INTERNAL ASSESSMENT

(30%)

Paper 03	This component is assessed by the teacher and externally moderated by CXC. Candidates are required to produce a portfolio comprising two assignments.
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MODERATION OF INTERNAL ASSESSMENT

Internal Assessment Record Sheets will be sent each year to schools submitting students for the examinations.

All Internal Assessment Record Sheets and sample of assignments must be submitted to CXC by May 31 of the year of the examination. A sample of assignments will be requested by CXC for moderation purposes. These samples will be re-assessed by CXC Examiners who moderate the Internal Assessment. Teachers' marks may be adjusted as a result of moderation. The Examiners' comments will be sent to schools.

Copies of the students' assignments that are not submitted must be retained by the school until three months after publication by CXC of the examination results.

ASSESSMENT DETAILS

External Assessment (70% of Total Assessment)

Paper 01 (1 hour 30 minutes - 30% of Total Assessment)

1. Composition of Paper

- (i) Paper 01 will assess the candidates' grasp of critical nutrition principles and their mastery of relevant skills.
- (ii) This paper will consist of nine compulsory, short-answer questions on the three Modules.

2. Mark Allocation

- (i) This paper is worth 90 marks.
- (ii) Each question is worth 10 marks.
- (iii) Paper 01 contributes 30% to the candidate's final grade.

3. Question Type

This paper comprises nine short-answer questions, which may contain a variety of stimulus material.

Paper 02 (2 hours 30 minutes - 40% of Total Assessment)

ASSESSMENT DETAILS

1. Composition of Paper

This paper comprises seven essay questions arranged in four sections. Candidates must answer FOUR questions, one from each section.

- | | | |
|-------------|---|--|
| Section I | - | One compulsory structured question testing objectives across all Modules. |
| Section II | - | Two questions from which candidates will answer one. Questions will test objectives in Module 1. |
| Section III | - | Two questions from which candidates will answer one. Questions will test objectives in Module 2. |
| Section IV | - | Two questions from which candidates will answer one. Questions will test objectives in Module 3. |

INTERNAL ASSESSMENT (30%)

Paper 03 (30%)

1. Composition of Paper

This paper is a portfolio comprising two assignments, which test objectives in one or more of the Modules. Candidates, in consultation with the teacher and following the guidelines provided by the Council, must select TWO activities for each Unit. Objectives on which assignments will be based may be drawn from any Modules(s) in the syllabus.

2. Mark Allocation

- (i) This paper is worth 90 marks. Thirty marks will be allocated to Assignment 1 and sixty marks to Assignment 2.
- (ii) This component tests the candidate's ability to:
 - evaluate nutrition information and principles;
 - develop and adapt recipes by conducting experimental research.
- (iii) This paper contributes 30% to the candidates' final grade.

3. Question Type

Candidates will be required to compile a portfolio comprising TWO different activities. These could take the form of practical assignments, research activities or experimentation.

GUIDELINES FOR CONDUCT OF THE INTERNAL ASSESSMENT

Internal Assessment is an integral part of student assessment in the course covered by this syllabus. It is intended to assist students in acquiring certain knowledge, skills and attitudes that are critical to the subject. The activities for the Internal Assessment are linked to the Modules and should form part of the learning activities to enable the student to achieve the objectives of the syllabus.

During the course of study of the subject students obtain marks for the competence they develop and demonstrate in undertaking their Internal Assessment assignment. These marks contribute to the final marks and grades that are awarded to students for their performance in the examination.

The guidelines provided in this syllabus for selecting appropriate tasks are intended to assist teachers and students in selecting assignments that are valid for the purpose of Internal Assessment. These guidelines are also intended to assist teachers in awarding marks according to the degree of achievement in the Internal Assessment component of the course. In order to ensure that the scores awarded by teachers are not out of line with the CXC standards, the council undertakes the moderation of a sample of the Internal Assessment assignments marked by each teacher.

Internal Assessment provides an opportunity to individualize a part of the curriculum to meet the needs of students. It facilitates feedback to the students at various stages of the experience. This helps to build the self-confidence of the students as they proceed with their studies. Internal Assessment further facilitates the development of essential investigative and practical skills that allow the student to function more effectively in his or her chosen vocation. Internal Assessment, therefore, makes a significant and unique contribution to the development of relevant skills of the students. It also provides an instrument for testing them and rewarding them for their achievements.

1. Teachers are expected to monitor the candidate in terms of the selection of the activities to be undertaken, adherence to the requirements of the mark scheme, and the timely submission of assignments to the teacher for assessment.
2. Marks must be submitted to CXC on a yearly basis on the Internal Assessment form provided. The forms should be despatched for submission to CXC by May 31 of the year in which the examination is to be written.
3. **Candidates who do not fulfil the requirements for the Internal Assessment, will be considered absent from the whole examination.**
4. A sample of assignments will be requested by CXC for MODERATION purposes. These samples will be re-assessed by CXC Examiners who moderate the Internal Assessment. Teachers' marks may be adjusted as a result of moderation. The Examiners' comments will be sent to the teachers in a Feedback Report.

Details of Assignments

Each candidate will be required to compile a portfolio comprising TWO assignments. Assignments will test objectives in one or more of the Modules and these objectives will be selected by the candidate in consultation with the teacher. **A candidate's portfolio will comprise TWO assignments follows:**

Module 1	-	Research
Modules 2	-	Product Development

Candidates are encouraged to use a thematic approach where applicable to the selection of activities for the portfolio. If a thematic approach is used, a topic may be selected from the objectives identified in one or more of the Modules in the syllabus, and research will be conducted on that topic for Assignment 1. The research will form the basis of the experimentation and product development for Assignment 2. Hence, the research undertaken for Assignment 1 will contribute to, and enhance, the experimentation and product development in Assignment 2.

CRITERIA FOR ASSESSING PORTFOLIOS

MODULE 1 (RESEARCH – 30 marks)

KNOWLEDGE	5
<ul style="list-style-type: none">• Demonstrate knowledge of relevant facts• Relate information to the region/community• Review the literature• Utilize a variety of sources	<ul style="list-style-type: none">2111
USE OF KNOWLEDGE	17
<ul style="list-style-type: none">• Present and discuss data• Identify causal factors and show how they interact with each other• Infer, predict, draw conclusions and solve problems• Make recommendations• Draw conclusions• Organize report coherently	<ul style="list-style-type: none">433322
PRACTICAL AND EXPERIMENTAL SKILLS	5
<ul style="list-style-type: none">• Collect, analyze and evaluate data• Discuss field observations	<ul style="list-style-type: none">23

COMMUNICATION OF INFORMATION	3
• Communication of information in a logical way by using correct grammar	<u>3</u>
Sub-total	30

ASSIGNMENT 2 (PRODUCT DEVELOPMENT – 60 marks)

KNOWLEDGE	10
• Demonstrate knowledge of relevant facts	4
• Relate information to the region/community	2
• Utilize a variety of resources	4
USE OF KNOWLEDGE	10
• Use facts, concepts, principles and procedures	4
• Present a written report, using drawings or other graphical representation which are clear, concise, accurate and relevant to the investigation	4
• Use appropriate scientific and qualitative treatment	2
PRACTICAL AND EXPERIMENTAL SKILLS	34
• Recognize the problem and formulate valid hypotheses	3
• Choose appropriate experimental research methods and equipment	3
• Record and report observations and results accurately	6
• Plan and execute procedures in a logical sequence within the time allotted	3
• Modify experimental methods after critical or unexpected outcomes	10
• Develop a creative product	3
• Develop a good quality product	6
COMMUNICATION OF INFORMATION	6
• Communication of information in a logical way	3
• Communication of information using correct grammar	3
Sub-total	<u>60</u>
Grand Total	<u>90</u>

SELECTION OF ACTIVITIES FOR PORTFOLIOS

Following is a list of suggested activities which are examples of the types of assignments which may be undertaken by candidates.

UNIT 1

Assignment 1

One exercise involving collection, analysis, and evaluation of data in one of the following areas:

- (i) dietary assessment;
- (ii) anthropometric assessment;
- (iii) dietary practices.

Assignment 2

One activity involving the modification and sensory evaluation of a basic recipe for an indigenous dish to reduce one or more of the following:

- (i) total calories;
- (ii) fat;
- (iii) sugar;
- (iv) sodium.

The experimentation conducted on the basic recipe must be clearly indicated.

UNIT 2

Assignment 1

One activity involving research into:

- (i) cultural practices that influence food choices, preferences and habits;
- (ii) tools and equipment used in preparing and cooking indigenous Caribbean dishes.

Assignment 2

One activity involving the development of an original product in large quantity. The assignment must include the activities from start up of experimentation to the marketing stage, including costing, progress and summary report.

◆ REGULATIONS FOR PRIVATE CANDIDATES

Private candidates will be required to sit all components of the examination. Private candidates are required to write all papers.

A private candidate must identify a teacher or tutor from a registered institution (school or technical institute or community college) who will assess and approve the candidate's submissions for the Internal Assessment component of the syllabus. The name, school, and territory of the identified teacher or tutor should be submitted to the Council on registration for the subject.

◆ REGULATIONS FOR RESIT CANDIDATES

Resit candidates must re-write Papers 01 and 02 of the examination for the year in which they re-register. However, resit candidates who have earned a moderated score 50% or more of the maximum score for the Internal Assessment component may elect not to repeat this component, provided they re-write the examination no later than 2 years immediately following their first attempt. The marks for the Internal Assessment may be carried forward to subsequent sittings of the same Unit taken. Re-sit candidates who have obtained a moderated score of less than 50% of the maximum score for the Internal Assessment component must repeat the component at any subsequent sittings.

Resit candidates may enter through schools, recognised educational institutions or the Local Registrar's Office.

◆ ASSESSMENT GRID

The Assessment Grid for each Unit contains marks assigned to papers and to Modules and percentage contributions of each paper to total scores.

PAPERS	MODULE 1	MODULE 2	MODULE 3	TOTAL (%)
External Assessment				
Paper 01	15	15	15	45 (30)
Paper 02	40	40	40	120 (40)
Internal Assessment				
Paper 03	30	30	30	90 (30)
TOTAL	85	85	85	255 (100)

◆ MINIMUM EQUIPMENT LIST

MINIMUM EQUIPMENT LIST FOR EVERY 15 STUDENTS

	Quantity
• Microscope	2
• Bunsen burner	4
• Beakers	6
• Casserole dishes	6 sets
• Kitchen Scale	4
• Thermometer	4
• Measuring Cups	4 sets
• Measuring Spoons	4 sets
• Refrigerator	2
• Cooker (four burners)	3
• Freezer	1 medium
• Large Kitchen cupboards	1
• Kitchen knives set	2 sets
• Meat slicer	1
• Cake mixer (for commercial and domestic quantities)	1 each
• Juicer - Electric	1
• Blender	3
• Food Processor and its attachments	1
• Fire Extinguishers	3
• First aid kits	2
• Baking Sheets	6
• Loaf tins	6
• Pastry Brushes	6
• Food Warmers/Bain Maire	1
• Heating Chamber	1
• Food covers	6
• Kitchen Forks	12
• Fish slicer	6
• Sieves-large and small	6 each
• Graters	6
• Garnishing Tools	2 sets
• Basic Small gardening Tools	2 each
• Pressure Cooker	2
• Food preservation Pots and pans	2 sets
• Bottles for preservation	4 dozens
• Sealing Machine	1
• Pots and pans large and small	6 each
• Wooden spoons	2 dozens
• Spatulas	2 dozens

	Quantity
• Dinner Plates	12
• Dinner Knives	12
• Dinner Forks	12
• Dinner Spoons	12
• Dessert forks	12
• Cereal bowls	12
• Soup Bowls and Plates	12
• Water Tumblers	12
• Cruet sets	12
• Fish Knives	12
• Cheese knife	12

GLOSSARY

A la Carte	-	dishes prepared to order and priced individually.
Acceptable Daily Intake (ADI)	-	the amount of chemical that if ingested daily over a lifetime appears to be without appreciable risk.
Anthropometry	-	the science that deals with the measurement of the size, weight and proportions of the human body.
Appetite	-	a natural desire to eat, especially when food is present.
Complementary Food	-	any food, whether manufactured or locally prepared, suitable as complement to breast milk or to a commercial or home-prepared formula, when either becomes insufficient to satisfy the nutritional requirements of the infant. (Such food was previously called (“Weaning Food” or “breast milk supplement”).
Convenience Foods	-	foods which have been prepared or processed to reduce the time needed for preparation, to make the product last longer and to make it easier to carry and store.
Batching	-	preparation and cooking of food in designated amounts at timed intervals, to provide for continuous supply to meet customer demands, to ensure safety of the food, and to prevent wastage.
Biotechnology	-	the use of natural and engineering science to alter the composition of natural cells and organisms to produce alternative products services.
Dietary Guidelines	-	sets of advisory statements that give dietary advice for the population in order to promote overall nutritional well-being and address all diet-related conditions.
Dietary Goals	-	desirable food intakes that support optimal nutrition and healthy dietary goals can be used for planning, often over the long term at a national level. They are usually expressed in terms of average national intakes.
Exclusive Breastfeeding	-	giving an infant no other food or drink, not even water, apart from breast milk (including expressed breast milk) excepting drops or syrups consisting of vitamins, mineral supplements or medicines.
Food Additive	-	a chemical or other substance added to a food product either intentionally or accidentally

Food Enrichment	-	the re-adding of nutrients lost during processing to meet a specific standard for the food.
Food Preservation	-	a process used to minimize or control the number of spoilage microorganisms in foods, thereby making the foods safe and extending the shelf life.
Food Science	-	deals with growth, preservation and manufacture food, microbiology and the study of food additives.
Food Security	-	a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.
Food ways	-	attitudes and beliefs about food and the ways in which that food is acquired stored, prepared and consumed.
Fortification	-	the addition of nutrients at levels higher than those found in the original or comparable foods. The process whereby macro-or micro-nutrients are added to foods commonly eaten to maintain or improve the nutritional quality of individual foods in the total diet.
Functional Foods	-	food products sold for health benefits.
Genetically Engineered Foods	-	foods produced by using laboratory techniques to transfer genes from any plant, animal, virus or organism, including a human into any other organism to produce a desired effect.
Generally Recognised as Safe (GRAS)	-	a list of commonly used ingredients (for example, salt, sugar some flavourings) not evaluated by prescribed testing procedures but which were already in use when the 1959 Food Additives Amendments was enacted.
Hazard Analysis Critical Control Points (HACCP)	-	a system for monitoring food production involving the analysis of potential hazards, identification of critical control points and the application of measures to prevent or reduce hazards.
Hunger	-	a strong desire to eat, associated with a sensation resulting from a lack of food characterized by dull or acute pain in the epigastrium or lower part of the chest.
Market Forms of Meat	-	these can be classified in these forms – carcasses, partial carcasses, primals and fabricated cuts of beef, lamb, veal and pork.

Market Forms of Poultry	-	the species such as chicken, turkey or duck; the class depending on age or sex; the style, the amount of cleaning and processing (live, dressed: killed, bled and plucked), ready to cook - whole, cut up, or parts.
Nutraceuticals	-	substances that may be considered part of a food that is intended to provide medical or health benefits. Isolated nutrients, dietary supplements genetically engineered “designer food”, herbal products and specially processed soups, cereals and beverages are included in this category.
Nutrition Related Diseases	-	diseases conditioned by either an excess or deficiency of energy and essential nutrients.
Nutritional Status	-	state of the body resulting from the consumption and utilization of nutrients. It is a measurement of the extent to which the physiologic need for nutrients is being met.
Nutritional Assessment	-	an evaluation of the nutritional status of individuals or populations through measurements of food and nutrient intakes and evaluation of nutrition – related health indicators to identify the possible occurrence, nature and extent of impaired nutritional status.
Phytochemicals	-	chemical substances in plants some of which perform important functions in the human body.
Polypharmacy	-	a situation where a single patient is taking a variety of prescribed medications concurrently. These medications may be complementary and related to a single condition and prescribed by one physician or they may be prescribed for a number of different conditions and by a number of different physicians.
Portion	-	standard size and composition of food and drink.
Recommended Dietary Allowances (RDA) (also known in different countries as Recommended Nutrient Intakes (RNI)).	-	Recommended Dietary Intakes (RDI) or Dietary Reference Values (DRV), the level of intake of energy and essential nutrients considered to be adequate to meet the known nutritional needs of practically all healthy persons.
Risk factor	-	behaviour or characteristic which, if present and active, increases the probability of a particular disease in a group of persons who have the factor compared to an otherwise similar group of persons who do not.
Satiety	-	being full to satisfaction with food.

Synergism	- the interaction of two or more presumably causal variables, so that the combined effect is clearly greater than the sum of the individual effects.
Table d'hôte	- a meal at a fixed price.

The definitions in the Glossary have been extracted from the following:

CFNI	<i>Recommended Dietary Allowances for the Caribbean</i> , Jamaica, 1994.
CFNI	<i>Guidelines for Young Child Feeding in the Caribbean</i> , Jamaica, 1999.
Campbell, V.	<i>Caribbean Foodways</i> , Jamaica: Caribbean Food and Nutrition Institute, 1988.
Gisslen, W.	<i>Professional Cooking</i> , New York: John Wiley and Sons, 1999.
Mahan, L.K. and Escott-Stumps, S.	<i>Krause's Food, Nutrition and Diet Therapy</i> , Philadelphia: W.B. Saunders Company, 1996.

Western Zone Office
2004/05/04



CARIBBEAN EXAMINATIONS COUNCIL

ADVANCED PROFICIENCY EXAMINATION

**SPECIMEN
MULTIPLE CHOICE QUESTIONS
FOR**

FOOD AND NUTRITION

UNIT I

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

Each item in this test has four suggested answers lettered (A), (B), (C), (D). Read each item you are about to answer and choose the correct answer.

Sample Item

Use the menu below to answer the question that follows.

Steamed fish
Creamed potatoes
Buttered okra
Steamed custard

The menu is BEST suited for

- (A) an anaemic
- (B) a lactating mother
- (C) an elderly convalescent
- (D) a patient with coronary heart disease

Sample Answer

Ⓐ Ⓑ ● Ⓓ

The BEST answer to this item is “an elderly convalescent”, so answer space (C) has been shaded.

1. Mary felt extremely hungry and was experiencing stomach contractions. Which of the following types of influences was MOST LIKELY responsible for her hunger?
 - (A) Societal
 - (B) Cognitive
 - (C) Physiological
 - (D) Psychological
2. Which of the following is NOT the simplest form of a nutrient?
 - (A) Starch
 - (B) Glucose
 - (C) Fatty acids
 - (D) Amino acids
3. Kerry consumed a meal which contained 101 grams of protein, 50 grams of carbohydrate and 59 grams of fat. What is Kerry's total energy intake in kilocalories for this meal?
 - (A) 1135
 - (B) 1200
 - (C) 2320
 - (D) 2893
4. A person's food requirements depend on
 - I. age
 - II. growth rate
 - III. gender
 - IV. body size
 - (A) I and III only
 - (B) II and III only
 - (C) I, II and IV only
 - (D) I, II, III and IV
5. Which of the following is NOT a benefit of breastfeeding?
 - (A) Protects against food allergies
 - (B) Conserves iron stores in the body
 - (C) Provides hormones that promote physiological development.
 - (D) Protects against a variety of infections.
6. The rate at which the body expends energy indicates the
 - (A) Body Mass Index
 - (B) Basal Metabolism
 - (C) Resting Metabolic Rate
 - (D) Resting Energy Expenditure
7. Which of the following approaches would BEST assist Miss Brown in controlling her hypertensive and diabetic conditions?
 - (A) Reducing sodium and fat intake
 - (B) Reducing sodium and carbohydrate intake
 - (C) Reducing smoking and increasing fibre in her diet
 - (D) Reducing sugar intake and increasing daily exercise
8. Which of the following agencies is NOT directly involved in nutrition related research or education?
 - (A) C.D.B
 - (B) W.H.O
 - (C) C.F.N.I
 - (D) P.A.H.O

9. Dietary guidelines were formulated for Adrian who is a cancer patient. Which of the following is NOT an appropriate guideline?
- (A) Consume a diet rich in folate
 - (B) Include favorite foods
 - (C) Lower fat and cholesterol intake
 - (D) Consume a diet rich in antioxidants
10. On John's last visit to the health clinic his measurement showed that he gained weight. On the growth chart this would be indicated by the growth line
- (A) remaining flat
 - (B) going upward
 - (C) sloping sideways
 - (D) sloping downward
11. Which of the following disorders are prevalent in the Caribbean?
- I. Diabetes
 - II. Heart disease
 - III. Hypertension
 - IV. Osteoporosis
- (A) I only
 - (B) I and II only
 - (C) I, II and III only
 - (D) I, II, III and IV
12. Which of the following BEST defines the 'multi-mix'?
- (A) Eating within each food group for good nutrition.
 - (B) Combining foods from all food groups for good nutrition
 - (C) Combining food groups and nutrients for good nutrition
 - (D) Combining food from all food groups in the correct proportion for good nutrition.
13. What is the suggested calorie intake in kilocalories for individuals who live in the Caribbean?
- (A) 1200 - 1600
 - (B) 2000 - 2200
 - (C) 2200 - 2500
 - (D) 2500 - 2800
14. Which of the following is NOT a reason for having a high fibre diet?
- (A) Avoiding constipation
 - (B) Keeping blood cholesterol low
 - (C) Inhibiting the absorption of iron and zinc
 - (D) Preventing disease of the large intestine
15. Which vitamin is needed to help body cells obtain energy from food and promote good appetite and digestion?
- (A) Vitamin B₁
 - (B) Vitamin B₆
 - (C) Vitamin D
 - (D) Vitamin E₂
16. Menus are sometimes planned around central themes. Which entree would be MOST appropriate for a "Caribbean Night Feast" at a banquet?
- (A) Roast Turkey with Cranberry Sauce
 - (B) Broiled Steak with Red Wine
 - (C) Chicken in Mustard Sauce
 - (D) Baked Fish Fillet in Coconut Sauce

GO ON TO THE NEXT PAGE

17. Which of the following breakfast menus is written using the correct format?

- (A) Melon Slices
Cornflakes in Milk
Toast
Cheese Omelet
Chocolate
- (B) Orange Juice
Tuna Sandwich
Cornmeal Porridge
Tea
- (C) Fried Egg
Buttered Bread
Milky Cocoa
Ripe Banana
- (D) Grapefruit Halves
Strawberry Wheat Cereal
Escovitched Fish
Bammy Sticks
Coffee

18. Which group from the “Caribbean Food Groups” provides the BEST source of carotene and protein?

- (A) Staples and fats
- (B) Fruits and legumes
- (C) Foods from animals and legumes
- (D) Dark green leafy vegetables and fruits

19. Foods that are supplemented with ingredients believed to be helpful in preventing diseases such as cancers and heart disease, or to improve health are called

- (A) processed foods
- (B) functional foods
- (C) compound foods
- (D) organic foods

20. Which of the following will NOT contribute to the aesthetics of a meal?

- (A) Temperature and size
- (B) Flavour and colour
- (C) Texture and shape
- (D) Shape and temperature

Item 21 refers to the following menu.

Baked Chicken/Tomato Sauce
Vegetable Fried Rice
Buttered Pumpkin
Nutty Soya Cream
Lemonade

21. Which of the following dishes can be substituted for the Baked Chicken and Tomato Sauce to make the meal suitable for a vegan?

- (A) Stir Fried Green Beans
- (B) Pigeon Pea Loaf/Tomato Sauce
- (C) Curried Eggplant and Cabbage
- (D) Deep Fried Eggplant/Tomato Sauce

22. Your mother was advised by her physician to lose weight in order to control a medical condition. Which set of dietary guidelines should your mother consider?

- I. Increase meal portions and eliminate fried foods.
- II. Consume less alcoholic beverages.
- III. Increase physical activities.
- IV. Consume more whole grain products.

- (A) I only
- (B) II and III only
- (C) II, III and IV only
- (D) I, II, III and IV

GO ON TO THE NEXT PAGE

23. HACCP is a standard procedure used in the food industry to

- (A) set standards, control and monitor staff
- (B) assess risks and monitor staff
- (C) identify hazards, assess risks and notify consumers
- (D) identify hazards, assess risks and maintain safe limits

Items 24 - 25 refer to the nutrition label below.

NUTRITION FACTS			
Serving size – 1 cup			
Serving per container – 2.5			
Amount per serving			
Calories 250			
Calories from fat - 108			
		% of Daily Value	
Total fat	12 g	-	18%
Sat. fat	3 g	-	18%
Cholesterol	30 mg	-	10%
Sodium	470 mg	-	20%
Total Carbohydrates		-	10%
Dietary fibre	0 g		
Sugars	5 g		
Protein	5 g		
<ul style="list-style-type: none"> Percent daily values are based on 2000 calorie diet 			

24. How many cups of the product whose food label is shown above would be required to serve five persons?

- (A) 1
- (B) 2
- (C) 3
- (D) 5

25. Tamesha consumed four cups of the product each day. Tamesha's total calories from the fat in this product each day is

- (A) 432
- (B) 108
- (C) 48
- (D) 18

26. Diabetic persons need to modify their regular diet in order to control the disorder. Which meal planning tool is recommended to assist with choosing appropriate food items?

- (A) The food guide pyramid
- (B) The fat and sugar substitute list
- (C) The Caribbean food group chart
- (D) Food exchange list for meal planning

27. Which groups of practices would ensure the safest method of handling food?

- I. Wash hands before and after handling food.
- II. Discard kitchen towels at the end of each cooking session.
- III. Sanitize cutting boards after use.
- IV. Separate raw and high risk food from cooked foods.

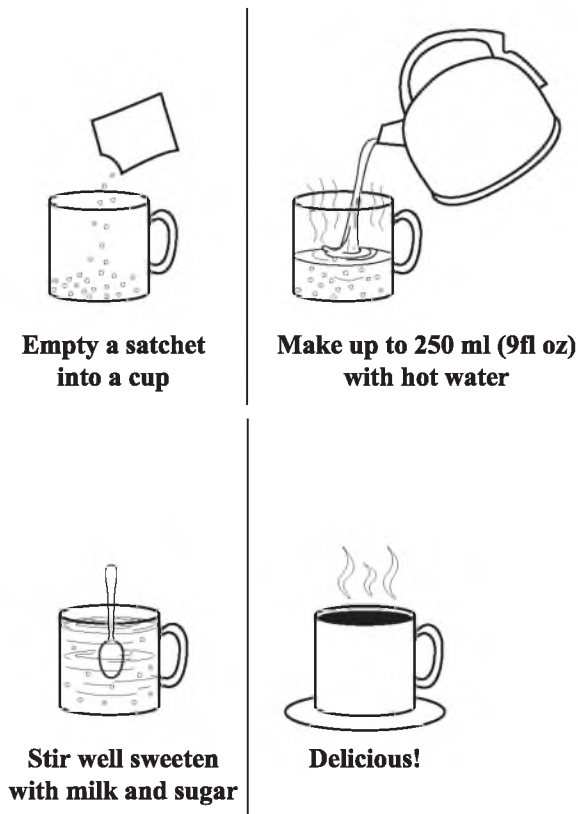
- (A) I only
- (B) I and IV only
- (C) II and III only
- (D) I, III and IV only

28. Which of the following procedures will conserve the nutritive value of foods?

- (A) Cooking at a high temperature
- (B) Retaining the skin on some fruits
- (C) Washing vegetables in baking soda water
- (D) Cooking vegetables until they are very soft

GO ON TO THE NEXT PAGE

Item 26 refers to the illustration below which relates to labelling information.



29. What type of labelling information is described in the illustration?

- (A) Yield
- (B) Product name
- (C) List of ingredients
- (D) Instructions for use

30. The crisper compartment in the refrigerator is suitable for the storage of

- (A) seafood and poultry
- (B) cooked meat and poultry
- (C) fresh fruits and vegetables
- (D) frozen foods and dairy products

31. The study of efficiency in the kitchen and industry is known as

- (A) aesthetics
- (B) economics
- (C) ergonomics
- (D) agronomics

32. Which of the following pieces of equipment are necessary when making chicken pie?

- (A) Cooker, pastry blender, refrigerator, oven
- (B) Cooker, microwave, refrigerator, oven
- (C) Refrigerator, pastry blender, oven, blender
- (D) Electric mixer, cooker, food processor, oven

33. John lit the stove and threw the match in the garbage bin and it caught fire. What type of fire is this?

- (A) Class A
- (B) Class B
- (C) Class C
- (D) Class D

34. Jenifer got burnt while removing a kettle from the stove. What procedure should she follow in order to apply first aid after washing the area with cold water?

- (A) Apply lotion
- (B) Cover with a band aid
- (C) Wrap with a dry cloth
- (D) Add vaseline to soothe

35. Which of the following cooking methods is MOST suitable for retaining the colour and flavour of nutrients?

- I. Steaming
- II. Frying
- III. Sauteing
- IV. Boiling
- (A) I and II only
- (B) I and III only
- (C) II and IV only
- (D) I, II, III and IV

GO ON TO THE NEXT PAGE

36. Peter is making a tomato rose. Which of the following types of knives would be MOST appropriate for him to use?
- (A) Paring
 - (B) French
 - (C) Utility
 - (D) Boning
37. Which of the following groups are examples of thin soups?
- (A) Cream, puree and pepperpot
 - (B) Consomme, pepperpot and broth
 - (C) Consomme, puree and pepperpot
 - (D) Broth, consomme and vegetable soup
38. Grandma is celebrating her 50th wedding anniversary with a formal dinner. Which of the following types of meal service would be the MOST appropriate?
- (A) Plate
 - (B) Buffet
 - (C) English
 - (D) Russian
39. A salad is not complete without a garnish. Which of the following BEST describes a garnish?
- (A) Eye catching, contrasting colour and large
 - (B) Contrasting colour, very small and eye catching.
 - (C) Contrasting colour, pleasing shape and eye catching
 - (D) Pleasing colour, contrasting shape and large.
40. Sandra loves cornmeal porridge sweetened with condensed milk. Recently she was diagnosed with Type II diabetes. Which of the following ingredients BEST modifies the cornmeal porridge to make it suitable for her condition?
- (A) Whole milk and honey
 - (B) Skimmed milk and brown sugar
 - (C) Skimmed milk and sugar substitute
 - (D) Evaporated milk and granulated sugar
41. Which of the following factors should be used in sensory evaluation?
- I. Taste
 - II. Colour
 - III. Texture
 - IV. Aroma
- (A) I and II only
 - (B) II and III only
 - (C) I, II and III only
 - (D) I, II, III and IV
42. Which of the following is MOST effective in determining the feasibility of a product?
- (A) Market price
 - (B) Target market
 - (C) Market research
 - (D) Market experience
43. Which of the following are types of food service operations?
- I. Conventional
 - II. Assembly
 - III. Ready prepared
 - IV. Commissary
- (A) I and II only
 - (B) I and III only
 - (C) II and III only
 - (D) I, II, III and IV

GO ON TO THE NEXT PAGE

44. Which of the following describes the movement in the 'work triangle'?
- (A) Counter → sink → stove
 - (B) Sink → refrigerator → stove
 - (C) Sink → counter → refrigerator
 - (D) Refrigerator → microwave → stove
45. What type of electromagnetic waves does the microwave use?
- (A) Short low frequency
 - (B) Short long frequency
 - (C) Short high frequency
 - (D) Short thin frequency

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.



CARIBBEAN EXAMINATIONS COUNCIL

ADVANCED PROFICIENCY EXAMINATION

**SPECIMEN
MULTIPLE CHOICE QUESTIONS
FOR**

FOOD AND NUTRITION

UNIT II

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

Each item in this test has four suggested answers lettered (A), (B), (C), (D). Read each item you are about to answer and choose the correct answer.

Sample Item

Use the menu below to answer the question that follows.

Steamed fish
Creamed potatoes
Buttered okra
Steamed custard

The menu is BEST suited for

- (A) an anaemic
- (B) a lactating mother
- (C) an elderly convalescent
- (D) a patient with coronary heart disease

Sample Answer



The BEST answer to this item is “an elderly convalescent”, so answer space (C) has been shaded.

Item 1 refers to the following menu.

Ham/ Turkey Roast
Roast Beef/ Baked Chicken
Curried Mutton/ Curried Goat
Macaroni Cheese
Rice and Peas
Potato or Breadfruit Salad
Raw Vegetable Salad
Dark Fruit Cake with Hard Sauce
Ginger or Sorrel Drink

1. For which feature meal is the menu MOST suitable?
 - (A) Easter
 - (B) Chanukah
 - (C) Christmas
 - (D) Thanksgiving
2. Which of the following has the LEAST influence on a person's choice of food?
 - (A) Education
 - (B) Self identity
 - (C) Food availability
 - (D) Government policies
3. Food patterns of 21st century families have been altered dramatically. Which of the following BEST describes the term 'home meal replacement'?
 - (A) Prepared foods purchased and consumed at home
 - (B) A style/pattern of cooking meals at home
 - (C) Popular food habits found only in American diets
 - (D) Foods purchased and consumed in a food establishment
4. A bread-like dish baked on a tawah (baking stone) and stuffed with meat is called
 - (A) roti
 - (B) bammy
 - (C) dahl cake
 - (D) yeast bread
5. 'Oil down' is to Grenada as 'Ackee and Saltfish' is to which Caribbean country?
 - (A) Jamaica
 - (B) Trinidad
 - (C) Antigua
 - (D) St Lucia
6. Which of the following statements concerning processed foods is INCORRECT?
 - (A) Foods are convenient to use.
 - (B) Foods are often easier to store.
 - (C) Foods are available out of season
 - (D) Food is wasted during production.
7. Potentially hazardous foods (PHF) are usually high in
 - (A) fats with a pH above 4.6
 - (B) fibre with a pH above 2.2
 - (C) acid with a pH above 2.2
 - (D) protein with a pH above 4.6
8. The document that establishes the rights and responsibilities of consumers is published and promoted by the
 - (A) Processed Food Act
 - (B) Civil Law Commission
 - (C) Consumer Protection Act
 - (D) Consumer Affairs Commissions

GO ON TO THE NEXT PAGE

9. Volunteers are planning meals in a shelter after a hurricane. Which of the following groups of people are the MOST vulnerable?
- (A) Obese men, teenage girls, elderly people
 - (B) Lactating mothers, athletes, obese women
 - (C) Elderly people, infants, pregnant women
 - (D) Teenage boys, lactating mothers, athletes
10. An adequate supply of clean water is top priority during a disaster. Which of the following is the safest method of treating water during a disaster?
- (A) Strain water through a clean cloth to remove impurities
 - (B) Allow water to boil for two minutes to kill microorganisms
 - (C) Add bleach to the water to kill microorganisms
 - (D) Add two drops of iodine to remove impurities
11. Which of the following dietary guidelines is recommended for a balanced diet?
- (A) Eat a variety of foods in the correct proportions
 - (B) Increase the total intake of dietary fibre and fats
 - (C) Balance your energy intake with a variety of foods
 - (D) Increase the total intake of dietary fibre and sodium
12. Food fads often support food supplements such as vitamin and mineral tablets. Which of the following statements is NOT true about vitamins and minerals?
- (A) The best way to get vitamins and minerals is to eat a variety of wholesome foods every day.
 - (B) Excessive amounts of vitamins A and D can be toxic.
 - (C) Vitamin and mineral supplements are excellent substitutes for food.
 - (D) Persons whose intestinal absorption is impaired may need vitamin supplements.
13. Which of the following groups of people are responsible for the introduction of cassava, corn and sweet potato in the Caribbean region?
- (A) Spanish
 - (B) English
 - (C) Arawaks
 - (D) Chinese
14. Food technology has increased food choice in various ways. Which of the following factors are promoted by the use of food technology?
- I. Increasing food production by developing new agricultural practices
 - II. Producing cheaper versions of basic foods
 - III. Increasing the shelf-life of foods to avoid wastage
 - IV. Producing quick-to-prepare foods and ready-prepared meals
- (A) I and III only
 - (B) II and III only
 - (C) I, II and IV only
 - (D) I, II, III and IV

15. A mortar and pestle is a tool used
- (A) to tenderize meat
 - (B) to crush, grind and mix substances
 - (C) for cooking indigenous Indian dishes
 - (D) to separate large particles from fine particles

16. Which of the following phytochemicals act as antioxidants?

- I. Phenols
- II. Indoles
- III. Isoflavonoids
- IV. Lycopene

- (A) I and II only
- (B) I and III only
- (C) I and IV only
- (D) II and IV only

Items **17-18** refer to the following information provided on the food label of a toddler's drink.

Added Vitamin C
No added sugar
Colour red
No added preservative

17. What is the significance of the term 'Added Vitamin C'?
- (A) Increase sales of drink to young mothers
 - (B) Highlights the importance of the nutrient in the diet
 - (C) Highlights the awareness of the effects of Vitamin C
 - (D) Make consumers aware that the product is fortified with Vitamin C

18. The statement 'No added preservative' informs the user that

- I. the juice does not have to be refrigerated
- II. the juice can deteriorate quickly after opening.
- III. persons with allergic reactions to food additives will not be affected.
- IV. the colour of the juice will not change after opening.

- (A) I and II only
- (B) II and III only
- (C) II, III and IV only
- (D) I, II, III and IV

19. Which of the following is NOT a component of a typical liquid marinade?

- (A) Oil
- (B) Acid
- (C) Flavour binder
- (D) Flavour builder

20. Which of the following pairs of substances are NOT examples of natural food colours?

- I. Chlorophyll, tumeric
- II. Tannin, lecithin
- III. Saffron, caramel
- IV. Saltpetre, sodium nitrite

- (A) I and II only
- (B) I and III only
- (C) II and IV only
- (D) I, II, III and IV

21. Which of the following is a natural emulsifier used in mayonnaise?

(A) Lysine
(B) Lecithin
(C) Aspartane
(D) Curcumin

22. Which of the following statements BEST defines the term 'food enrichment'?

(A) The addition of thiamin and riboflavin to processed foods
(B) Specific nutrients that are packaged in wheat and cereals
(C) Replenishing nutrients lost during processing to meet a specific standard for the food
(D) Ingredients that are added to a particular food to meet a dietary goal.

23. Which of the following can improve the nutrient content of food?

I. Enrichment
II. Supplementation
III. Saponification
IV. Fortification

(A) I and II only
(B) I and III only
(C) I, II and IV only
(D) I, II, III and IV

24. Which of the following is NOT a reason why manufacturers provide information on food labels for consumers?

(A) Promoting the sale of their goods
(B) Informing about potential allergens
(C) Comparing prices on similar products
(D) Selecting healthier foods for dietary purposes

Item 25 refers to the following product which was genetically manufactured by a new food company.

WELLA	VEGETARIAN CHEESE	
	DO NOT FREEZE, REFRIGERATE AFTER OPENING	
Best Before 10.Nov.09	NUTRITION FACT	
Net Weight 120g	Protein	6g
Sugar Free	Carbohydrate	0.3g
	Fat	3.0g
	Sodium	0.1g
	No fibre	

25. Which important labelling information should be included for consumers?

I. Detailed information on genetically modified foods
II. Safe handling practices
III. Indication of the types of genes used during processing
IV. List of all ingredients in the cheese

(A) I and II only
(B) I, II and III only
(C) II, III and IV only
(D) I, II, III and IV

26. Nutritional additives may be added to foods to replace those lost during processing. Which of the following groups has a food additive which is not usually added to the food?

I. Margarine - vitamins A and D
II. Flour - iron and calcium salts
III. Breakfast cereals - thiamin and fibre
IV. Fruit drinks - vitamin C and calcium

(A) I and II only
(B) II and III only
(C) I, II and III only
(D) II, III and IV only

27. A small farmer plans to sell the corn he harvested to increase profit from \$ 20 000 to \$ 45 000. Which formula should he use to calculate the cost of one dozen ears of corn?

- (A) Total direct cost per dozen plus total indirect cost per dozen
- (B) Total number of hours worked plus total wages paid
- (C) Total cost of raw material plus total cost of fertilizers
- (D) Total direct labour cost plus total direct material cost

28. Charlene has decided to start a small pastry shop, and plans to sell her products to a small supermarket nearby. Which of the following are important considerations when packaging plantain tarts?

- I. To prevent moisture loss and contamination during transportation
- II. To attract customers
- III. To provide information to consumers about the content
- IV. To ensure that products are easily resealed

- (A) I and II only
- (B) II and III only
- (C) I, II and IV only
- (D) I, II and III only

Item 29 refers to the following information.

A catering company implemented the following guidelines:

- Inspection of goods on delivery and before use
- Monitoring temperature ranges of refrigerated and frozen foods
- Sanitizing equipment and utensils after use
- Maintenance of satisfactory personal hygiene and health standards

29. Adherence to these guidelines will ensure

- I. high quality foods to all consumers
- II. safe preparation of refrigerated foods
- III. reduction of food contamination and poisoning
- IV. increased sales from unsuspecting customers

- (A) I and II only
- (B) I and III only
- (C) II and III only
- (D) I, II, III and IV

30. Mr Brown's backyard garden of gungo (pigeon) peas and guavas produced an excellent crop in excess of his family's needs. Which of the following preservation techniques would be MOST suitable for his crops?

- (A) Freezing
- (B) Irradiation
- (C) Dehydration
- (D) Addition of sugar

GO ON TO THE NEXT PAGE

31. Which of the following is NOT a step to be considered when using the HACCP system in food processing?

- (A) Establishing criteria for meeting each control procedure
- (B) Developing procedures that best allow short processing time
- (C) Establishing monitoring procedures to adjust and maintain control
- (D) Developing corrective action when there is deviation from prescribed critical limits

32. Which of the following menus is an example of the three-mix principle of meal planning?

- (A) Sausage and Beans
White Rice
Fruit Punch
- (B) Stewed Pork
Pumpkin Rice
Arranged Vegetable Salad
- (C) Fried Chicken/Tomato Sauce
Duchess Potato
Pineapple Upsidedown Cake
- (D) Grilled Pork Chops
Caesar Salad
Cucumber Quencher

Item 33 refers to the following menu.

Dinner Menu

Vegetable Consommé

Three Bean Salad

Buttered Pumpkin

Steamed Carrot and String Beans

Egg Nog

33. Which of the following BEST represents the nutrients provided by the above menu?

- (A) Protein, phosphorus, iron, vitamins B and D
- (B) Carbohydrate, calcium, iron, vitamins A and C
- (C) Carbohydrate, calcium, vitamins A and C and iodine
- (D) Protein, carbohydrate, vitamins A and B, calcium and phosphorus

34. Which of the following BEST represents a continental breakfast?

- (A) Paw paw Slices
Salt Mackerel
Boiled Bananas
Cocoa/Tea
- (B) Mango Slices
Cornmeal Porridge
Fried Fish
Milo/Tea
- (C) Ripe banana
Oats Porridge
Buttered Toast
Coffee/Tea
- (D) Orange Juice
Baked Beans
Pancake
Coffee/Tea

35. Which of the following breakfast menus is written in the correct order?
- (A) Orange Juice
Fried Egg
Buttered Toast
Hot Chocolate
- (B) Hot Chocolate
Buttered Toast
Orange Juice
Fried Eggs
- (C) Pineapple Juice
Waffle
Fried Sausage
Hot Chocolate
- (D) Waffle
Pineapple Juice
Hot Chocolate
Fried Sausage
36. Which of the following types of menus is used by most fast food restaurants?
- (A) Static menu
(B) Cycle menu
(C) Classical menu
(D) À la carte menu
37. Which of the following breakfast menus is written in the correct order?
- (A) Orange Juice
Fried Egg
Buttered Toast
Hot Chocolate
- (B) Hot Chocolate
Buttered Toast
Orange Juice
Fried Eggs
- (C) Pineapple Juice
Waffle
Fried Sausage
Hot Chocolate
- (D) Waffle
Pineapple Juice
Hot Chocolate
Fried Sausage
38. In food service, portion control is necessary to
- I. accurately calculate food cost
II. help determine plate layout
III. determine food purchasing quantities
IV. determine food production quantities
- (A) I and II only
(B) III and IV only
(C) I, II and IV only
(D) I, II, III and IV
39. Operations food cost percentage is usually determined by the budget. Which of the following would be used when calculating food cost percentage for different menus?

- (A) $\text{Percentage} = \frac{\text{food cost}}{\text{menu price}}$
- (B) $\text{Percentage} = \frac{\text{menu price}}{\text{food cost}}$
- (C) $\text{Percentage} = \frac{\text{cost of ingredients}}{\text{number of portions}}$
- (D) $\text{Percentage} = \frac{\text{number of portions}}{\text{menu price}}$

Item 37 refers to the following menu.

Cream of Tomato Soup
Saltfish Raisin Boats
Caesar Salad/ French Dressing
Chicken Galantine
Riced Yam
Tossed Salad/Olive Oil
Orange Carrot Cake
June Plum Drink

37. How many courses does the menu above contain?
- (A) Six
(B) Five
(C) Four
(D) Three

GO ON TO THE NEXT PAGE

Items **40 - 41** refer to the following menu.

Chicken and Okra Consommé
Calaloo Stuffed Fish Fillets
Braised Pork
Roasted Sweet Potato
Tossed Vegetable Salad/ Olive Oil
Commeal Pudding
Fruit Punch

- 40.** For which of the following occasions is the menu above MOST suitable?

I. Parents' anniversary dinner
II. Toddler's birthday party
III. School fete
IV. Church's awards function

- (A) I and III only
(B) I and IV only
(C) II and III only
(D) I, II, III and IV

- 41.** Which of the following is an appropriate substitution for the entree in the menu above?

- (A) Beef Broth
(B) Rice and Peas
(C) Pineapple Soufflé
(D) Chicken Galantine

- 42.** Which of the following techniques is the BEST one to use when lifting heavy objects to prevent strains and injuries?

- (A) Bend over the object and lift with the back muscles
(B) Squat on one knee, then lift with the leg muscles
(C) Turn and twist your back so that you are comfortable
(D) Squat on one knee, then lift with the back muscles

- 43.** Good personal hygiene includes

- (A) having daily baths
(B) emptying garbage daily
(C) wearing attractive uniforms
(D) cleaning food contact surfaces

- 44.** Which of the following types of fire extinguishers is used on fires caused by wood, paper and cloth?

- (A) Class A
(B) Class B
(C) Class C
(D) Class D

- 45.** Food quality may be evaluated by

I. sensory testing
II. chemical testing
III. physical testing
IV. analytical testing

- (A) I and III only
(B) II and IV only
(C) I, III and IV only
(D) I, II, III and IV

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.

CARIBBEAN EXAMINATIONS COUNCIL

ADVANCED PROFICIENCY EXAMINATION

FOOD AND NUTRITION - UNIT I

SPECIMEN PAPER 2009

Item No.	Key	Cognitive Level	Syllabus Objective
1	C	UK	Module 1.2
2	A	KC	Module 1.3
3	A	UK	Module 1.6
4	D	KC	Module 1.6
5	B	KC	Module 1.10
6	B	KC	Module 1.9
7	B	KC	Module 1.13
8	A	KC	Module 1.9
9	A	UK	Module 1.14
10	B	UK	Module 1.16
11	C	KC	Module 1.13
12	D	KC	Module 1.8
13	C	KC	Module 1.6
14	C	KC	Module 1.4
15	A	KC	Module 1.4
16	C	UK	Module 2.1
17	C	UK	Module 2.2
18	B	KC	Module 2.4
19	B	KC	Module 2.5
20	A	KC	Module 2.6
21	B	UK	Module 2.7
22	C	UK	Module 2.7
23	D	KC	Module 2.9

Item No.	Key	Cognitive Level	Syllabus Objective
24	B	UK	Module 2.10
25	A	UK	Module 2.10
26	D	UK	Module 2.10
27	D	KC	Module 2.11
28	B	KC	Module 2.12
29	D	UK	Module 2.7
30	C	KC	Module 2.8
31	C	KC	Module 3.1
32	A	UK	Module 3.2
33	A	UK	Module 3.3
34	C	UK	Module 3.4
35	B	UK	Module 3.5
36	A	UK	Module 3.6
37	D	KC	Module 3.7
38	D	UK	Module 3.8
39	C	KC	Module 3.9
40	C	UK	Module 3.10
41	D	KC	Module 3.11
42	C	KC	Module 3.11
43	D	KC	Module 3.1
44	B	KC	Module 3.1
45	C	KC	Module 3.2

CARIBBEAN EXAMINATIONS COUNCIL

ADVANCED PROFICIENCY EXAMINATION

FOOD AND NUTRITION - UNIT II

SPECIMEN PAPER 2009

Item No.	Key	Cognitive level	Syllabus Objective
1	C	UK	Module 1.11
2	D	KC	Module 1.1
3	A	KC	Module 1.2
4	A	KC	Module 1.3
5	A	KC	Module 1.5
6	D	KC	Module 1.6
7	D	KC	Module 1.7
8	D	KC	Module 1.8
9	C	UK	Module 1.9
10	C	KC	Module 1.9
11	A	KC	Module 1.10
12	C	KC	Module 1.11
13	C	KC	Module 1.1
14	D	KC	Module 1.1
15	B	KC	Module 1.3
16	C	KC	Module 2.1
17	D	UK	Module 2.6
18	B	UK	Module 2.6
19	C	KC	Module 2.3
20	C	KC	Module 2.4
21	B	KC	Module 2.4
22	C	KC	Module 2.5
23	C	KC	Module 2.5

Item No.	Key	Cognitive Level	Syllabus Objective
24	C	KC	Module 2.6
25	C	UK	Module 2.6
26	B	UK	Module 2.5
27	A	UK	Module 2.10
28	D	UK	Module 2.7
29	B	UK	Module 2.8
30	A	UK	Module 2.9
31	B	KC	Module 3.1
32	B	UK	Module 3.2
33	D	UK	Module 3.3
34	C	UK	Module 3.5
35	A	UK	Module 3.4
36	A	KC	Module 3.5
37	B	UK	Module 3.5
38	D	KC	Module 3.6
39	A	KC	Module 3.7
40	B	UK	Module 3.8
41	D	UK	Module 3.5
42	B	KC	Module 3.9
43	A	KC	Module 3.9
44	A	KC	Module 3.9
45	D	KC	Module 3.11

CARIBBEAN EXAMINATIONS COUNCIL

REPORT ON CANDIDATES' WORK IN THE CARIBBEAN ADVANCED PROFICIENCY EXAMINATION

MAY/JUNE 2004

FOOD AND NUTRITION

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FOOD AND NUTRITION
ADVANCED PROFICIENCY EXAMINATION

MAY/JUNE 2004

GENERAL COMMENTS

The Caribbean Examinations Council administered its second open examination in Unit 1 Food and Nutrition and its first open examination in Unit 2 in May 2004. There were some good responses to questions in both Units.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

PAPER 01 - Short Answer Questions

The format of both Units is similar. Paper 01 consists of nine compulsory short answer questions. Candidates are required to answer all questions. There are three questions on each of the three Modules in the Unit. Paper 01 tests the grasp of critical nutrition principles and mastery of relevant skills. Candidates' performance was satisfactory.

PAPER 02 - Structured Essay Questions

This paper consists of seven essay questions which test objectives across all Modules. It is divided in four sections. Section I consists of one compulsory question spread across all the Modules. Section II to Section IV each consist of two optional questions and candidates are required to answer one question from each section. Questions in Section II are based on Module I, those in Section III on Module 2 while questions in Section IV were based on Module 3. Candidates' performance was satisfactory, though weaknesses were evident in several areas.

DETAILED COMMENTS

UNIT 1

Paper 01 - Short Answer Questions

Question 1

This question tested candidates' understanding of the sugars of which carbohydrates are composed.

The overall performance of this question was fairly good.

Part (a) of the question seemed to pose the greatest difficulty as many of the candidates were unfamiliar with the chemical formula of carbohydrates.

Performance on part (b) was good. Most candidates were able to define the three different types of carbohydrates.

Performance on part (c) was satisfactory. However, many candidates were unsure of which sugars belonged to the group of disaccharides or monosaccharides.

Question 2

This question tested candidates' understanding of energy balance.

Performance on this question was good.

Performance on part (a) was satisfactory. The stimulus for this question was "John stopped playing basketball for one year and gained 20 pounds of body weight". Candidates were required to give a reason for the weight gain. Most of the candidates paraphrased the stimulus statement rather than demonstrate their knowledge of energy balance.

Part (b) was fairly well done. This was widely known by most candidates who were able to identify at least two ways out of the maximum of four by which John could regain his original weight.

Part (c) posed the greatest difficulty as candidates were not familiar with the term 'implications'. They listed ways of preventing and reducing obesity.

Question 3

This question tested candidates' understanding of the nutritional status of the elderly.

This question was well done.

Performance on part (a) was good. However, some candidates were unfamiliar with the concept of physiological changes and interpreted it to mean general factors that affected the elderly such as social or psychological changes.

In part (b), candidates interpreted the question correctly, but gave vague responses which were not directly related to middle age or to nutritional status, such as 'eat well, or 'live healthy'.

Question 4

This question tested candidates' understanding of the Caribbean Meal Pattern.

Performance on this question was satisfactory.

Part (a) of the question was not well done by the majority of candidates who were not familiar with the term 'meal pattern'. Candidates listed the food groups of the Caribbean and did not mention 'snacks' as part of the pattern.

Part (b) was well answered. Some candidates gave an entire day's menu even though they were required to plan a menu using one of the meals listed at (a).

Question 5

This question tested candidates' understanding of convenience foods.

The overall performance of this question was good.

Performance on part (a) was good. Candidates were able to describe categories of convenience foods, but could not identify the name for the category. For example, instead of 'ready-to-eat foods' they wrote 'foods that can be eaten without having to do any further preparation'.

In part (b), most of the candidates were able to correctly state advantages and disadvantages of convenience foods.

Question 6

This question tested candidates' understanding of sanitation and personal hygiene.

The overall performance of the question was very good.

Part (a) was fairly well done. However, some candidates defined contamination rather than cross-contamination.

In Part (b), where candidates were required to describe ways in which cross-contamination can occur, they listed general ways in which contamination occur instead of cross-contamination.

Part (c) was fairly well done although, in some instances, candidates listed general hygiene practices rather than personal hygiene practices.

Candidates responded well to part (d) by correctly listing the names of micro-organisms which contaminate food.

Question 7

This question tested candidates' understanding of electrical appliances used in industrial kitchens to assist in preparation of foods before cooking.

In general this question was poorly answered.

Part (a) was fairly well done as candidates were able to list electrical appliances used in the kitchen. However, some candidates listed non-electrical and cooking appliances.

Performance on part (b) was weak as candidates did not interpret the term 'features' correctly therefore, they listed advantages of fan-assisted or convection ovens.

Performance on part (c) was poor. Many candidates did not discuss the care and use of the cooking range adequately, while some interpreted 'cooking range' to mean food preparation area/centre.

Question 8

This question tested candidates' understanding of safety practices which should be observed to reduce accidents in the kitchen.

The overall performance of the question was good.

Performance on part (a) was good. Candidates were able to list safety practices which would reduce the risk of fires, even though a few candidates listed general safety practices rather than safety practices specifically aimed at reducing the risk of fires.

Part (b) was done well. Candidates responded correctly, listing hazards other than fires that may occur in the kitchen.

Part (c) was answered well, although some candidates listed traditional methods which are not recommended, such as putting baking soda on burns. Candidates must be exposed to current methods of first aid.

Question 9

This question tested candidates' knowledge of types of meal service suitable for a family celebration dinner at home and factors to be considered when preparing the dining area.

The overall performance on this question was fairly good.

Performance on part (a) was fairly good. Most candidates correctly named the type of meal service. However, some candidates listed types of menus instead of types of meal service.

Part (b) presented the greatest challenge to the candidates. Many listed factors to be considered when planning meals instead of the factors to be considered when preparing the dining area.

Part (c) was satisfactorily done as most candidates described the preparation of suitable hors d'oeuvres.

Paper 02 - Structured Essay

Section 1 - Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of global initiatives for the promotion and support of breast-feeding, reasons for taking young children to the health clinic or post, complementary feeding, strategies used to encourage toddlers to eat, methods of ensuring the general safety of food served to toddlers, and principles to be observed when serving food to school-aged children.

The compulsory question was attempted by all the candidates.

The overall performance of this question was satisfactory.

Part (a) was generally well done. However, candidates were not familiar with initiatives used in the Public Health System of many countries to promote and support breast-feeding. Global initiatives of the World Health Organisation include: the 'Baby Friendly Hospital Initiative'; The 'Innocenti Declaration'; 'Breast Feeding Counseling - An 18 hour Training Course'; and 'HIV and Infant Feeding - A Training Course'.

Performance on part (b) was weak. While many candidates showed an understanding of complementary foods, they did not include the fact that breast-feeding continues while other foods are introduced. They had a general idea of the 'multimix principle' but gave the patterns of the three mix and four mix rather than the examples of the foods that make up these mixes. Where candidates were asked to list qualities of complementary foods, they described advantages rather than qualities such as nutrient-dense, energy-dense, easily digested, smooth, thick consistency, free of lumps, free from hot seasonings and combinations of nutritious foods. It must be pointed out that complementary foods do not have to be nutritionally balanced, colourful or attractive since complementary foods are often new foods which should be carefully introduced one at a time in order to detect allergies.

Performance on part (c) was satisfactory. Candidates correctly identified choking as the major safety concern associated with feeding toddlers. Candidates concentrated on hygiene as a major method of ensuring safety but ignored points such as size, consistency of food and avoidance of hazardous things such as bones, nuts, seeds and hard small sweets. Many candidates misinterpreted principles which should be observed when serving food to school-aged children for nutritional needs of school-aged children.

Section II - Module 1

Question 2

This question tested candidates' understanding of the benefits of maintaining a healthy lifestyle, and the risk factors, control and management of atherosclerosis.

This question was attempted by 60 per cent of the candidates. The overall performance on this question was fairly good.

Performance on Part (a) was good. Most candidates stated benefits of a healthy lifestyle, but there was too much repetition of many of the same points.

In Part (b), candidates did not understand the term 'risk factors'; instead they gave implications, and descriptions of atherosclerosis.

Part (c) proved to be challenging as candidates gave general statements such as eating healthy or eating a balanced diet, for ways in which the diet can be managed to help control atherosclerosis. Expected answers included: reduce total fat intake; select low fat foods; use alcohol in moderation; consume more vegetables and fruits; balance food intake with physical activity and increase intake of complex carbohydrates.

Question 3

This question tested candidates' understanding of the process of digestion of a slice of banana bread, and the health effects of dietary fibre in the diet.

This question was attempted by 40 per cent of the candidates and the candidates who responded to the question made a good effort.

Performance on Part (a) was mediocre as evidenced by candidates not being able to fully explain the process of digestion, mentioning all the enzymes and nutrients which are broken down and where they are absorbed.

In Part (b), candidates were able to explain at least two benefits of dietary fibre but found difficulty in explaining others without repeating themselves.

Section III - Module 2

Question 4

This question tested candidates' understanding of the production of home-canned carrots, types of nutritional information that is provided on a can of mixed vegetables and reasons for processing low-acid foods at a particular temperature range.

This question was attempted by 16 per cent of the candidates.

Performance on part (a) was poor. Many candidates seemed to be unfamiliar with the processes involved in the home-canning of vegetables. Basic processes are as follows:

1. Washing and cleaning of vegetables
2. Cutting in desired shapes and sizes
3. Covering with boiling water and bringing to the boil so as to pre-cook
4. Sterilizing jar
5. Packing hot vegetables loosely to within 1 1/4 inches of the top
6. Covering with boiling water, adding salt, leaving a space between liquid and jar lid to allow for expansion of food when it is heated
7. Creating a partial vacuum with the seal
8. Placing bottles in water and keeping pressure constant for 35 minutes

In part (b), candidates were able to state that low-acid foods needed temperatures to destroy bacteria, but did not explain that certain bacteria which are deadly, such as clostridium botulinum, can grow and produce toxins in low acid mediums, and that these temperatures can be reached only in a pressure cooker.

Performance on part (c) was good as evidenced by the candidates' ability to list nutritional information found on labels of canned vegetables, even though some gave general rather than nutritional information.

Question 5

This question tested candidates' understanding of a regular diet, types of modifications of the regular diet, disorders that may be treated by modified diets and reasons for cooling food.

This question was attempted by 84 per cent of the candidates.

Performance on part (a) was weak. The majority of the candidates could not define a regular/standard diet; instead they defined the term 'diet'. Candidates were unable to state basic modifications such as: modification in basic nutrients; modification by energy; modification of consistency; modification by elimination of certain foods; and modification in the amounts of fluids. For the most part, candidates were able to identify disorders which require nutrient modifications but not conditions which require other types of modifications.

Part (b) was well done by the candidates as evidenced by them correctly noting that improper cooling of food is hazardous because bacteria can multiply. However, they did not proceed to state that this would lead to food poisoning.

Performance on part (c) was fairly good. Many candidates correctly identified ways to reduce cooling time but could not state reasons for the effectiveness of each method.

Section IV - Module 3

Question 6

This question tested candidates' understanding of converting the total yield and portion size of standard recipes, and preparing and preventing curdling in cream soups.

Performance on this question was good. The question was attempted by ten per cent of the candidates.

Performance on part (a) was weak. Candidates had a general understanding of the concept but were unable to articulate their answers well enough to attain maximum marks. Expected responses included the fact that total yield needs to be changed when the number of servings required increased or decreased and the portion size remained the same. The portion size needs to be changed when the energy requirements are different, for example, when catering for small children or for athletes with high energy requirements

Part (b) was well done as evidenced by candidates correctly converting the ingredients in the recipe to adjust the yield. However, they did not calculate or show the conversion factor.

While most candidates were familiar with the steps for making cream soups, they could not explain how curdling could be prevented.

Question 7

This question tested candidates' ability to select foods from a given list and to suggest savoury and sweet dishes which could be prepared using those foods, how two foods could be used as decorations or garnishes and adapting a cake made by the creaming method using fresh fruits from the list.

Performance on this question was very good and the question was attempted by 90 per cent of the candidates.

Performance on part (a) and part (b) was good. Candidates gave appropriate examples of savoury and sweet dishes as well as garnishes and decorations.

Performance on part (c) was satisfactory. Some candidates seemed not to be familiar with the creaming method of cake making, while the majority of candidates who attempted this section did not state how they would retain the texture especially when extra liquid was added.

UNIT 2

Paper 01 - Short Answer Questions

Question 1

This question tested candidates' understanding of cultural or traditional factors that influenced the diets of people in the Caribbean, and the variations which could improve the nutrient content of indigenous dishes while maintaining their cultural authenticity.

The overall performance on this question was good.

Performance on part (a) was satisfactory. However, candidates misinterpreted cultural/traditional factors for traditional cooking and preparation practices.

Candidates responded fairly well in part (b), as evidenced by the listing of appropriate indigenous dishes popular in their territory. In response to making variations to improve nutritional value, many candidates concentrated on variations in general and not those designed to improve the nutritional value of the dishes. Others listed the addition of herbs and spices which do not significantly change the nutritional value of foods.

Question 2

This question tested candidates' understanding of indigenous tools traditionally used in the preparation of foods. They were given a list of foods and were required to include one in a creamed cake recipe.

The overall performance on this question was very good.

In part (a), the majority of candidates were able to list indigenous tools and their uses. A few candidates listed tools such as 'a barbeque grill'; 'colander'; 'frying pan' and 'knife' which are not considered to be indigenous.

Performance on part (b) was fairly good. Candidates were able to explain how the food would be prepared, for example 'pureed' or 'grated', but did not state how the food would be incorporated into the creamed mixture. Generally, candidates did not demonstrate an understanding of maintaining balance in the creamed mixture to achieve the desired texture. In most cases, they needed to explain the adjustment to liquid and fat.

Question 3

This question tested candidates' understanding of measures to avoid contamination of food during the cooking and preparation process, and of regional organizations responsible for disseminating information on disaster preparedness and strategies used by these organizations to ensure availability of food in a disaster situation.

The overall performance on this question was very good.

Candidates responded well to Part (a) as evidenced by their ability to list indigenous foods to be served at a school canteen.

In part (b), many candidates identified general ways to prevent contamination during the preparation and cooking process rather than ways specific to the dishes that were selected.

Part (c) posed a challenge to some candidates since they were able to list only one organization responsible for disseminating information on disaster preparedness. In addition, they were limited in their knowledge of the strategies used by the organizations. Expected responses included: stockpiling of dried foods; storage of potable water; selection of shelters where assistance would be made available; provision of training for technicians and professionals; and provision of advice to the public on how to prepare for disasters.

Question 4

This question tested candidates' understanding of physical characteristics, methods of preservation, and preparation processes of white fish.

The overall performance on this question was fair.

Performance on part (a) was weak. Most candidates did not provide appropriate responses to identifying physical characteristics of white fish. They gave responses such as 'soft flesh' and 'scaly'.

Part (b) was well known as most of the candidates named appropriate preservation methods and demonstrated an understanding of the basic processes carried out on fresh fish in preparation for preservation.

In part (c), many candidates were unable to state changes which take place during preservation. The most popular response was that the fish 'became salty'.

Question 5

This question tested candidates' understanding of agencies concerned with the safety of the food supply, factors that affect the safety of processed foods and ways in which spoilage of food can be reduced during transportation from the farm to the factory.

The overall performance on this question was very good.

Parts (a) and (b) were generally well done. However, in part (b), many candidates repeated the same points; therefore they were unable to gain maximum marks.

Part (c) was widely known by the candidates as evidenced by their correct responses.

Question 6

This question tested candidates' understanding of food additives commonly used in food production, advantages and disadvantages of using chemical additives and the meaning of the acronym 'GRAS'.

The overall performance on this question was good.

Performance on part (a) was good. Candidates were familiar with the category of food additives used in various food products but were unable to name the specific additive.

In part (b) candidates were able to explain the meaning of 'GRAS'.

Part (c) was widely known though some candidates made vague statements such as 'additives cause cancer'.

Question 7

This question tested candidates' understanding of ways in which the HACCP approach to food safety can be helpful in ensuring the quality of food in large scale food preparation, and factors that affect the quality of preparation and service of food.

The overall performance on all parts of this question was good as evidenced by the correct responses made by the candidates.

Question 8

This question tested candidates' understanding of the term 'master menu', factors to be considered when planning menus for a medical institution, menu planning tools and ways in which the multi-mix principle can assist in planning menus.

The overall performance on this question was satisfactory.

Performance on part (a) was good. Many candidates had a general idea of what was meant by a 'master menu'. However, they did not state that an institution uses it for a given period of time.

In part (b), most candidates listed general factors to be considered when planning menus rather than planning for a medical institution.

In part (c), many candidates seemed totally unfamiliar with menu planning tools such as recipe books, files with previous menus, menu forms, food exchange lists, standardized recipes, and food composition tables.

Performance on part (d) was fairly good as demonstrated by the candidates responding appropriately.

Question 9

This question tested candidates' understanding of ways in which kitchen staff can adhere to serving specified portions of food, strategies for controlling the cost of meals at an institution, and comparing and contrasting à la carte and table d'hôte menus.

The overall performance on this question was good.

Performance on part (a) was satisfactory. Most candidates were able to suggest at least one way to adhere to portion sizes.

In part (b), although the majority of candidates understood the meanings of the two types of menus, they could only state the major differences and could not identify similarities.

Part (c) was well done as evidenced by the candidates responding with appropriate strategies for controlling food cost.

Paper 02 - Structured Essay Questions

Section I - Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of suitable Caribbean indigenous dishes to be served at a restaurant in a non-Caribbean setting, factors to be considered when selecting the menu; traditional beliefs and misconceptions of food; indigenous preserves that can be processed at home; suitable packaging for the preserves; nutritional information to be placed on the label; reasons for loss of nutrients during preparation and storage; and types of food service used in food establishments.

This compulsory question was attempted by all candidates.

The overall performance on this question was good.

Part (a) was well done as evidenced by the correct responses given by candidates. However, some candidates named food items instead of dishes. In identifying factors to be considered when selecting dishes for the menu, some candidates concentrated on general factors to be considered when planning meals and missed the opportunity to translate the knowledge of meal planning into the specific situation of selecting cultural dishes in a different setting. The last section required candidates to identify traditional beliefs or misconceptions about foods. Many candidates missed the word 'traditional' which qualified the statement, and looked at popular trends or food fads which exist in society today. While different territories have varied misconceptions, the candidate has to be able to distinguish between what is 'popular and trendy' and what is 'traditional'.

Performance on part (b) was good as evidenced by the ability of candidates to identify indigenous preserves suitable for processing and packaging at home. There were a few instances of candidates naming the process and not the actual preserve; for example, pickling and salting rather than pickled beets or salted fish. Candidates generally selected and discussed appropriate materials for packaging the preserves. Where candidates were requested to discuss types of nutrition information included on food labels, many of them listed the types but did not attempt to explain them.

Part (c) proved challenging to candidates as many were unable to discuss causes of loss of nutrients associated with preparation and storage of a raw vegetable salad. The few who gave appropriate responses were able to mention just one cause but could not explain why nutrients are lost in this way. The last section, which tested the candidates understanding of types of meal service, was not well done. Many candidates incorrectly interpreted types of meal service as types of menus.

Section II - Module 1

Question 2

This question tested candidates' understanding of environmental and cultural factors that influence food choices in the Caribbean, preparation of a national dish (entree only), and the application of the HACCP system when preparing the entree.

This question was attempted by 82 per cent of the candidates and those who attempted the question performed well.

Performance on part (a) was satisfactory. However, candidates did not interpret environmental and cultural factors correctly and listed preparation practices that are common in the Caribbean. Expected responses included: environmental factors; geography of land; quality of soil; climatic conditions and technology; cultural factors and beliefs; food preferences; education; fads and fallacies; misconceptions; socio-economic status; impact of tourism; impact of media; and ethnic heritage.

Part (b) was widely known by candidates. However, many candidates chose any national dish and not an entrée as requested.

Performance on part (c) was satisfactory. Candidates applied the HACCP system to the preparation of the dish. However, responses were not thorough enough. Candidates needed to

- (i) identify all the critical points;
- (ii) state the hazards for each and
- (iii) list the required standard for each critical point.

For example:

<i>Purchasing</i>	<i>Contamination and spoilage</i>	<i>Purchase from reliable retailers</i>
<i>Preparation</i>	<i>Contamination, cross-contamination and bacteria increase</i>	<i>Wash hands often, sanitize utensils and cutting board</i>
<i>Cooking</i>	<i>Contamination from food handler</i>	<i>Use correct hygiene practices Use clean and sanitized utensils Use correct tasting procedures</i>

Question 3

This question tested candidates' understanding of the food supply network, the impact that chemical pesticides and fertilizers have on the health of a family, and the functions of regulating agencies which monitor food safety in the Caribbean.

This question was attempted by 16 per cent of the candidates. The overall performance of this question was satisfactory.

In part (a), candidates named the parts of the food supply network, but did not provide any explanations.

In part (b), candidates made a good attempt to explain the impact of fertilizers and pesticides on health.

Performance on part (c) was satisfactory. Candidates seemed to be limited in their knowledge of regulating agencies and could not discuss their functions. More attention needs to be directed to this aspect of the syllabus.

Section III - Module 2

Question 4

This question tested candidates' understanding of methods and principles of preserving food, the role of cold and hot temperatures in preserving food, and faults in jam making.

This question was attempted by 30 per cent of the candidates and the overall performance was satisfactory.

Performance on part (a) was satisfactory. Candidates were required to explain how cold and hot temperatures are used to preserve food. Responses were varied as some candidates experienced grave difficulty with the interpretation of this section. Some candidates listed methods of preparation, others concentrated on enzyme action, while the remainder correctly attempted to explain the hindering of microbial growth or destruction of bacteria.

Part (b) posed an even greater challenge to some candidates. Rather than identifying the method of preservation and giving an explanation, some candidates tried to explain why each principle is important in general food preparation. Candidates who correctly identified the preservation method associated with each principle could not always provide an adequate description of the method.

Performance on part (c) was good as evidenced by the appropriate responses given.

Question 5

This question tested candidates' understanding of genetically engineered foods, nutraceuticals, food additives, and freeze drying.

This question was attempted by 70 per cent of the candidates and the overall performance was good.

In part (a), candidates gave satisfactory responses for the meaning of genetically engineered foods and nutraceuticals. However, some candidates did not state that

nutraceuticals were foods or food ingredients. Instead, they were described as ‘things’ that provided some health benefits.

Performance on part (b) was good, as the advantages and disadvantages of genetically engineered foods and food additives were outlined in the candidates’ attempt to explain them.

In part (c), candidates were not familiar with the preservation method of freeze drying.

Section 1V - Module 2

Question 6

This question tested candidates’ understanding of factors which cause food borne illness, the importance of critical temperature zones in cooking and serving food, and quality indicators used by customers in restaurants.

This question was attempted by 67 per cent of the candidates and the overall performance was satisfactory.

In part (a) many responses were repetitive even though they identified correct factors which caused food-borne illness and many of them concentrated on personal hygiene factors. Other expected answers included: food prepared the day before; cross contamination; failure to properly cool food; failure to reheat cooked foods to temperatures that kill bacteria; failure to thoroughly heat or cook food; and foods allowed to remain at bacteria incubation temperatures.

While most candidates seemed to have an understanding of the importance of critical temperature zones in part (b), they were unable to fully explain that harmful microbes can grow in potentially hazardous foods when temperatures are between 40° and 140°F (5° and 60°C). They did not establish that cold foods should be kept below the temperature danger zone 40°F (5°C) and hot food should be kept above 140°F (60°C).

Part (c) was well done as evidenced by candidates giving appropriate responses.

Question 7

This question tested candidates' ability to evaluate a four-course menu, suggest changes that result in the improvement of its quality, and to suggest guidelines pertaining to the following aspects of buffet service: menu planning; table and space arrangement; food presentation and service.

This question was attempted by 33 per cent of the candidates and the overall performance was very good.

Parts (a) and (b) were widely known. Candidates were able to identify faults in the menu and correctly suggest how these faults could be remedied.

Some candidates encountered difficulty with part (c), where they were required to suggest guidelines for buffet service. Some expected responses included the following:

Menu Planning

Items should be easy to portion and serve

Identify a theme and select dishes consistent with the theme

Offer foods prepared by different methods, textures and colours

Consider the expectations of guests

Table and Space Arrangement

Set up stations for very large groups

Allow one foot for each item on the buffet table

Arrange the buffet to allow easy flow of guests through the line

Set up double sided buffet lines

Food Presentation and Service

Vary heights of dishes

Introduce interesting colours in the table covering

Select centerpieces and decorations consistent with the menu theme

Label food items

INTERNAL ASSESSMENT

This paper consisted of a portfolio comprising three pieces of work which tested objectives across all Modules. Candidates, in consultation with the teacher and the guidelines provided by the Caribbean Examinations Council, selected the activities. Each assignment was drawn from each of the three Modules.

Each assignment was marked out of 30. The overall performance of the candidates was good. However, most candidates duplicated the suggested activities noted in the syllabus, instead of drawing from the myriad of objectives given for each Module. All the candidates at a centre completed the same assignment.

The majority of portfolios exhibited a high level of professionalism in organization and were very well presented. Most of the illustrations were clear and creative. The quality of the assignments was appropriate for the Advanced Proficiency Level. However, it is imperative that teachers are aware that a portfolio should be submitted, instead of three distinct pieces.

Some candidates submitted exemplary portfolios. The work of these candidates was scientifically-based and rigorous. These candidates are to be highly commended for their effort. In many instances, there has been great improvement in the level of portfolios submitted for moderation.

Module 1 - Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. The literature review was well developed by candidates who were able to source relevant and current information. Data was well presented, but very little reference was made to the data. In several cases, inferences, predictions, or conclusions were not attempted by the candidates. The conclusions and recommendations were not accurately or scientifically based. Similarly, some candidates did not support the analysis of data.

Module 2 - Experimentation

Candidates selected appropriate experiments and demonstrated knowledge of relevant facts. Reports were well written and presented. Most of the candidates developed rationales and formulated valid hypotheses. However, the procedures for the experiments were not clearly documented. In addition, there was no evidence to suggest that experimental methods were modified after critical or unexpected outcomes. This resulted in experiments which were done on a one-shot basis.

Module 3 - Recipe Modification

This assignment presented a challenge to some candidates. Candidates did not first establish a problem before they approached the task of attempting modification procedures. Some projects consisted primarily of preparing smaller or larger batches of the product or removing one ingredient. In many instances the product development and modification were not given adequate attention.

RECOMMENDATIONS TO TEACHERS

Overall, the performance on the examination was satisfactory. This performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of candidates. Although candidates had an understanding of concepts they did not elaborate and fully develop answers as was expected at the Advanced Proficiency Level. It was clear that some candidates were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should, therefore, cover the entire syllabus so that they can satisfy the requirements of the examination. Greater emphasis must be placed on those concepts which can be regarded as current areas of nutrition.

The following suggestions are made to teachers:

EXTERNAL ASSESSMENT

Candidates should be encouraged to:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.
- Answer questions with a variety of key words, namely: discuss; explain; list; describe; and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates' inability to gain as many marks as possible.

- Participate in mock examinations, using past examination papers and administered under examination conditions in order to develop good examination techniques.
- Utilize different media to become familiar with current nutrition issues.
- Place emphasis on research techniques, case studies and problem solving.
- Engage in field trips and work attachments to help in understanding fully nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breast feeding; nutrition related disorders; and practices and procedures for ensuring safety of food, for example.
- Engage in practical exercises in the identification and use of the nutritive value of food not categorized in the food groups namely: functional/genetically engineered foods; fat replacers; sugar, salt and other substitutes; and convenience foods.
- Develop ideas, and demonstrate clarity of expression. In many cases candidates showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the advanced proficiency level.
- Adhere to general instructions. Many candidates ignored the instruction to begin each question on a new page, sometimes without even skipping a line. In some cases candidates did not keep parts of a question together. They should be advised to leave a blank page in the workbook when going on to a new question, if the previous question has not been completed. Also, the question number must be written in the space provided.

INTERNAL ASSESSMENT

Candidates should be encouraged to:

- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.

- Note that literature reviews for each assignment do not have to be extensive, but should be thorough enough to outline the problem and research relevant to the same. This cannot be adequately done in two to three pages. Candidates must utilize a variety of sources and should be taught the APA referencing style for citing sources and developing a reference list.
- Develop rationales and explain the significance of the topic.
- Draw assignments from the variety of objectives suggested in the syllabus.

Recommendations for Internal Assessment in Each Module

Module 1 - Research

- Candidates must not only present the data but they should discuss the data clearly. They should attempt to discuss the most important or significant questions asked in the questionnaire or interview.
- Efforts should be made to guide students in making simple inferences, and drawing conclusions yielded from the data. They must give a summary or conclusion at the end of the project.

Module 2 - Experimental

- Candidates should be advised that a detailed report must be written, which accurately records and reports all observations.
- Efforts should be made for candidates to understand that experiments are not completed on a one-shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes. For example, if candidates are testing the vitamin content of vegetables, several foods should be tested.

Module 3 - Recipe Modification

- Efforts should be made to introduce candidates to the role of product development and recipe modification. In addition, demonstrations should be completed before students engage in their individual assignments.

- Students should be advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to achieving success. For this reason, it should involve the altering of several ingredients. Hence, 'baked products' is suggested as an example for modification. For example, at this Proficiency, it is unacceptable to modify the amount of fat in 'beef stew' and view this as competent work,
- Experiences must be provided for candidates to fully understand that a recipe is a formula, thus any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one-shot basis.
- Efforts should be made for candidates to understand the role of major ingredients used in recipes, especially baked items. For example, if the amount of sugar in a creamed mixture is changed there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.
- Candidates should be encouraged to use food composition tables to determine energy values for the original and new product.
- Candidates should be encouraged to formulate valid hypotheses.
- Candidates should be encouraged to record and report methods, observations and results accurately.
- Efforts should be made to explain changes in recipes, even though the recipe is given. Candidates must also document the results of every change and explain why there is need for further modification.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2005**

FOOD AND NUTRITION

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FOOD AND NUTRITION
CARRIBBEAN ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2005

GENERAL COMMENTS

The Caribbean Examinations Council administered its third open examination in Food and Nutrition Unit I and its second open examination in Unit 2 in May 2005. There were some good responses to questions in both Units.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

DETAILED COMMENTS

Paper 01 – Short Answer Questions

Question 1

This question tested candidates' understanding of dietary practices of persons who are at risk for high blood pressure, and dietary guidelines aimed at improving the quality of life of persons living with HIV/AIDS.

The overall performance of this question was good.

Part (a) (i) of the question was fairly well done. Most candidates understood that regular use of salted meat increased blood pressure. However, they were unable to make the link that a high intake of sodium leads to a retention of fluids and hence an increase in blood pressure.

In part (a) (ii) most of the candidates noted that carbohydrates are bulky so the total food intake is likely to be small, thereby keeping the body weight normal. Very few candidates were able to explain that fibre helps to lower blood pressure by keeping blood vessels healthy and elastic. It binds with, and removes cholesterol.

Performance on part (b) was good. Most candidates were able to list other nutrition related diseases.

Performance on part (c) was good. Most candidates correctly formulated guidelines for those living with HIV/AIDS.

Question 2

This question tested candidates' understanding of how dietary conditions may be verified, health effects caused by excessive consumption of dietary fibre and low

calorie diets.

In general this question was poorly answered.

Part (a) was not done well by the majority of candidates who seemed not to be familiar with the term 'verified'. Similarly, they were unable to give measures such as blood tests and visual tests for verifying anaemia in pregnant women, and for overweight in the elderly; Body Mass Index (BMI); and weight for height.

Performance on part (b) was satisfactory. Several candidates correctly explained why children on low calorie diets are wasted or thin for their weight.

Part (c) posed the greatest challenge as candidates explained the role of fibre in the diet and did not focus on health effects caused by excessive consumption of dietary fibre, such as flatulence, diarrhoea, and displaced calories.

Question 3

This question tested candidates' understanding of nutrition related problems that are prevalent among young children, the activities that can be undertaken by a day care facility to address these problems, and the affects of an increase in the metabolic rate of teenagers.

This question was very well done, although in part (b) some candidates identified PEM/malnutrition as a nutrition related problem in the region.

Performance on part (b) was good. Candidates were able to give responses which adequately addressed nutrition related problems in children.

In part (c) some candidates seemed not to understand the term 'metabolic rate' hence they did not describe effects of an increase of the metabolic rate in teenagers.

Question 4

This question tested candidates' understanding of genetically modified foods and nutrition labelling.

Performance on this question was good.

Part (a) of the question was satisfactory. Candidates showed a fairly good understanding of genetic modification. However, some were unable to link the effects the modification would have on the diet of a strict vegetarian.

Part (b) (i) was well answered. Candidates were able to read and interpret the label correctly identifying 'standard portion size' as a serving size and 'daily value' as the proportion of nutrients in relation to the Recommended Dietary allowance.

In part (b) (ii), the calculation of calories contributed by total carbohydrates and the percentages of energy from fat posed a challenge to candidates.

Question 5

This question tested candidates' understanding of the methods of preservation of milk, and food safety regulations.

The overall performance of this question was good.

Performance on part (a) was good. Candidates made a fair attempt in their responses as they were familiar with the methods of preservation but were unable to explain the scientific principles involved in each process. For example they could not state that ultra heated milk is heated for one second at 132.2 ° C and packaged under aseptic conditions to destroy food spoilage and pathogenic organisms.

In part (b) most of the candidates were aware of the food safety regulations. However, they were unable to give a comprehensive justification for the regulations. Many did not recognize that microbes grow best at temperatures between 4 ° C and 60 ° C which is the danger zone.

Question 6

This question tested candidates' understanding of feeding and safety practices of children.

The overall performance on the question was very good.

Performance on part (a) was excellent and it was evident that candidates enjoyed responding to this question.

In part (b) many candidates correctly explained safety practices for preparing beverages from fresh fruits. Some, however, focussed on the conservation of nutrients rather than on food safety practices.

Question 7

This question tested candidates' understanding of microwave cooking.

In general, performance on this question was poor.

Part (a) was poorly answered as candidates were generally unaware of the principles underlying microwave cooking; instead they gave benefits of using the microwave.

Performance on part (b) was poor as candidates were not familiar with the term 'cold spots' and instead identified ways of cleaning the microwave. Expected responses of preventing cold spots include the following:

- Stirring food during cooking to facilitate even cooking
- Arranging food uniformly
- Removing bones and cooking at medium power for a longer period of

- time
- Following recommended standing time so that cooking is completed
- Ensuring that foods are at the same temperature when placed in microwave

Performance on part (c) was weak. Many candidates were unable to suggest suitable reasons for not heating a baby's milk in the microwave.

Question 8

This question tested candidates' understanding of factors which contributed to success in bread making and potential hazards found in a bakery.

The overall performance of the question was poor.

In part (a) candidates had some knowledge of the success factors but were unable to adequately explain the principles. For example, they mentioned the need to have warmth but did not explain that yeast will reproduce best at temperatures of 76⁰ to 82⁰ F. Below and above this temperature yeast is dormant, or is killed.

Part (b) was not well done. Candidates linked 'knocking back' with kneading the dough rather than explaining that this process distributes yeast cells that are formed during the fermentation stage, and allows for satisfactory volume of the finished product.

Part (c) was answered satisfactorily. However, some candidates misinterpreted the question and related it to problems that can result with the yeast product rather than general hazards that occur in the bakery.

Question 9

This question tested candidates' knowledge of recipe modification and the purposes of garnishes.

The overall performance on this question was very good.

Performance on part (a) was fairly good. Most candidates justified suitable modifications.

In part (b) excellent responses were given as candidates were able give suitable garnishes and correctly identified their purposes.

Paper 02 - Structured Essay Questions

Section I - Compulsory Question, Modules 1, 2 And 3

Question 1

This question tested candidates' understanding of the categories, role and needs of protein in the diet, protein content of the six food groups, feeding the vegan, serving

entrees attractively and sensory characteristics of food.

This was a compulsory question and was attempted by all the candidates.

The overall performance on this question was satisfactory.

Part (a) was satisfactorily done. Most candidates were able to outline the role of protein in the diet. However; many experienced difficulty in listing legumes, food from animals, whole grains (nuts and cereals) and textured vegetable protein as the four main categories of protein foods.

While many candidates showed an understanding of the differences in the protein needs of infants and the elderly, responses did not reflect those expected at this level of examination. Responses should have explained the comparison in relation to body mass in order to support periods of intensive growth of children and the need of the elderly for maintenance.

Candidates experienced difficulty in justifying the need for complementary proteins in the diet.

Performance on part (b) was fairly good.

When assessing the protein content of protein foods, candidates were not specific. It was expected that the responses would indicate if protein in a group was deficient, of high or low biological value and contained large or moderate amounts. Most of the candidates were able to plan two course meals for vegans, while a few included food items such as fish and chicken.

Performance on part (c) was weak. Candidates experienced difficulty in outlining ways in which entrées may be attractively served. Responses expected included:

- Garnishes should complement the food in colour, texture, design, size and taste;
- Garnishes should be used only when necessary to give balance to the arrangement of a dish;
- Garnishes should not mask the flavour of the food being presented
- Garnishes should be arranged so that there is unity, ensuring that the eyes are drawn to the dish.

Candidates identified the sensory characteristics of food but could not explain the principles.

Section II - Module 1

Question 2

This question tested candidates' understanding of terms commonly associated with eating and the multi-mix principle.

This question was attempted by a large percentage of the candidates. The overall performance on this question was good.

Performance on part (a) was good. Most candidates adequately differentiated between hunger and appetite and discussed psychological factors that affect eating behaviour.

In part (b) candidates were not very clear about the multi-mix principle, thus, explaining the rationale for its use and different types of mixes posed a challenge. Explanations and rationales for the use of the multi-mix principle include those listed below.

- It is based on the premise that a mixture of foods eaten together will complement and naturally reinforce one another.
- The four foundation groups are: staples, foods from animals, legumes and coloured vegetables.
- It is a simple way of ensuring nutrient balance in a way that the general population can understand.
- The mixes create several options so that persons with low incomes can have the best nutrient balance possible.
- The mixes are useful in planning crushes and meals for young children.

Question 3

This question tested candidates' understanding of energy balance and was attempted by a small percentage of the candidates.

Performance of the few candidates who attempted this question was satisfactory.

Performance on part (a) was fair. Some candidates were not able to fully calculate the amount of energy needed to make up the diet. Candidates were not need to be provided with opportunities to practice calculating these types of problems. Candidates did not fully comprehend the term 'energy balance' and were, therefore, unable to outline a clear response.

In part (b) candidates kept referring to 'prevention' as opposed to 'management' of diabetes. The focus was placed primarily on 'placing students on a diet'. Expected responses are given below.

- Screening - regular glucose testing and periodic fasting to ensure that blood glucose levels are in control.
- Diet - control of energy intake to ensure that the person does not fall into a coma, and to prevent hypoglycemia (low blood sugar). Use of complex carbohydrates rather than simple sugars. Use of low glycemic foods that do not raise glucose levels greatly.
- Medication - following the instructions of the doctor to ensure acceptable glucose blood levels.
- Exercise - following a regular exercise regime to help improve blood glucose and to maintain desirable weight.

Section III - Module 2

Question 4

This question tested candidates' understanding of meal planning, use of convenience foods, caloric value of energy nutrients and implications of excessive intake of energy nutrients.

This question was attempted by a small percentage of the candidates and those who responded made a good effort.

Performance on part (a) was good. Many candidates skilfully incorporated convenience food into the meal.

In part (b) candidates gave suitable responses for implications of excessive energy intake on health. However, at this level candidates should be able to correctly interpret the term 'caloric value', which was not the case in several instances.

Question 5

This question tested candidates' understanding the implications of excessive consumption of particular nutrients and the importance of safety during food preparation.

This question was attempted by a large percentage of the candidates.

Performance on part (a) was good. The majority of the candidates outlined the implications for excessive consumption of sodium and protein but failed to give full explanations of these implications.

Part (b) was done well by the candidates as most were able to state the sanitary practices for ensuring food safety. It is evident that candidates have a perfunctory understanding of the importance of sanitation in food preparation. However, they experienced problems in fully discussing the concept.

Section IV - Module 3

Question 6

This question tested candidates' understanding of the procedure for roasting a turkey, suitable accompaniments and the first-aid procedure for the treatment of injuries that may be sustained during the preparation of the turkey.

Performance on this question was fairly good. The question was attempted by a large percentage of the candidates.

Performance on part (a) was only fair. Candidates had a general idea of the requirements of the question but were unable to articulate responses well enough to attain maximum marks.

Part (b) was well done as evidenced by candidates outlining appropriate first-aid procedures.

Question 7

This question tested candidates' ability to outline standard management procedures for ensuring the efficient flow of work in a food preparation area, knife sharpening skills and illustrations of a variety of vegetable cuts.

Performance on this question was very poor. The question was attempted by very few candidates.

Performance on part (a) was very poor. Candidates did not focus on the term "management procedures", and instead focussed exclusively on kitchen lay out. Expected responses include the following:

- Preparation of a plan of work - dishes to be prepared, shopping list, equipment needed and time to complete task;
- Organization of sequence of work;
- Dovetailing of tasks;
- Following procedures of recipe;
- Maintenance of efficient time management;
- Maintenance of clean areas and equipment throughout;
- Holding and serving foods at appropriate temperature.

In part (b) the responses of candidates were weak as evidenced by the inability to clearly explain the procedure for sharpening a knife. Candidates did not understand the term 'illustrate', thus, they were unable to score the maximum marks. In addition, several of them were not familiar with the Brunoise cut.

DETAILED COMMENTS

UNIT 2

Paper 01 - Short Answer Questions

Question 1

This question tested candidates' understanding of factors that influenced food customs in the Caribbean, and development of original recipes.

The overall performance on this question was very good.

Part (a) was well done.

Candidates responded fairly well in part (b) although many did not develop an original recipe.

Question 2

This question tested candidates' understanding of the impact of excessive consumption of nutrients present in coconut, and strategies that can be used by care givers of school-aged children to promote inclusion of vegetables in their diet.

The overall performance on this question was very good.

In part (a) the majority of candidates were able to list nutrients present in coconut. However, some just wrote vitamins and minerals without being specific.

In part (b) some candidates did not seem to associate excessive consumption of coconut with excessive consumption of saturated fat. However, the majority of candidates stated storage of excess body fat as one possible impact on health.

In part (c) most candidates seemed to understand what the question required but they could not always give two distinct responses. For example the following response 'make dishes attractive, use colours, shapes and sizes' counted as the same point but students listed them as single points.

Question 3

This question tested candidates' understanding of functions of food regulatory agencies which ensure food safety, and critical control points in the production of baked goods.

The overall performance on this question was good.

Candidates responded well to part (a) by giving a list of appropriate functions of food regulatory agencies.

In part (b) many candidates confused critical control points in the production process with hygiene practices.

Question 4

This question tested candidates' understanding of the role of additives in food manufacturing.

The overall performance on this question was good.

Performance on part (a) was fairly good. Most candidates were able to name various additives, but did not fit them into the right categories. This resulted in only a few candidates scoring the maximum mark.

In part (b) many candidates were unable to identify 'safety' as the major factor when considering the use of additives in food products.

Question 5

This question tested candidates' understanding of food labelling to meet international standards and effective packaging of food products.

The overall performance on this question was very good.

Parts (a) and (b) were generally well done. Most candidates scored maximum marks.

Part (c), which required candidates to explain criteria for effective packaging of soups and sauces, posed some challenges to candidates. Though most of the candidates seemed to understand the question, in general, they were unable to provide responses which were accurate and not repetitious.

Question 6

This question tested candidates' understanding of properties of egg white and factors to be considered when costing home-made preserves.

The overall performance on this question was fairly good.

Performance on part (a) was only fair. Candidates seemed unable to differentiate between physical and chemical properties. Instead they randomly discussed facts about eggs.

In part (b) candidates clearly understood what was required, even though they were unable to score maximum marks.

Question 7

This question tested candidates' understanding of the quality of food service in an eating establishment.

The overall performance on this question was good.

The majority of candidates performed well in part (a). However, some candidates interpreted the question incorrectly as evidenced by the listing of reasons for delays in serving the meals rather than giving measures to be put in place to address the problem of lateness.

Part (b) was done very well.

Question 8

This question tested candidates' understanding of pest control strategies for food establishments.

The overall performance on both parts of this question was very good.

Question 9

This question tested candidates' understanding of menu types and use of the multi-mix principle to plan menus.

The overall performance on this question was good.

Performance on part (a) was satisfactory. Most candidates were familiar with the menus and gave reasonable explanations.

In part (b), while many of the candidates seemed to have a cursory understanding of the multi-mix principle, they did not seem to know the term 'five day cycle menu' and were, therefore, unable to apply it in responding to the question.

Paper 02 - Structured Essay Questions

Section I - Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of principles of menu planning, comparison of the qualities of traditional and modern equipment used for preparing indigenous dishes, health implications of the use of nutrients, and preservation of meat by smoking.

This compulsory question was attempted by all candidates.

The overall performance on this question was good.

Part (a) presented a challenge to many of the candidates because they concentrated on factors to be considered when planning meals such as adequacy, balance variety, and portion control instead of on principles of menu planning.

Performance on part (b) was good as many candidates were able to identify indigenous equipment and discuss advantages of using modern equipment. Additionally, they were able to list nutrients and give the health implications of each.

In part (c), while most of the candidates were able to identify products preserved by smoking, the majority seemed to have only a vague idea of the steps involved in the process of smoking.

Section II - Module 1

Question 2

This question tested candidates' understanding of food security for the household and ensuring adequate nutrition for persons housed in a shelter after a natural disaster.

This question was attempted by a large percentage of the candidates.

Performance on part (a) was fairly good. The majority of candidates had a good understanding of food security and were able to give reasonably good responses to how food security could be improved.

Part (b) required candidates to discuss factors which affected food availability. Some candidates did not differentiate between food availability and accessibility; thus, they provided responses related to both concepts.

Performance on part (c) was good as candidates were able to discuss appropriate factors to ensure adequate nutrition after natural disasters.

Question 3

This question tested candidates' understanding of the cultural beliefs about food, and guidelines for ensuring that a healthy diet is maintained.

This question was attempted by a moderate percentage the candidates. The overall performance on this question was good.

In part (a), candidates were familiar with popular food beliefs. However, they did not always restrict the explanation to nutritional facts. For example, when discussing the fallacy, 'Liver makes babies get worms', several reasons were given for babies contracting worms at that age, without any indication of the nutritional implications of babies consuming liver. Several candidates also looked at dietary guidelines advocated by specific religions, rather than popular cultural beliefs about food.

In part (b), candidates did not restrict responses to dietary measures but included other elements of healthy lifestyle such as exercise.

Section III - Module 2

Question 4

This question tested candidates' understanding of structural components of carbohydrates in fruits and vegetables and the process involved in manufacturing frozen vegetables.

This question was attempted by very few candidates.

The overall performance on this question was poor.

Performance on part (a) was poor. Most of the candidates were unable to identify the structural components of carbohydrates in fruits and vegetables; instead, the classification of carbohydrates was described. Only a few candidates mentioned fibre and cellulose.

In part (b) candidates explained some of the processing stages in the manufacture of frozen mixed vegetables, but were unable to score the maximum mark, since they failed to include temperatures for blanching, cooking and storing.

Question 5

This question tested candidates' understanding of food supplementation, vitamin and mineral supplements, and health claims listed on labels.

This question was attempted by the majority of the candidates.

The overall performance on this question was good.

Part (a) was generally well done by the candidates who attempted this question, though some could not clearly differentiate between fortification and enrichment. However, they were very familiar with foods that are supplemented by both processes.

Performance on part (b) was fairly good. Most candidates named the groups of persons who could benefit from supplements, but failed to name the correct micronutrients from which the group may benefit.

In part (c) candidates had a general idea of what a health claim was. They were, however, not familiar with the criteria or legal requirements for the use of certain health claims. Many of them could not give concrete examples of health claims. Expected responses include those listed below.

- Statements that characterize the relationship between a nutrient or other substance in a food and a disease or health related condition.
- The relationship between diet and health must be clearly established by scientific evidence.
- They must emphasize the importance of a total diet and not exaggerate the role of a particular food or diet in disease prevention.
- Manufacturers must not distort the role of their products in promoting health.
- Claims must be honest and balanced. For example, they can state that foods high in calcium may reduce the risk of osteoporosis.

Section IV - Module 3

Question 6

This question tested candidates' understanding of the requirements for managing and

regulating portion control in establishments and factors to be considered when designing menu cards.

This question was attempted by a fairly large percentage of the candidates.

The overall performance on this question was satisfactory.

In part (a), many candidates gave excellent responses for suitable equipment for regulating portion sizes. While most candidates seemed to have an understanding of indicators that may signal to management that portioning standards need to be adjusted, they were unable to fully explain them.

Part (b) was poorly done by the majority of candidates who focussed on menu planning rather than on the design of menu cards.

Question 7

This question tested candidates' ability to include Caribbean dishes in a buffet for International Night, considerations for arrangement of the buffet dishes and calculation of the selling price of dishes.

This question was attempted by a fairly large percentage of the candidates.

The overall performance on this question was very good.

Part (a) was widely known. Candidates were able to identify appropriate dishes. However, some responses were not restricted to the factors to be taken into consideration when arranging the dishes on the buffet table.

Candidates responded fairly well to part (b). While many of them knew the components of the pricing system they were unable to integrate these components into the calculation of the selling price.

INTERNAL ASSESSMENT

Category	Example
Free	sugar free, sodium free, cholesterol free
High	high in iron, vitamin C, fibre
Less	saturated fat, cholesterol
Light	sodium, sugar, fat
Fat free	seen in most products

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all Modules. Candidates, in consultation with the teacher, and using the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of the candidates has shown great improvement.

The majority of portfolios exhibited a high level of professionalism in organization and were very well presented. Most of the illustrations were clear and creative. The quality of the assignments was appropriate for the Advanced Proficiency Level. It is imperative that teachers are aware that a portfolio should be submitted, instead of three distinct pieces.

Some candidates submitted exemplary portfolios. The work of these candidates was scientifically based and rigorous. These candidates are to be highly commended for their effort.

Several teachers seemed to have used the old syllabus, however. Teachers are asked to ensure that the current syllabus is used in the preparation of candidates .

Assignment 1 - Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. In most cases literature reviews were comprehensive, but sources used were not always cited. Data were well presented, but very little reference was made to the data. In several cases, inferences, predictions, or conclusions were not attempted by the candidates. The conclusions and recommendations were not accurately or scientifically based. Similarly, they did not support the analyses of data.

Assignment 2 - Experimentation And Recipe Modification

Candidates selected appropriate experiments and demonstrated knowledge of relevant facts. Reports were well written and presented. Most of the candidates developed rationales, but many hypotheses were not clearly formulated. The procedures for experiments were, in most cases, clearly documented. A large majority of the candidates modified the product after critical or unexpected outcomes.

RECOMMENDATIONS TO TEACHERS

Overall, the performance on the examination was satisfactory. This performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of candidates. Although candidates had an understanding of concepts they did not elaborate and fully develop answers as was expected at the Advanced Proficiency Level. Some candidates were not fully prepared for this level of examination. It was also clear that they were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should, therefore, cover the entire syllabus so that they can satisfy the requirements

of the examination. Greater emphasis must be placed on those concepts which can be regarded as current areas of nutrition.

EXTERNAL ASSESSMENT

Candidates should be encouraged to note the following general guidelines:

- Read questions carefully, paying attention to key words;
- Place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote;
- Develop responses fully, paying attention to the marks allocated for each part of the question;
- Practice answering questions with a variety of key words, namely - discuss, explain, list, describe and define. (Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates' inability to gain as many marks as possible);
- Participate in mock examinations using past examination papers and administered under examination conditions in order to develop good examination techniques;
- Utilize different media to become familiar with current nutrition issues;
- Place emphasis on research techniques, case studies and problem solving;
- Engage in field trips and work attachments so as to understand fully nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breast feeding; nutrition related disorders; and practices and procedures for ensuring safety of food;
- Engage in practical exercises in the identification and use of the nutritive value of food not categorized in the food groups namely - functional/ genetically engineered foods, fat replacers, sugar, salt and other substitutes; and convenience foods;
- Develop ideas and demonstrate clarity of expression. (In many instances instances showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the Advanced Proficiency level);
- Adhere to general instructions. Many candidates ignored the instruction to begin each question on a new page, sometimes without even skipping a line. In some cases, candidates did not keep parts of a question together. They should be advised to leave a blank page in the workbook when going on to a new question, if the previous question has not been completed.

Also, the question number must be written in the space provided.

INTERNAL ASSESSMENT

Candidates should be encouraged to note the following general guidelines:

- Seek guidance in choosing topics for projects as well as throughout the entire exercise;
- Select topics that are of interest and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project;
- Note that literature reviews for each assignment do not have to be extensive, but should be thorough enough to outline the problem and research relevant to the same. This cannot be adequately done in two to three pages. A variety of sources should be utilized and the APA referencing style for citing sources and developing a reference list must be used;
- Develop rationales and explain the significance of the topic.

Assignment 1—Research

- Candidates must not only present the data but they should discuss the data clearly. They should attempt to discuss several of the important or significant questions asked in the questionnaire or interview.
- Candidates must make simple inferences, and draw conclusions from the data. A summary or conclusion must be given at the end of the project.

Assignment 2 - Experimentation and Recipe Modification

- Candidates should be advised that a detailed report must be written, which accurately records and reports all observations.
- It is important to understand that experiments are not completed on a one-shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes.
- Efforts should be made to introduce candidates to the role of product development and recipe modification. In addition, demonstrations should be completed before engaging in individual assignments.
- Candidates should be advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to achieving success. For this reason, it should

involve the altering of several ingredients, hence baked products is suggested as an example for modification. For example, at this proficiency it is unacceptable to modify the amount of fat in “beef stew” and view this as competent work,

- Experiences must be provided for candidates to fully understand that a recipe is a formula; thus, any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one shot basis.
- Efforts should be made for candidates to understand the role of major ingredients used in recipes, especially baked items. For example, if the amount of sugar in a creamed mixture is altered there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients, yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.
- Candidates should be encouraged to use food composition tables to determine energy values for the original and new product.
- Candidates should be encouraged to formulate valid hypotheses.
- Candidates should be encouraged to record and report methods, observations and results accurately.
- Candidates should include the results from the sensory evaluation in their discussions.
- Candidates should develop conclusions to summarize their findings.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2006**

FOOD AND NUTRITION

FOOD AND NUTRITION
ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2006

GENERAL COMMENTS

The Caribbean Examinations Council administered its fourth open examination in Unit 1 Food and Nutrition and its third open examination in Unit 2 in May 2006. There were some good responses to questions in both Units.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

Paper 01 - Short Answer Questions

Paper 01 in both Units consisted of nine compulsory short-answer questions. Candidates were required to answer all questions. There were three questions on each of the three Modules in the Unit. Paper 01 tested the grasp of critical nutrition principles and mastery of relevant skills. Candidates' performance was satisfactory. The maximum possible mark was 90. In Unit 1, the marks ranged from 19 to 69 and the mean mark was 48.44. In Unit 2, marks ranged from 24 to 74 and the mean mark was 48.06.

Paper 02 - Structured Essay

In Unit 1 and 2, Paper 02 consisted of seven essay question which tested objectives across all Modules. It was divided into four sections. Section I consisted of one compulsory question spread across all the Modules. Section II to IV each comprised two optional questions and candidates were required to answer one question from each section. Questions in Section II were based on Module 1, those in Section III on Module 2, while questions in Section IV were based on Module 3.

The compulsory question in Section I was worth 45 marks and all others were worth 25 marks each. Overall, candidates' performance was good. The maximum possible mark was 120. The marks for Unit 1 Paper 02 ranged from 19 to 103 and the mean was 52.99. The marks for Unit 2 Paper 02 ranged from 29 to 83 and the mean mark was 60.67.

DETAILED COMMENTS

UNIT I

Paper 01

Short Answer Questions

Question 1

This question tested candidates' understanding of the factors that may cause the Basal Metabolic Rate to vary between individuals, how energy requirements are calculated and the chronic diseases associated with positive energy balance.

The overall performance of this question was satisfactory.

Part (a) of the question was fairly well done. Most candidates were familiar with factors which affect the Basal Metabolic Rate (BMR), even though some responses were vague and could not be awarded marks. Some vague responses were, 'hormones' 'weight' and 'social status'. Expected responses were 1. Thyroxine, the hormone that regulates energy levels in the body. 2. Body composition: the more the lean tissue, the higher the BMR. 3. Physical activity level. It is always to the candidates' advantage to cite an example in responding to questions - physiological state, for example, pregnancy raises the BMR.

Part (b) was poorly done. Candidates did not know how energy requirements are calculated; however, some did know that physical activity level was a component. The expected response was BMR multiplied by physical activity level.

In part (c) (i), candidates did not understand the concept of "positive energy balance" and as such gave incorrect responses. In learning about energy balance candidates need to be taught that a positive energy balance means weight gain which eventually will lead to obesity, while negative energy balance means weight loss.

Performance on part (c) (ii) was good. Most candidates correctly listed chronic diseases.

Question 2

This question tested candidates' understanding of the synergistic relationship between infection and malnutrition in children, and uses of growth charts.

In general, this question was weak. Candidates did not critically analyse the stimulus information and use it to their advantage when responding to the question.

Part (a) was not done well by the majority of candidates. In response to purposes of a growth chart, they could have used the information given in the stimulus to note that the chart is used to:

1. determine whether a child is growing well;
2. assess the rates of malnutrition in a given community;
3. provide data for use in designing nutrition programmes for the community;
4. educate parents about malnutrition.

Part (b) posed the greatest challenge as candidates were unable to fully explain the synergistic relationship between food poisoning and malnutrition. They were required to state that malnutrition can halt growth by (i) reducing food intake; (ii) increasing the need for nutrients to boost the immune system; (iii) reducing absorption of nutrients due to damage done to the gut by food poisoning bacteria and (iv) expulsion of food in the form of vomiting and diarrhoea before digestion can take place. In addition, the period of illness lowers the child's resistance to infection, making him/her susceptible to other infections. The resulting loss of weight can cause the child to begin to show signs of malnutrition.

Question 3

This question tested candidates' understanding of the factors responsible for malnutrition in the Caribbean and energy-dense complementary foods for babies.

This question was answered satisfactorily.

In part (a) (i), most of the candidates correctly responded that the publication "The State of the World's Children" was produced by UNICEF.

In part (a) (ii), candidates correctly named factors such as poverty, lack of education and poor availability of nutritious foods.

In part (b), most candidates were unable to identify 'babies having small stomachs' as the reason for feeding them with energy-dense foods; instead they focussed on the fact that babies need energy to grow. Many were able to identify foods that could be added to the babies' porridge to make it energy-dense; however, foods such as cereals or milk were not awarded marks, since they are already components of the porridge. Candidates who indicated that it was an extra addition, for example, condensed milk or breast milk were awarded the marks. Possible allergens such as 'peanuts' were not accepted as foods that could be added to babies' porridge.

Question 4

This question tested candidates' understanding of nutritionally sound practices, use of artificial sweeteners, conservation of nutrients, and complementary proteins.

Performance on this question was very good.

In part (a), most candidates associated diabetes with a reduction of sugar; however, they did not identify artificial sweeteners as being 1) non-nutritive and therefore not metabolized in the body; 2) extremely sweet thus the ability to be used in very small amounts; 3) not recognized by the body as carbohydrates and 4) not affecting insulin levels though they provide a sweet taste.

Responses in part (b) indicated that candidates were familiar with nutritionally sound reasons for preparing raw salads just before serving.

Part (c) was generally well done as most candidates indicated that legumes were good sources of proteins and therefore they are very useful in the diet of vegetarians or that they form a part of many complementary proteins.

Parts (d) and (e) attracted maximum scores as most of the candidates were aware that water soluble nutrients from a can of spinach are leached into the liquid in which they are canned, and that dark green and leafy vegetables are sources of iron and are, therefore, useful in the diet of an anaemic child.

Question 5

This question tested candidates' understanding of menu planning and the role of seasonings and colourful vegetables in the diet of elderly persons.

The overall performance of this question was good.

Performance on part (a) was fairly good. The majority of the candidates correctly indicated that seasonings and colourful vegetables would encourage the elderly to eat or improve the taste or the appetite. However, some were unable to link this with the physiological changes in the elderly associated with aging, namely, that with increasing age, the replacement of taste cells slows down and there is a gradual loss of taste.

Breakfast menus in part (b) were generally balanced nutritionally, however, they did not always follow the breakfast meal pattern.

Question 6

This question tested candidates' understanding of different categories of convenience foods and planning packed lunches for adolescents.

The overall performance of the question was very good.

Performance on part (a) was excellent and it was evident that candidates enjoyed responding to this question.

In part (b), most of the candidates correctly planned adequate menus but did not always include examples of the convenience foods they named at (a) as requested.

Question 7

This question tested candidates' understanding of kitchen layouts and sequence of work activities to facilitate efficient meal preparation.

In general, this question was answered well.

Part (a) was satisfactorily answered by most of the candidates while some could not adequately provide the logical sequence of work activities even though they knew the work centres in the kitchen.

Performance on part (b) was good as the majority of candidates correctly sketched kitchen layouts and labelled them appropriately.

Question 8

This question tested candidates' understanding of the use of knives and the ingredients that should be reduced or omitted when preparing items for overweight teenagers.

The overall performance of the question was satisfactory.

In part (a) it was surprising that most candidates were able to identify only one of the knives suitable for preparing fruit and vegetable salads.

Part (b) was not done well. Candidates' knowledge of the procedure for chopping a large quantity of parsley was limited. 1.) They needed to mention the names of the tools used, namely, the chopping board and the chef's knife. 2.) The bunch of parsley is held in position while the cook works the blade of the knife up and down to cut the parsley into shreds. 3.) The tip of the blade is held with one hand while the other hand holds the handle of the knife and works it up and down in a semi-circular movement across the parsley to chop it into tiny pieces.

Part (c) was answered very well as candidates provided correct responses.

Question 9

This question tested candidates' knowledge of the preparation of roast beef and the role of aesthetics and palatability when preparing meals.

The overall performance on this question was weak.

Performance on part (a) (i) was fairly good. Most candidates were familiar with either chemical or biological methods for tenderizing beef.

Part (a) (i) was generally weak as several candidates were unable to clearly outline guidelines to follow when roasting beef.

In part (b) the majority of the candidates were able to discuss reasons why stewing was an excellent method for cooking tough cuts of meat.

Part (c) was not well done as many candidates misinterpreted the words 'palatability' and 'aesthetics'.

Paper 02

Structured Essay

Section I

Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the importance of energy to the body, strategies for reducing fats and oils, nutrition information on food labels that relate to fat content, guidelines for preparing, cooking and serving grilled fish, and the method of heat transfer that applies to cooking grilled fish.

The compulsory question was attempted by all the candidates.

The overall performance of this question was satisfactory.

Part (a) was done well. Candidates named the energy-yielding nutrients and outlined the role of energy in the diet; however, some were not familiar with the term 'energy-yielding nutrients' and primarily focussed on the role of physical activity.

Performance on part (b) was fairly good as candidates gave effective strategies to reduce fats and oils in fast food establishments. Some candidates listed the use of 'olive oils' or 'vegetable shortening' when in fact these products are high in fats.

Although candidates were familiar with nutrition on food labels that relate to fat content they could not always explain what each meant.

Part (c) was generally well done. Candidates were able to formulate guidelines to be followed when preparing, cooking and serving grilled fish. However, not all candidates were familiar with the methods of heat transfer. Some were able to name the methods - conduction and radiation - but could not offer any explanation of these methods.

Section II

Module 1

Question 2

This question tested candidates' understanding of determining nutrition status of the elderly, and enzymatic actions that occur in the digestive process.

This question was attempted by 13 percent of the candidates. The overall performance on this question was good.

Performance on part (a) was good. Most candidates correctly listed methods for assessing the nutritional status of the elderly, but could not always explain these methods.

In part (b), candidates were able to identify enzymes responsible for the breakdown of proteins, fats and carbohydrates but concentrated too much on the parts of the digestive tract and other digestive processes apart from enzymatic actions.

In part (c) in response to the question of explaining the factors that may affect the digestion of a meal of hamburger and milk shake, candidates identified physical limitations that the elderly may have, such as difficulty in chewing because of lack of teeth. However, they did not focus on factors relating to digestion itself. Expected responses include lactose intolerance, decreased bile secretions, malabsorption due to intestinal diseases and malfunctioning of digestive organs, such as the liver and pancreas.

Question 3

This question tested candidates' understanding of Vegetarianism.

This question was attempted by 87 per cent of the candidates.

Performance on this question was unsatisfactory.

Performance on part (a) was weak. Some candidates outlined health benefits of the vegetarian diet such as high in fibre, thereby, preventing constipation, low in fat which should reduce the risk of obesity, or low in cholesterol, thereby, reducing the risk of cardiovascular disease. Other candidates gave some popular unsubstantiated claims such as vegetarians live longer, have healthy skin, or consume healthier diets.

In Part (b), candidates listed general factors to be considered when planning meals but could not specifically relate them to the lacto vegetarian. Expected responses are given below.

- Make use of complementary proteins to ensure adequate high quality protein intake.
- Use low fat dairy products in adequate amounts to ensure intake of calcium and vitamin D.
- Use iron-rich vegetable foods with vitamin C rich foods to ensure adequate iron intake.
- Use fortified cereals and yeast to ensure adequate intake of B complex vitamins.
- Use meat alternatives to replace flesh products.

In Part (c), candidates experienced difficulty outlining guidelines for ensuring that the energy requirements of a toddler who is a vegan is achieved. Expected responses are given below.

- Use vegetable oil or honey in porridges to increase energy density.
- Feed at least 5 times daily.
- Use fortified soy milk, shakes and smoothies.
- Use nut paste and avocados in spreads.
- Limit bulk in diet.
- Use energy-dense meals.
- Use supplements.

Section III

Module 2

Question 4

This question tested candidates' understanding of the effectiveness of storage conditions for storing perishable foods and the role of regulatory agencies in ensuring the safety of stored foods.

This question was attempted by 61 per cent of the candidates. The overall performance was unsatisfactory.

Performance on part (a) was weak. Many candidates discussed methods of food preservation instead of storage conditions for perishable foods.

In part (b) some candidates gave suitable responses for the role of food-regulatory agencies.

Question 5

This question tested candidates' understanding of the hazards associated with consuming excessive levels of micro-nutrients, use of food exchange lists and the role of major nutrients supplied by the six Caribbean food groups.

This question was attempted by 39 per cent of the candidates.

Performance on part (a) (i) was good. While the majority of the candidates could state that excessive consumption of micro-nutrients caused toxicity they were unable to explain the signs of toxicity that result from each of the nutrients calcium, iron, and vitamins A, C and D.

In part (a) (ii), candidates were aware that with the use of exchange lists, healthy substitutions can be made. Not many candidates considered that cheaper alternatives could be substituted or that balanced meals could be planned using the exchange lists.

Part (b) was generally well done. Most candidates were able to name the major nutrients and clearly explain their role.

Section IV

Module 3

Question 6

This question tested candidates' understanding of recipe modification to increase yield, and nutrient content, and sensory evaluation.

Performance on this question was unsatisfactory. The question was attempted by 62 per cent of the candidates.

Performance on part (a) was weak. Many of the candidates were able to correctly identify the proportions of the major ingredients used in the creaming method. However, they were unfamiliar with the method of calculating the conversion factor. In most cases, even those who understood the conversion were unable to apply it correctly to the standard recipe.

Part (b) was fairly done as candidates were able to name sensory characteristics that they would evaluate in the recipe modification, but did not always outline the steps correctly.

Question 7

This question tested candidates' understanding of the scientific principles involved in yeast cookery.

Performance on this question was unsatisfactory. The question was attempted by 38 per cent of the candidates.

Performance on part (a) was fair. Most of the candidates were able to list the main ingredients used in a yeast mixture. However, very few of them described the conditions necessary in order for yeast to grow, or the mixing process.

Part (b) was well done as most of the candidates gave appropriate alternative methods of cooking yeast mixtures.

UNIT 2

Paper 01

Short Answer Questions

Question 1

This question tested candidates' understanding of indigenous dishes and tools and the impact of the use of calaloo or spinach on health.

The overall performance on this question was good.

Part (a) was well done. Candidates enjoyed responding to this question and they responded fairly well in part (b) as well. Most of the candidates listed iron as a nutrient present in calaloo or spinach and discussed the functions of iron in the body. However, in assessing the impact of the vegetable, other nutrients present such as carotene, calcium, and dietary fibre should have been identified .

Question 2

This question tested candidates' understanding of the factors that have influenced food choices in the Caribbean as a result of globalization, and guidelines to be followed to ensure the safety of rechauffé foods.

The overall performance on this question was good.

In part (a), the majority of candidates focussed their attention on food choices while ignoring the term 'globalization'. As a result, the responses given were not always appropriate. Expected responses were international trade, migration, arrival of technocrats, mass media, and tourism.

In part (b), most candidates concentrated on food safety and did not seem to be aware of 'rechauffé' being a key factor.

Question 3

This question tested candidates' understanding of factors that should be considered by disaster relief organizations in order to meet nutritional needs of persons housed in a shelter after a natural disaster, and vulnerable groups who would need special care in the shelter.

The overall performance on this question was good.

Candidates responded well to part (a). However some of them focussed on factors not directly pertaining to shelters.

In part (b), candidates showed their understanding of the term vulnerable by giving appropriate responses.

Question 4

This question tested candidates' understanding of the production and enrichment of cereal flour.

The overall performance on this question was good.

Performance on part (a) was fairly good. Most candidates were able to list the processes involved in producing the flour but explanations were not always clear.

In part (b), many candidates were able to list nutrients that are added to cereals even though some gave vague answers such as vitamins or minerals. The majority gave excellent explanations for the addition of the nutrients to the cereal flour.

Question 5

This question tested candidates' understanding of qualities that should be present in guavas that are to be processed into guava cheese, characteristics of ideal floor surfaces in food processing units, and personal hygiene practices of food handlers.

The overall performance on this question was good.

Parts (a) and (c) were generally well done.

In part (b), many candidates seemed to have misread the question since they referred to the cleanliness of the floor surface rather than characteristics of an ideal floor.

Question 6

This question tested candidates' understanding of benefits of styrofoam as packaging for food, and the comparison of different preserves made from pineapples.

The overall performance on this question was unsatisfactory.

Performance on part (a) was fairly good as candidates gave appropriate responses.

Part (b) presented some difficulty as candidates were not familiar with the type of preserves that can be made from pineapples. Even when preserves were named, the comparisons made were poor. In many cases no comparisons were attempted.

Question 7

This question tested candidates' understanding of planning four-course menus and portion control of food.

The overall performance on this question was good.

The majority of candidates performed well in part (a). However, some candidates had the incorrect format for the four-course lunch, or listed only three courses.

Performance on part (b) was fair. Many candidates gave appropriate responses while others interpreted portion control to mean how to keep the portions small and therefore gave responses such as 'use a smaller serving utensil' or 'cut smaller portions'.

Question 8

This question tested candidates' understanding of pre-preparation and batching of fish in a commercial kitchen, and the prevention of pest infestation.

Part (a) was weak. Candidates omitted several steps in the procedure. Expected responses are listed below.

- Clean and marinate fish.
- Marinate using suitable fish marinade.
- Portion into batches according to needs.
- Wrap portions individually in plastic wrap for ease of separation if freezing.
- Pack by batch into suitable containers.
- Freeze or refrigerate depending on when fish is to be cooked.
- Cook designated batches at time intervals or in batches based on demand.

Part (b) was fairly well done as candidates gave appropriate responses.

Question 9

This question tested candidates' understanding of cycle menus for toddlers based on a multi-mix plan, and formulation of meal planning guidelines.

The overall performance on this question was good.

Performance on part (a) was fairly good. Most candidates developed appropriate menus but did not always give a five-day menu.

In part (b), the majority of candidates did very well on this question. Some candidates gave general guidelines to be considered when planning meals, without giving special consideration to toddlers. Expected responses are given below.

- Meals should be free of bones and seeds.
- Meals should be nutrient-dense.
- Meals should have a variety of textures.
- Foods that may cause allergies should be avoided.
- Avoid foods that cause choking.
- Meals should be nutritionally balanced.

Paper 02

Structured Essay

Section 1

Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the how food choices and dietary practices have been influenced by changes in family lifestyles, values, priorities, nutrition education; their understanding of the need for increased food availability, the impact of food technology on the increase of the Caribbean food supply, the procedure for making a white sauce by the roux method and guidelines aimed at ensuring food safety when preparing and serving sauces in large quantities.

serving sauces in large quantities.

This compulsory question was attempted by all candidates.

The overall performance on this question was satisfactory.

In Part (a), candidates gave very good responses, and discussed the issues of family lifestyles and nutrition education from the negative and positive perspectives. However, they struggled to find points regarding the values and priority issues, and centred their discussions around religion. Other possible points are listed below.

- Eating out, even though it costs more.
- Persons enjoy the time they spend preparing meals while others would prefer to spend that time on other activities.
- Shift from spending money on food to material things at the expense of nutritious meals.
- Teaching children to prepare nutritious meals is not seen as a priority.
- There is a change in how families view the use of time, money and energy in relation to preparing meals.

Performance on part (b) was good, as candidates identified several reasons for increase in food availability. Apart from stating that biotechnology and genetically engineered modified foods can increase food availability there was very little discussion on how advances in food technology have resulted in an increase in the food supply in the Caribbean.

Part (c) was poorly done as most candidates were not familiar with the roux method of making sauces.

Section II

Module 1

Question 2

This question tested candidates' understanding of food storage, and main meal salads.

This question was attempted by 79 per cent of the candidates.

Part (a) was generally well done, even though some candidates interpreted storage to mean methods of preservation.

In part (b), the majority of candidates included local fruits and vegetables in the recipe; however, they were not familiar with the concept of 'main meal salads' as few of them included protein in the recipe.

Question 3

This question tested candidates' understanding of how environmental factors have helped to shape food customs in the Caribbean, and food legislation.

This question was attempted by 21 per cent of the candidates. The overall performance of this question was acceptable.

In part (a) many candidates experienced difficulty explaining how environmental factors have helped to shape food customs. Most of them could only list two factors.

In part (b) the majority of the candidates who attempted the question were able to name an agency responsible for food legislation and to discuss why food legislation is important.

Section III

Module 2

Question 4

This question tested candidates' understanding of denaturation and coagulation of protein, and food labelling.

This question was attempted by 28 per cent of the candidates.

The overall performance of this question was fairly good.

Performance on part (a) was poor. Most of the candidates were unable to fully define the terms denaturation and coagulation or establish a relationship between them.

Candidates performed better in part (b) as they were able to explain the information provided on the label.

Question 5

This question tested candidates' understanding of the method of dehydration for food preservation and factors to be considered when costing preserves.

This question was attempted by 72 per cent of the candidates.

The overall performance of this question was good.

Part (a) was fairly well done. Although many candidates were familiar with dehydration as a method of preservation they were unable to evaluate its effectiveness in terms of the benefits and disadvantages.

In part (b), most of the candidates were able to select a suitable food for dehydration and list the steps in the procedure.

Part (c) was well done as candidates were able to list the factors to be considered when costing preserves.

Section IV

Module 2

Question 6

This question tested candidates' understanding of quality assurance measures that the management of a restaurant needs to implement to ensure consumer satisfaction, and purchasing commodities.

This question was attempted by 71 per cent of the candidates.

The overall performance of this question was satisfactory.

In part (a), the majority of candidates gave excellent responses for common complaints of patrons in a restaurant, as well as quality assurance measures that management should implement.

Part (b) was poorly done. The majority of candidates found difficulty in outlining the procedure for purchasing commodities in bulk. They were not familiar with the word 'commodities'. The procedure for purchasing commodities are listed below.

- Conduct stocktaking to ensure an accurate record of inventory.
- Acquire requisition from chef/manager.
- Place orders.
- Check products with invoice upon delivery.
- Apply HACCP principles at delivery.
- Update inventory.
- Store items.
- Arrange and distribute commodities using first in first out FIFO method.

Question 7

This question tested candidates' ability to compare meal planning principles in family and commercial settings, and types of meal service.

This question was attempted by 29 per cent of the candidates.

The overall performance in this question was acceptable.

Part (a) was widely known. Candidates were able to list principles of meal planning for the family. However, they did not make the comparison with the commercial setting well. Instead, candidates listed the factors in isolation. Examples of expected responses are given below.

- In both the commercial and family settings the occasion influences the types of menus - 'Christmas', 'national celebrations' or other 'religious festivals'.
- In the family there is a greater emphasis on nutrition, whereas in the commercial setting even though nutritional balance is considered, the focus is on making sure the patrons enjoy the meal so that the company makes a high profit.

Candidates responded fairly well to part (b) even though some had difficulty explaining the rationale for the types of meal service.

INTERNAL ASSESSMENT

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all Modules. Candidates, in consultation with the teacher, and using the guidelines provided by the Caribbean Examinations Council selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of the candidates has shown great improvement.

The majority of portfolios exhibited a high level of professionalism in organization and were very well presented. Most of the illustrations were clear and creative. The quality of the assignments was appropriate for the Advanced Proficiency Level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

Some candidates submitted exemplary portfolios. The work of these candidates was scientifically-based and rigorous. These candidates are to be highly commended for their effort

Several teachers seemed to use the old syllabus. However, teachers are asked to ensure that the current syllabus is used in the preparation of candidates.

Assignment 1

Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. In most cases, literature reviews were comprehensive, but sources used were not always cited. Data were well presented, but very little reference was made to the data. In several cases, inferences, predictions, or conclusions were not attempted by the candidates. The conclusions and recommendations were not accurately or scientifically-based. Similarly, they did not support the analysis of data.

Assignment 2

Experimentation and Recipe Modification

Candidates selected appropriate experiments and demonstrated knowledge of relevant facts. Reports were well written and presented. Most of the candidates developed rationales, but many hypotheses were not clearly formulated. The procedures for experiments were, in most cases, clearly documented. A large majority of the candidates modified the products after critical or unexpected outcomes.

RECOMMENDATIONS TO TEACHERS

Overall, the performance on the examinations was satisfactory. This performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of candidates. Although candidates had an understanding of concepts they did not elaborate and fully develop answers as was expected at the Advanced Proficiency Level. Some candidates were not fully prepared for this level of examination. It was also clear that they were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should, therefore, cover the entire syllabus so that they can satisfy the requirements of the examination. Greater emphasis must be placed on those concepts which can be regarded as current areas of nutrition.

Candidates should be encouraged to follow the procedures outlined below.

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.
- Answer questions with a variety of key words, namely: discuss; explain; list; describe; and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates' inability to gain as many mark as possible.
- Participate in mock examinations using past examination papers and administered under examination conditions in order to develop good examination techniques.
- Utilize different media to become familiar with current nutrition issues.
- Place emphasis on research techniques, case studies and problem solving.
- Participate in field trips and work attachments which will help students to understand fully many nutrition concepts such as methods for assessing nutritional status of children; complementary feeding and breast feeding; nutrition-related disorders; and practices and procedures for ensuring safety of food.
- Engage in practical exercises in the identification and use of the nutritive value of food not categorized in the food groups, namely functional/genetically engineered foods, fat replacers, sugar, salt and other substitutes, and convenience foods.
- Develop ideas and demonstrate clarity of expression. In many cases, candidates showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the Advanced Proficiency Level.
- Adhere to general instructions. Many candidates ignored the instruction to begin each question on a new page. They started new answers sometimes without even skipping a line. In some cases, candidates did not keep parts of a question together. They should be advised to leave a blank page in the workbook when going on to a new question, if the previous question has not been completed. Also, the question number must be written in the space provided.

INTERNAL ASSESSMENT

Candidates should be encouraged to follow the guidelines below:

- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are of interest and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- Note that literature reviews for each assignment do not have to be extensive, but should be thorough enough to outline the problem and research relevant to the same. This cannot be adequately done in two to three pages. Students must utilize a variety of sources and should be taught the APA referencing style for citing sources and developing a reference list.
- Develop the rationale and explain the significance of the topic.

Assignment 1

Research

Candidates must not only present the data but they should discuss the data clearly. They are not expected to present data on all of the questions, but should discuss all of the questions asked on the questionnaire or interview.

Efforts should be made to guide students in making simple inferences, and drawing conclusions from the data obtained. Give a summary or conclusion at the end of the project.

Assignment 2

Experimentation and Recipe Modification

Candidates should be advised that a detailed report must be written, which accurately records and reports all observations.

Efforts should be made for students to understand that experiments are not completed on a one-shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes.

Efforts should be made to introduce students to the role of product development and recipe modification. In addition, demonstrations should be completed before students engage in their individual assignments.

Candidates should be advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to reaching success. For this reason it should involve the altering of several ingredients, hence baked products is suggested as an example for modification. For example, at this proficiency it is unacceptable to modify the amount of fat or salt in “beef stew” and view this as competent work. Therefore, significant ingredients should be altered.

Each modification should be explained, giving reasons why the particular modification was done. After an unexpected outcome changes should be noted by making a statement concerning the specific modification. For example, when making a jam, the product did not set, therefore more lime juice was added to the next modification. Examiners are not expected to compare the recipes to verify the changes that were made to the recipes.

At this proficiency variations of basic recipes is not expected as a modification. For example original recipe plain cake and a modified recipe coconut cherry cake.

Candidates should give the original recipe and then conduct at least two modifications.

Experiences must be provided for students to fully understand that a recipe is a formula, thus any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one shot basis.

Efforts should be made for students to understand the role of major ingredients used in recipes, especially baked items. For example, if you change the amount of sugar in a creamed mixture there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.

Candidates should be encouraged to use food composition tables to determine energy values for the original and new product.

Candidates should be encouraged to formulate valid hypotheses.

Candidates should be encouraged to record and report methods observations and results accurately, using tables or graphs.

Candidates should include the results from the sensory evaluation in their discussing.

Candidates should develop conclusions to summarize their findings.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2007**

FOOD AND NUTRITION

FOOD AND NUTRITION**ADVANCED PROFICIENCY EXAMINATION****MAY/JUNE 2007****GENERAL COMMENTS**

The Caribbean Examinations Council administered its fifth open examination in Unit 1 Food and Nutrition and its fourth open examination in Unit 2 in May 2007. There were some good responses to questions in both Units.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

Paper 01 - Short Answer Questions

Paper 01 in both Units consisted of nine compulsory short-answer questions. Candidates were required to answer all questions. There were three questions on each of the three Modules in the Unit. Paper 01 tested the grasp of critical nutrition principles and mastery of relevant skills. Candidates' performance was satisfactory. The maximum possible mark was 90. In Unit 1, the mean mark was 51.1 and in Unit 2, the mean mark was 51.8.

Paper 02 - Structured Essay

In Unit 1 and 2, Paper 02 consisted of seven essay questions which tested objectives across all Modules. It was divided into four sections. Section I consisted of one compulsory question spread across all the Modules. Section II to IV each comprised two optional questions and candidates were required to answer one question from each section. Questions in Section II were based on Module 1, those in Section III on Module 2, while questions in Section IV were based on Module 3.

The compulsory question in Section I was worth 45 marks and all others were worth 25 marks each. Overall, candidates' performance was good. The maximum possible mark was 120. In Unit 1 the mean was 70.0, and in Unit 2 the mean mark was 72.6.

Paper 03 - Internal Assessment

Paper 03, the Internal Assessment comprised a portfolio of two assignments. Candidates were expected to conduct research on a selected theme in the syllabus. The research in the first assignment was expected to form the basis of the experimentation and product development in the second assignment. Paper 03 is worth 90 marks and contributed 30 per cent to the candidates' final grade.

Performance on this paper was generally good, with a mean score of 60 out of 90 in Unit 1, and 64 out of 90 in Unit 2.

DETAILED COMMENTS**UNIT I****Paper 01****Short Answer Questions**Question 1

This question tested candidates' understanding of the benefits that infants derive from breastfeeding; anthropometric measurements required to assess growth in infants; and, strategies for increasing the iron intake of infants who are diagnosed with iron deficiency anaemia.

The overall performance of this question was good.

Part (a) of the question was well done. Most candidates were familiar with the benefits that infants derive from breastfeeding, even though some candidates gave general advantages for breastfeeding rather than those for infants.

Part (b) was fairly well done. Most candidates gave correct responses while some seem not to be familiar with the term 'anthropometric measurements'. Expected responses included height, weight, length and head circumference.

In part (c) (i) candidates identified suitable strategies for increasing the iron intake of infants diagnosed with iron deficiency anaemia.

Question 2

This question tested candidates' understanding of the difference between satiety and hunger, and the satiety value of identified snacks.

Candidates scored well in part (a). The majority of the candidates were able to clearly distinguish between satiety and hunger.

Part (b) presented some difficulty as candidates were unable to give comprehensive comparisons of the satiety value of the snacks identified. Candidates placed more emphasis on the nutrient content of the snacks.

Question 3

This question tested candidates' understanding of suitable food sources of calcium for vegans; ways of improving the absorption of calcium in the body; and, a reliable resource from which detailed information on foods in the Caribbean that are good sources of calcium can be obtained.

Question 4

This question tested candidates' understanding of menu planning for pre-schoolers and providing adequate dietary fibre in their diet.

Performance on this question was very good.

In part (a), which required candidates to plan a day's menu for preschoolers, the majority of candidates planned three main meals of the day, while only a few included at least one snack. The meals were not always suitable for toddlers, but many of the other factors involved in meal planning such as nutrition balance, format and aesthetics were considered.

Responses in part (b) indicated that candidates were familiar with ways of ensuring that pre-schoolers included adequate dietary fibre in their diet. The majority of candidates were able to list inclusion of fruits as well as vegetables and other high fibre foods.

Question 5

This question tested candidates' understanding of the production of trans-fatty acids, and the importance of giving information about the presence of fats on food labels.

The overall performance on this question was generally weak.

Performance on part (a) was poor. The majority of the candidates who attempted the question interpreted trans-fatty acids to be the same as saturated fatty acids.

A simple definition of how trans-fatty acids are formed during hydrogenation of poly-unsaturated lipids would have been adequate. Expected responses for foods containing trans-fatty acids include: margarine, non-dairy creamers, shortening, microwave popcorn, chips, crackers, doughnuts and other commercial baked goods

In part (b) most candidates demonstrated that they understood how the nutrition information on labels could be helpful to consumers. Explanations given were thorough and well written.

Question 6

This question tested candidates' understanding of safe food handling and the relationship between a clean hygienic environment and the quality of foods offered for sale.

The overall performance on the question was very good.

Performance on part (a) was excellent and it was evident that candidates enjoyed responding to this question.

In Part (b) most of the candidates correctly explained the relationship between a clean hygienic environment and the quality of foods offered for sale. Those who experienced difficulty described food safety and hygiene practices, rather than highlight how the quality of food would be impacted by a clean safe environment. Expected responses included:

1. food being free of contamination by microbes that cause spoilage;
2. food being free of micro-organisms which cause food-borne illnesses; and
3. clientele would grow and others would be attracted to the establishment.

Question 7

This question tested candidates' understanding of types of knives, and guidelines for their use and care to ensure safety in food preparation.

In general this question was answered well.

Part (a) was well done as the majority of candidates were able to identify different types of knives. Candidates continue to have difficulty with simple directions; for example, several of them did not make illustrations of the knives as required. On the whole, illustrations were not clear, and many candidates experienced difficulty in labelling the illustrations.

Performance on part (b) was good as the majority of candidates correctly stated guidelines for use and care of knives, though some candidates focussed on safety while using the knives rather than on care of the knives.

Question 8

This question tested candidates' understanding of the preparation of a chicken salad and safety measures that should be followed when placing a cooker in the kitchen.

The overall performance of the question was satisfactory.

In part (a) candidates were able to outline the steps required for the preparation of chicken salad as required. Most candidates included the need for clean-up and sanitizing before and after the cooking process. However, some candidates focussed on arranging the kitchen for efficient workflow rather than on the actual preparation of the meal.

Part (b) was not done well. Candidates' knowledge of safety measures for the placement of a cooker in the kitchen was limited. Expected responses include:

- (i) electric cookers should be installed by an expert using the correct electricity supply;
- (ii) gas cookers should be well fitted to prevent leaks, and can be fitted with an extension pipe to enable them to be moved for cleaning purposes;
- (iii) they should not be placed near curtains or drapery;
- (iv) guards can be placed around the hob to prevent children from pulling pans off the cooker.

Question 9

This question tested candidates' understanding of garnishing, decorating, and the cooking method – braising.

The overall performance on this question was weak.

Performance on part (a) was only fair. Most candidates were aware that both 'garnishing' and 'decorating' are used to enhance foods and were able to list examples of foods enhanced by both processes. However, the distinction between the two processes was not clear. It was expected that candidates would have indicated that 'garnishing' refers to attractively presenting **savoury** dishes, while 'decorating' refers to presenting **sweet** dishes.

Part (b) presented the most difficulty for the majority of candidates who were unable to list appropriate advantages of braising. Candidates confused this method of cooking with stewing. However, they were able to suggest suitable cuts of meat for braising.

Part (c) was not well done as many candidates were unable to describe the procedure for braising meat.

Paper 02

Structured Essay

Section 1 - Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the impact of adequate food intake on a child's health; comparing methods of determining nutritional status of young children; benefits of using the multi-mix principle of meal planning; planning meals for pre-schoolers; physical and chemical changes that take place in fish during grilling; and, garnishing of foods.

This compulsory question was attempted by all the candidates and the overall performance was satisfactory.

In part (a) (i) the responses were generally good. In response to the requirement to assess the impact of adequate food intake on a child's health, candidates correctly identified key nutrients and explained their impact. They also noted factors such as 'avoidance of illnesses and infections' and 'concentration on school work'.

In part (a) (ii) candidates experienced very few problems identifying methods of determining nutritional status of young children; however, very few were able to clearly make comparisons.

Part (b) proved to be challenging to most candidates and even though there was evidence that they were familiar with the benefits of using the multi-mix principle, candidates were not skilled when planning meals using the principle. Expected responses included the following:

- (i) using a variety of foods from different food groups;
- (ii) choosing foods from within groups that are in season;
- (iii) choosing a staple food first then adding a food from animal or legumes;
- (iv) if using a legume as the protein source, use a cereal food such as rice, wheat or corn.

Most candidates were not familiar with the various options for the THREE MIX which are:

- Staple + Food from Animal + Vegetable
- Cereal + Legume + Vegetable
- Staple + Food from Animal + Legume

Although candidates were familiar with nutrition information on food labels that relate to fat content they could not always explain what each meant.

In part (c) (i) instead of planning a three-course meal as required, some candidates planned two-course menus. In addition, candidates seem not to have read the question well, as evidenced by their inability to include grilled fish as one of two entrees.

Many candidates were able to outline changes that take place in fish during grilling. Part (c) (ii)

required the candidates to illustrate two different garnishes suitable for fish. The majority of candidates identified garnishes but did not provide illustrations.

SECTION II - Module 1

Question 2

This question tested candidates' understanding of nutrition-related chronic diseases that are common in the Caribbean and their prevention and control.

This question was attempted by 97 per cent of the candidates. The overall performance on this question was very good.

Performance on part (a) was very good. Most candidates adequately described several nutrition-related chronic diseases. Obesity was not accepted as a chronic disease. Obesity is widely known as a disorder which pre-disposes people to chronic diseases; however it is not a disease in itself. Therefore, candidates were not awarded points for listing obesity.

In Part (b) most candidates were able to identify general guidelines for prevention and control of chronic diseases.

In Part (c) which required the identification of the chronic disease that is most prevalent in their country and the possible reasons for its high rate of occurrence, candidates responded well. Their responses indicated that they have a clear understanding of the issues contributing to the chronic diseases in their respective countries.

Question 3

This question tested candidates' understanding of energy balance and the requirements for creating a high energy local beverage.

This question was attempted by 3 per cent of the candidates.

Performance on this question was poor.

In Part (a) (i) candidates were required to explain the factors to be considered when comparing the energy needs of a sixty-year old father and his nineteen - year old son who is an athlete. The stimulus information that they both exercised at a gym, provided two clear indications of differences in age and activity level. Additional responses are given below:

- (i) physiologically the son was still growing and was required more energy for growth;
- (ii) the son was likely to be spending more energy in his daily activities because of his athletics;
- (iii) the person with the greater muscle mass would burn more energy; and,
- (iv) the health status of the father was likely to affect his energy needs

Part (a) (ii) required candidates to develop a recipe for a high energy local drink as an alternative for the expensive one which the father frequently purchased. Those who attempted this, created excellent recipes; however, they did not always include adequate sweeteners. It was expected that this type of drink should meet the following criteria:

- (i) contain a carbohydrate such as sugar or honey, oats, wheat germ and bananas;
- (ii) contain protein, such as soy, whole or skimmed milk, eggs or egg white, protein powder, ground beans;
- (iii) contain a source of vitamins such as fruits, dried fruits, vegetables, nuts;
- (iv) have a good blend of taste;
- (v) include a method which shows how the ingredients are incorporated.

In Part (b) (i) candidates were given the appropriate information regarding the son's energy output and metabolic rate, and they were required to calculate the additional calories needed to achieve energy balance. This necessitated the addition of his daily energy requirements and then the subtraction of his energy intake from his energy need. For example:

BMR = 1,650 kcal daily activities 1,500 kcal daily intake 2,800 kcal

$$1,650 + 1,500 = 3,150$$

$$3,150 - 2800 = 350 \text{ kcal}$$

Part (b) (ii) stated that the son consumed 500 additional calories per day. Candidates were expected to calculate the number of days needed for him to gain 10 lbs. The following calculation was expected:

$$10 \text{ lbs body weight} = 3,500 \times 10 = 35,000 \text{ kcal}$$

$$\text{time needed} = 35,000 / 500 = 70 \text{ days}$$

SECTION III - Module 2

Question 4

This question tested candidates' understanding of the differences and similarities between the nutrient content of freshly picked spinach and canned pureed spinach and conserving nutrients during preparation and cooking.

This question was the more popular one in this Module and was attempted by 65 per cent of the candidates. The overall performance was very good.

Performance on part (a) was good. Many candidates made good comparisons of the nutrient content of freshly picked spinach with that of canned pureed spinach. They were knowledgeable of the nutrients affected by heat application and the processing required for canning. However, not many candidates associated canning with higher sodium content.

Part (b) was well done as most candidates gave suitable responses for ways to incorporate vegetables into breakfast dishes.

In part (c) candidates were asked to discuss methods of conserving nutrients when preparing and cooking vegetables. Some candidates focussed on either preparing or cooking. Candidates would have gained a better chance of scoring maximum points if they focussed on both the preparation and cooking of vegetables.

Question 5

This question tested candidates' understanding of planning four-course dinner menus; the nutritional content supplied by the Caribbean six food groups; and, the effects of over-consumption of vitamins.

This question was attempted by 35 per cent of the candidates.

Performance on part (a) was satisfactory. While some of the candidates were able to plan nutritionally balanced menus, the majority wrote THREE-course menus instead of the required FOUR-course menu. Some candidates wrote several courses, each of which was a main course. The expected pattern was:

Hors d'oeuvres or salad course
Soup or fish course
Main course
Dessert

Some candidates omitted the group, legumes, from the Caribbean six food groups.

In Part (b), candidates were aware of major nutrients supplied by each of the food groups.

Part (c), was generally well done, as most candidates were able to identify vitamins that may be harmful in excessive quantities, and state the effects of over-consumption of these vitamins.

Section IV - Module 3

Question 6

This question tested candidates' understanding of recipe modification to make dishes appropriate for elderly diabetics; and, sensory evaluation.

Performance on this question was fairly good. The question was attempted by 89 per cent of the candidates.

Performance on part (a) was very good. Most of the candidates were able to give suitable adaptations to the recipes provided to make them appropriate for elderly diabetics. A rationale given was that they were nutritionally strong as they focussed on reduction of fat, meat, and sugar.

Part (b) was fairly well done as candidates were able to identify general guidelines for conducting the sensory evaluation of modified recipes, such as: preparation of samples; provision of warm water for mouth rinsing between samples; and, using an evaluation device for recording. However, in most instances candidates did not specifically relate their responses to the dishes they adapted at part (a). For example, candidates needed to include: serving the gumbo hot and that persons from the targeted group - elderly diabetics - should make up the team of persons doing the evaluation.

In part (c) candidates were required to discuss the relationship between sensory characteristics of food and the nutritional status of an individual. Many candidates were able to define sensory characteristics of foods but were unable to define nutritional status or to establish the relationship between the two. Candidates should have been able to state that:

- (i) food may be nutritious, but if it is not appealing in odour, flavour, texture or mouth feel, it may not be eaten;
- (ii) elderly persons or persons who may have a health condition which diminishes their senses need to have foods that are quite appealing, to encourage them to eat and to be adequately nourished;

- (iii) people tend to overeat foods that are particularly appealing to them. This can lead to obesity and other nutrition-related health conditions if the foods they indulge in are high in saturated fats and simple carbohydrates.

Question 7

This question tested candidates' knowledge of preparing coconut mousse and choux pastry shells for chocolate eclairs; and, first aid techniques for injuries sustained in the kitchen.

Performance on this question was unsatisfactory. The question was attempted by 11 per cent of the candidates.

Performance on Part (a) was unsatisfactory. Even though most of the candidates were familiar with the products, they did not know how the preparation was done and were unable to give a sound rationale for each step of the preparation.

In Part (b) (i) some candidates correctly identified the first action to be taken to treat different injuries that may be sustained in the kitchen and gave appropriate reasons for each action.

Part (b) (ii) required candidates to identify signs that would indicate to first-aiders that they should urgently seek professional medical assistance. Many candidates gave vague responses such as "when the first-aiders cannot do anything else". Expected responses included:

1. when there is a lack of vital signs of life;
2. loss of consciousness;
3. severing of a limb;
4. excessive bleeding;
5. severe swelling or pain; and
6. third degree burns.

UNIT 2

Paper 01

Short Answer Questions

Question 1

This question tested candidates' understanding of the major factors which impact on household food security, and the relationship between food security and food safety.

The overall performance on this question was satisfactory.

In part (a) even though many candidates did not use the words 'availability' and 'accessibility' they were able to identify the factors which have an influence on availability and accessibility, such as poverty, poor storage conditions, natural disasters and level of food production. This indicated that they were indeed aware of the factors which impact on household food security.

Candidates responded poorly to part (b). Most of the candidates were unable to adequately define the terms 'food security' or 'food safety'. As a result, they could not clearly establish the relationship between the two.

Question 2

This question tested candidates' understanding of the Hazard Analysis Critical Control Points (HACCP) and reasons why the traditional mortar and pestle may be hazardous to the food preparation process.

The overall performance on this question was good.

In part (a) the majority of candidates responded to this section reasonably well. It was evident, however, that many candidates had difficulty in differentiating between 'hazard' and 'hazard analysis' while 'critical control points', did not present as much difficulty as the other terms.

In part (b) candidates were required to give reasons why the traditional mortar and pestle may be hazardous to the food preparation process. It would appear as though many candidates were not familiar with the mortar and pestle and, therefore, could not respond appropriately.

Question 3

This question tested candidates' understanding of providing safe food and drinking water after a disaster, and strategies that food and health agencies should use to ensure that persons are adequately nourished during this period.

The overall performance on this question was fairly good.

Candidates responded well to part (a). However, some of them tended to repeat their responses in a variety of ways.

In part (b) candidates showed an excellent understanding of strategies that food and health agencies should use to ensure that people are adequately nourished during a period of extensive flooding. Popular responses include:

- (i) provide soup kitchens for vulnerable groups;
- (ii) control food prices;
- (iii) ration foods to communities;
- (iv) supply affected areas with vitamin and mineral supplementation;
- (v) supply communities with fortified foods;
- (vi) place vulnerable groups in shelters or hospices; and,
- (vii) provide a help hotline for those who have difficulty accessing food.

Question 4

This question tested candidates' understanding of the processes – syneresis, hydrogenation, homogenization; and, the benefits of fortification and enrichment to Caribbean populations.

The overall performance on this question was very poor.

Performance on part (a) was poor. Most candidates seemed to be totally unfamiliar with the processes, syneresis, hydrogenation, and homogenization. Many did not even attempt to give definitions, though a few candidates knew that homogenization had 'something to do with milk'.

In part (b) many candidates could not distinguish between the processes of fortification and enrichment, but indicated that both involved the addition of nutrients. Expected responses on the benefits to Caribbean populations were: improves the nutrient content of foods to increase intake of nutrients; addresses micro-nutrient deficiencies in the population; is a cost effective way of addressing micro-nutrient deficiencies; and, compensates for nutrients lost during the manufacturing process by replacing nutrients lost during manufacture.

Question 5

This question tested candidates' understanding of the procedure for blanching vegetables; and, criteria used by Food Protection Agencies to approve the consumption of manufactured vegetables.

Part (a) presented some difficulty. However, some candidates were still able to give a few steps in the procedure.

Performance on part (b) was very poor since candidates appeared to have little knowledge regarding the criteria used by Food Protection Agencies to approve the consumption of manufactured vegetables.

Question 6

This question tested candidates' ability to compare the suitability of foil packets or pouches and glass jars as packaging for pineapple jam; and to calculate the cost price and selling price of a batch of the jam.

The overall performance on this question was unsatisfactory.

Responses indicated that candidates found part (a) to be interesting and were able to make appropriate comparisons.

Part (b) was poorly done as many candidates could not calculate the cost price and selling price of a batch of the jam. Candidates needed to follow the process listed below

- (i) Indicate cost of the following:
 - (a) ingredients
 - (b) fuel
 - (c) labour
 - (d) packaging
- (ii) Add these costs to arrive at cost price.
- (iii) Indicate a percentage mark up on the cost price which would give the profit.
- (iv) Calculate the mark up.
- (v) Add the mark up to the cost price to arrive at the selling price.

Question 7

This question tested candidates' understanding of guidelines for preparing packed lunches for young children, and evaluating menus.

The overall performance on this question was good.

The majority of candidates performed well in part (a) as they gave appropriate guidelines for preparing packed lunches for young children.

Performance on part (b) was good. Many candidates were able to identify faults with the given menu, but did not always suggest suitable changes.

Question 8

This question tested candidates' understanding of local dishes that included local fruits and vegetables; and, food safety when preparing meals outdoors.

In part (a) candidates were given a scenario which referred to a traditional wedding menu that provided mainly meats, starches and simple sugars. They were required to suggest suitable dishes using local fruits and vegetables. This section was generally well done even though some candidates listed local dishes but did not pay attention to the fact that fruits and vegetables had to be included.

Part (b) was well done as candidates gave appropriate responses to safety measures to be practised when preparing meals outdoors.

Question 9

This question tested candidates' understanding of planning three-course lunch menus for vegans, and strategies for controlling the cost of menus.

The overall performance on this question was good.

Performance on part (a) was fairly good. Most candidates developed appropriate menus but did not always pay attention to the fact that the menu was for a vegan and they included meat dishes. Some menus did not include three courses as required.

In part (b) the majority of candidates responded fairly well as they gave strategies for controlling the cost of menus. Expected responses included: use fruits and vegetables that are in season; use standard portion sizes; use local foods; buy food in bulk; avoid the inclusion of too many expensive items on the menu; avoid wastage; use standardized recipes; and, prepare a budget.

Paper 02

Structured Essay

Section 1 - Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of indigenous Caribbean dishes and traditional tools or equipment; nutrient conservation; preservation of fruits; nutritional labelling; preparation of entrees; and, Hazard Analysis Critical Control Points.

This compulsory question was attempted by all candidates.

The overall performance on this question was good.

In part (a) (i) most candidates gave very good responses when they identified traditional tools or equipment used to prepare indigenous Caribbean dishes, while some candidates continued to give vague responses such as "wooden spoon". More appropriate responses for this question include 'cou cou', 'turn' or 'swizzle stick'. A few candidates selected tools such as the 'mortar and pestle', 'matapee', 'dutch pot' and 'coal pot' but were unable to explain the use of these.

Similarly, some of the dishes chosen were not reflective of traditional dishes. While 'Fried Chicken' or 'Fried Fish' are generally not considered indigenous, dishes such as 'Jerk Chicken' or 'Fried Flying Fish' are considered to be native to specific territories.

In part (a) (ii) most candidates adequately outlined preparation and cooking practices necessary for conserving nutrients in dishes selected at (a) (i), even though some dishes selected did not lend themselves to a good explanation of conservation. Generally expected responses included:

- (i) cooking by the conservative method;
- (ii) utilizing the pot liquor to cook other items;
- (iii) cutting vegetables with a sharp knife to avoid bruising;
- (iv) avoiding the use of baking soda to soften the foods as this leads to loss of vitamin B; and
- (v) avoiding the soaking of beef, or vegetables in water.

Performance on Part (b) (i) was generally good although some candidates experienced difficulty identifying reasons for preserving fruits. Popular responses included; for export; to prevent spoilage; to have the fruit when it is out of season; to utilize excess fruit during a glut; to create a wider variety of foods; for convenience and ease of use; and, for use in other recipes such as fruit flans, cakes and puddings.

Part (b) (ii) was not properly answered. Most candidates focussed on general information required on labels and not on nutritional information. Expected responses included: 'serving size', 'servings per container', 'number of calories per serving', 'calories from fat', 'percentage of fat', and, claims such as 'fat free' or 'low fat'.

For part (c) candidates showed a lack of understanding of the meaning of the term 'entree'. This prevented them from selecting appropriate dishes. However, they were able to outline the preparation steps for the dishes chosen. Candidates must be reminded that the term 'preparation' includes pre-preparation as well as cooking. Candidates were able to describe the appropriate precautions for each of the HACCP critical points - purchasing, pre-preparation and cooking.

Section II – Module 1

Question 2

This question tested candidates' understanding of factors that influence food choices of teenagers in the Caribbean, and traditional dietary practices of Caribbean people.

This question was attempted by 80 per cent of the candidates.

Part (a) was generally well done, as candidates gave well-explained appropriate responses. Popular responses included: advertising; peer pressure; preference for fast foods; tradition and culture; exposure to nutrition education; body image and the desire to have the physique of a model or movie star; ease of obtaining fast foods and the availability of vending machines; use of food to cope with emotional stress; and, the influence of tourism.

In part (b) the majority of candidates showed a high level of understanding of the ethnic groups that influenced the diets of Caribbean people as well as traditional practices and dishes of each group. A few candidates were uncertain about the origin of some practices.

Question 3

This question tested candidates' understanding of national dishes in their territory; the health impact of nutrients in the dishes; and, strategies that can be used to educate the community about food fallacies.

This question was attempted by 20 per cent of the candidates. The question was generally well done.

In part (a) many candidates correctly identified national dishes and the health impact of the nutrients contained in the dish. It must be borne in mind that "impact" does not connote either negative or positive effects. Therefore candidates should discuss the impact of excessive intake as well as the functions of the nutrients.

Part (b) was well done as candidates showed an understanding of the term 'food fallacy', and gave excellent strategies for communicating to their community about food fallacies.

Section III – Module 2Question 4

This question tested candidates' understanding of dehydration as a method of preservation; functional foods; and, the role of phytochemicals in promoting good health

This question was attempted by 10 per cent of the candidates.

The overall performance on this question was satisfactory.

Performance on part (a) was satisfactory. Although most of the candidates were able to describe the stages in the processing of fruits using dehydration as the method of preservation, they could not give full descriptions and few of them knew all the stages. Stages in this type of production include: harvesting; transportation; selection; preparation of the product; dehydration process; post dehydration treatment; and, packaging.

Candidates performed better in part (b) as they were able to correctly give the meaning of the term 'functional foods' and give examples of these foods.

Part (c) was also well done as candidates outlined the functions of phytochemicals in promoting good health. Popular responses included the inhibiting of substances that prevent the initiation of cancer and serves as anti-oxidants that prevent and repair damage to cells due to oxidation. Other possible responses are they act as hormones; modify the absorption, production or utilization of cholesterol; decrease the formation of blood clots; and, contribute to maintenance of healthy vision and digestive tract.

Question 5

This question tested candidates' understanding of the benefits of safe handling instructions and nutrition information on food labels; and, the advantages of using plastics as packaging for foods.

This question was attempted by 70 per cent of the candidates.

The overall performance of this question was good.

Part (a) was fairly well done by the candidates who attempted this question. Many candidates were more familiar with the benefits of nutrition information than with safe handling instructions on food. They needed to note that safe handling instructions help consumers to: prevent wastage; prevent accidents; keep food safe to eat; retain the quality of the food; and, retain the overall texture and taste of food.

In part (b) most of the candidates were able to provide safe handling instructions found on labels. However, many of the responses did not directly relate to those found on food labels. Expected responses were: keep foods refrigerated or frozen; cook meat, poultry and seafood thoroughly; refrigerate after opening; thaw frozen foods in the refrigerator or microwave and use within three days after opening.

Part (c) was fairly well done as candidates gave favourable responses. Scores on this question could have been improved if candidates had followed the instructions given. This question required candidates to discuss the advantages of using plastics as packaging for foods. Most candidates listed points without any discussion. For example, rather than just writing 'it provides a barrier against moisture' candidates should mention that plastics are suitable for foods that would be affected by moisture such as cookies or bread, since the packaging would prevent moisture from entering and allow the cookies to remain fresh and crisp for the duration of their shelf life.

Section IV – Module 2

Question 6

This question tested candidates' understanding of the use of the multi-mix principle to plan menus; and, menu planning principles.

This question was attempted by 30 per cent of the candidates.

The overall performance on this question was very good.

In part (a), many candidates used the multi-mix principle to plan excellent menus for one day for a group of lactating mothers. Weaker candidates planned only the three major meals, while some planned only one meal. At this level it was expected that candidates would have adhered to general menu planning principles such as nutritional balance, aesthetics, and format.

Part (b) was satisfactorily done by the majority of candidates. From responses given candidates confused factors to be considered when planning meals, and those for planning menus. Menu-planning principles include some meal planning considerations but are considered in the context of institutional food service, as they include special needs of guests; aesthetics (colour, texture and good blend of tastes); nutritional balance; type of meal service to be offered; and, cost of components.

Question 7

This question tested candidates' understanding of factors for determining portion sizes in food establishments, and food safety measures that should be practised when providing buffet service.

This question was attempted by 70 per cent of the candidates.

The overall performance on this question was satisfactory.

Performance in part (a) was weak. Candidates were expected to give responses such as: use of standardized recipes; cost of ingredients used in the dish and overheads; type of service offered by the food establishment; age group of the clientele; type, theme and tradition of the establishment; needs of the clientele; and, location of the establishment.

Candidates' responses to part (b) were generally fair. Some candidates repeated the same points several times and tended to focus on general hygiene practices in food handling rather than on food safety measures when providing buffet service.

INTERNAL ASSESSMENT

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all Modules. Candidates, in consultation with the teacher and the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of the candidates has shown great improvement.

The majority of portfolios were very well organized and presented. Most of the illustrations were clear and creative. In some instances the quality of the assignments was appropriate for the Advanced Proficiency Level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

Some candidates submitted exemplary portfolios. The work of these candidates was scientifically based and rigorous. These candidates are to be highly commended for their effort.

Several teachers seemed to use the old syllabus. Teachers are asked to ensure that the current syllabus is used for the preparation of candidates.

Assignment 1

Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. In most cases literature reviews were comprehensive, but sources used were not always cited. Data were well presented, but very little reference was made to the data. In several cases inferences, predictions, or conclusions were not attempted by the candidates. The conclusions and recommendations were not accurately or scientifically based and were not supported by the analysis of data.

Assignment 2

Experimentation and Recipe Modification

Candidates selected appropriate experiments and demonstrated knowledge of relevant facts. Reports were well written and presented. Many of the candidates did not formulate hypotheses, and the procedures for experiments were in most cases not clearly documented. A large majority of the candidates showed very little evidence to prove that they modified the product after critical or unexpected outcomes.

RECOMMENDATIONS TO TEACHERS

Overall the performance on the examinations was satisfactory. Performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of candidates. Although candidates had an understanding of concepts they did not elaborate and fully develop answers as was expected at the Advanced Proficiency Level. Some candidates were not fully prepared for this level of examination. It was also clear that they were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should, therefore, cover the entire syllabus so that they can satisfy the requirements of the examination. Greater emphasis must be placed on those concepts which can be regarded as current areas of nutrition.

Candidates should be encouraged to follow the guidelines given below:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.
- Answer questions with a variety of key words, namely: discuss; explain; list; describe; and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates' inability to gain as many marks as possible.
- Participate in mock examinations using past examination papers and administered under examination conditions in order to develop good examination techniques.
- Utilize different media to become familiar with current nutrition issues.
- Place emphasis on research techniques, case studies and problem solving.
- Engage in field trips and work attachments. These would help students to understand fully many nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breastfeeding; nutrition-related disorders; and practices and procedures for ensuring safety of food, for example.
- Engage in practical exercises in the identification and use of the nutritive value of food not categorized in the food groups, namely; functional/genetically engineered foods; fat replacers; sugar, salt and other substitutes; and convenience foods.
- Develop ideas, and demonstrate clarity of expression. In many cases candidates showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the Advanced Proficiency Level.
- Adhere to general directions. Many candidates ignored the instruction to begin each question on a new page. In some cases candidates did not keep parts of a question together. They should be advised to leave a blank page in the workbook when going on to a new question, if the previous question has not been completed. Also, the question number must be written in the space provided.

Internal Assessment

Candidates should be encouraged to:

- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- Note that literature reviews for each assignment do not have to be extensive, but, should be thorough enough to outline the problem and research relevant to the same. This cannot be adequately done in two to three pages. Students must utilize a variety of sources and should be taught the APA referencing style for citing sources and developing a reference list.
- Develop rationales and explain the significance of the topic.

Assignment 1 - Research

Candidates must not only present the data but they should discuss the data clearly. They are not expected to present data on all of the questions, but should discuss all of the questions asked on the questionnaire or interview.

Efforts should be made to guide candidates in making simple inferences, and drawing conclusions yielded from the data. Give a summary or conclusion at the end of the project.

Assignment 2 - Experimentation and Recipe Modification

Candidates should be advised that a detailed report must be written, which accurately records and reports all observations.

Efforts should be made for candidates to understand that experiments are not completed on a one-shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes.

Efforts should be made to introduce students to the role of product development and recipe modification. In addition, demonstrations should be completed before candidates engage in their individual assignments.

Candidates should be advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to reaching success. For this reason it should involve the altering of several ingredients, hence baked products is suggested as an example for modification. For example, at this proficiency, it is unacceptable to modify the amount of fat or salt in beef stew and view this as competent work. Therefore, significant ingredients should be altered.

Each modification should be explained in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, when making a jam, the product did not set; therefore, more lime juice was added to the next modification. Examiners are not expected to compare the recipes to verify the changes that were made to the recipes.

Variations of basic recipes are not expected at this proficiency as a modification. For example, the original recipe plain cake and the modified recipe coconut cherry cake is unacceptable.

Candidates should give the original recipe and then conduct at least two modifications.

Experiences must be provided for candidates to fully understand that a recipe is a formula, thus, any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one-shot basis.

Efforts should be made for candidates to understand the role of major ingredients used in recipes, especially baked items. For example, if the amount of sugar in a creamed mixture is changed there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.

Candidates should be encouraged to use food composition tables to determine energy values for the original and new product.

Candidates should be encouraged to formulate valid hypotheses.

Candidates should be encouraged to record and report methods, observations and results accurately, using tables or graphs.

Candidates should include the results from the sensory evaluation in their discussion.

Candidates should develop a conclusion to summarize their findings.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2008**

**FOOD AND NUTRITION
(TRINIDAD AND TOBAGO)**

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CARIBBEAN ADVANCED PROFICIENCY EXAMINATION

JUNE/JULY 2008

GENERAL COMMENTS

The Caribbean Examinations Council administered its sixth open examination in Unit 1 Food and Nutrition and its fifth open examination in Unit 2 in 2008. There were some good responses to questions in both Units.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

DETAILED COMMENTS

UNIT I

PAPER 01 - SHORT ANSWER QUESTIONS

Paper 01 in both units consisted of nine compulsory short-answer questions. Candidates were required to answer all questions. There were three questions on each of the three Modules in the Unit. Paper 01 tested the grasp of critical nutrition principles and mastery of relevant skills. Candidates' performance was satisfactory. The maximum possible mark was 90. In Unit 1, the mean mark was ____ and in Unit 2, the mean mark was ____.

PAPER 02 - STRUCTURED ESSAY

In Unit 1 and 2, Paper 02 consisted of seven essay questions which tested objectives across all Modules. It was divided in four sections. Section I consisted of one compulsory question spread across all the Modules. Sections II to IV each comprised two optional questions, candidates were required to answer one question from each section. Questions in Section II were based on Module I, those in Section III on Module 2 while questions in Section IV were based on Module 3.

The compulsory question in Section I was worth 45 marks and all others were worth 25 marks each. Overall, candidates' performance was good. The maximum possible mark was 120. In Unit 1 the mean was ____ In Unit 2 the mean mark was ____.

PAPER 03 - INTERNAL ASSESSMENT

Paper 03 the Internal Assessment comprised a portfolio of two assignments. Candidates were expected to conduct research on a selected theme in the syllabus. The research in the first assignment was expected to form the basis of the experimentation and product development in the second assignment. Paper 03 is worth 90 marks and contributed 30 percent to the candidates' final grade.

Performance on this paper was generally good, with a mean score of ____ out of ____ in Unit 1, and ____ out of ____ in Unit 2.

DETAILED COMMENTS

UNIT I

PAPER 01 – SHORT ANSWER QUESTIONS

Question 1

This question tested candidates' understanding of planning lunch menus for a vegan using the multi-mix approach, Caribbean six food groups, and minerals that help maintain fluid balance.

The overall performance of this question was very good.

Part (a) of the question was well done. Most candidates were able to plan a three-mix meal for a vegan and identify the food group in which each component of the mix is classified.

In Parts (b) (i) and (ii), candidates seemed unfamiliar with the various minerals and their functions.

Question 2

This question tested candidates' understanding of the definitions and effect of negative energy balance and obesity on the body, calculating energy needs of a nineteen-year old.

Candidates scored more in Part (a) because they were familiar with the term obesity and could describe its effect on the body. However, many could not define negative energy balance or comment on its effect on the body.

In Part (b), candidates experienced difficulty with calculating the amount of fat (in grams), which must be excluded from the daily diet in order to reduce the caloric intake by five percent. The expected response is given below:

$$5 \% \text{ of } 2800 \text{ kcal (daily diet)} = 140 \text{ kcal}$$

$$1 \text{ gram fat} = 9 \text{ kcal}$$

$$\text{Therefore fat to be removed} = 140/9 \text{ kcal} = 15.5 \text{ grams}$$

Question 3

This question tested candidates' understanding of the management and consequences of untreated hypertension.

Performance on Part (a) was good as candidates were able to give lifestyle changes for the management of hypertension.

In Part (b) candidates were able to identify consequences of untreated hypertension such as stroke, impaired vision, hardened arteries and coronary-artery disease, kidney damage, heart attack, congestive heart failure and death, but were unable to describe them in detail.

Question 4

This question tested candidates' understanding of the importance of nutrition terms and facts on food labels, and the role of high and low density lipoproteins.

Performance on this question was satisfactory.

In Part (a) the majority of candidates were unable to define the terms low calorie and reduced calorie. Expected responses were (1) low calorie is found on foods that contain 40 calories or less in each serving and (2) reduced calorie is found on products that have 1/3 fewer calories than a similar product.

Responses in Part (b) indicated that candidates were familiar with the importance of providing nutritional facts on food labels.

In Part (b) most candidates did not attempt to respond to the effects of high-density lipoprotein and low-density lipoprotein on body cells.

Question 5

This question tested candidates' understanding of how several practices safeguard the quality of food products.

The overall performance of this question was fairly good.

In Parts (a) and (c), candidates were familiar with 'use by date' on food labels and adding antioxidants to preserves to prevent spoilage.

Candidates seemed not to be familiar with the other three safeguards namely, avoiding the washing of eggs before storing, adding sodium benzoate to beverages, and subjecting foods to irradiation.

Question 6

This question tested candidates' understanding of modifying menus to improve nutrient value, and food preparation practices to ensure conservation of water soluble nutrients when preparing vegetable salads.

The overall performance of the question was fairly good.

In Part (a), most candidates were able to suggest modifications to the items in the given menu to make it more nutritious and add to the protein, calcium and vitamin D content.

In Part (b), some of the candidates seemed limited in their knowledge of the food preparation practices required to prevent the loss of water soluble nutrients.

Question 7

This question tested candidates' understanding of principles underlying microwave cookery, first aid treatment for burns and ways of preventing accidents when using the microwave oven.

In general, this question was only fair.

Part (a) posed quite a bit of difficulty to many candidates, who seemed not to be familiar with the principle of microwave cookery. Instead they identified advantages of using the oven.

Performance on part (b) was fairly good, as candidates gave good responses for ways of preserving the quality of foods cooked in the microwave oven.

In Parts (c) (i) and (ii), candidates were familiar with first aid treatment for burns caused by hot food from the microwave oven and ways the accident could have been prevented.

Question 8

This question tested candidates' understanding of guidelines for design of a kitchen to ensure maximum efficiency and work flow, and kitchen safety precautions.

The overall performance of the question was good.

In Part (a), although some candidates understood that the design of a kitchen impacted on efficiency and work flow, they were unable to give a complete set of guidelines for design, and in some cases no illustration was provided.

Part (b) was done well as candidates gave good responses for the safety precautions.

Question 9

This question tested candidates' understanding of modification of a Macaroni Cheese and Bacon recipe to reduce cholesterol in the diet, preparation guidelines for reducing the fat content, and purposes of garnishes.

The overall performance on this question was good.

Performance on Part (a) was good as most candidates were able to identify high cholesterol foods in the ingredients list and suggest replacements.

In Part (b), the majority of candidates were unable to give food preparation guidelines for reducing the fat content as related to the dish, but gave them in general.

Part (c) was done well as candidates gave good responses for the purposes of garnishes and suggested a suitable one for the dish given.

PAPER 02 - STRUCTURED ESSAY

SECTION I

Modules 1, 2 and 3 – Compulsory Question

Question 1

This question tested candidates' understanding of the factors which influence food choices, ways of including a variety of nutritionally balanced foods on the menu of a cafeteria, Caribbean meal patterns, Caribbean six food groups, preparing time plans, and garnishes.

The compulsory question was attempted by all the candidates.

The overall performance of this question was fairly good.

In Part (a) (i) the responses were only fair, as candidates experienced some difficulty in the elaboration of the factors which may have influenced an exchange student's refusal of food offered in a cafeteria. Though candidates seem to be aware of the factors that generally influence food choices they were not always able to apply them to the stated instance of a foreign student.

Part (a) (ii) was fairly well done by candidates, as indicated by their ability to suggest ways the owner of the cafeteria may include a variety of nutritious foods in meals to ensure nutritional balance.

In Parts (b) (i) and (ii), candidates were able to describe the meal patterns and types of meals eaten in the Caribbean, and major food groups that provide energy yielding nutrients.

In Part (c) (i), some candidates were unable to effectively prepare time plans, as they did not include evidence of dove-tailing, follow through of each dish to presentation, and the management of temperature and service.

Performance on Part (c) (ii) indicated that candidates were familiar with the preparation of garnishes.

SECTION II**Module 1**Question 2

This question tested candidates' understanding of the process of digestion, and benefits of adequate protein intake in the diet of a toddler.

This question was attempted by 12.5 per cent of the candidates. The overall performance on this question was weak.

Performance on Part (a) was very weak as the candidate did not understand the process of digestion.

Part (b), was fairly well done by candidates as the benefits of adequate protein intake in the diet of a toddler was clearly outlined.

Question 3

This question tested candidates' understanding of the importance of hunger and appetite to adequate food intake, the impact of food safety and sanitation on the nutritional status of young children, and ensuring food safety at a daycare facility.

This question was attempted by 87.5 per cent of the candidates.

Performance on this question was fairly good.

In Part (a), some candidates could not define the terms hunger and appetite, therefore they found it difficult to differentiate between the two terms, or link them well enough to adequate food intake.

Performance on Part (b) (i) was hampered because candidates focused more on the importance of food safety and sanitation, and did not follow through to suggest how this affected the nutritional status of young children.

In Part (b) (ii), candidates clearly outline ways of ensuring food safety at a daycare facility.

SECTION III

Module 2

Question 4

This question tested candidates' understanding to plan a day's menu using local and convenience foods, and the importance of enhancing the appeal of meals.

This question was attempted by 87.5 per cent of the candidates. The overall performance was fairly good.

Performance on Part (a) was good as most candidates were able to plan day's menu using local and convenience foods.

In Part (b), candidates were requested to give reasons for preparation practices which would enhance the appeal of meals. They generally responded well but did not always give details of why the practice enhanced the meal.

Question 5

This question tested candidates' understanding of public acceptance of genetically engineered foods, unsafe practices, and micro organisms found in foods.

This question was attempted by 12.5 per cent of the candidates.

Performance on Part (a) was good. Though genetically engineered foods is a relatively new topic, candidates were able to effectively address the issue of the public's acceptance by suggesting the kinds of questions they would ask on a questionnaire.

In Part (b), candidates were familiar with all the unsafe practices but were unable to identify microorganisms associated with each particular type of hazard.

SECTION IV

Module 3

Question 6

This question tested candidates' understanding of the principle underlying the use of raising agents, and food additives used to improve the sensory characteristics of manufactured foods.

Performance on this question was unsatisfactory. The question was attempted by 12.5 per cent of the candidates.

Performance on Parts (a) (i) and (ii) was weak, as the candidate could not adequately explain principle underlying the use of raising agents. Even though some understanding of popular raising agents was known, placing them in categories or explaining how each one works presented difficulty.

In Part (b), the candidates was familiar with the food additives but did not adequately discussed their role in improving the sensory characteristics of manufactured foods.

Question 7

This question tested candidates' understanding of criteria that should be met for walls, floors and other elements of a kitchen facility to ensure efficiency in food preparation, illustrating suitable cuts for carrots, types of knives, and the procedure for sharpening a knife using a knife steel.

Performance on this question was good. The question was attempted by 87.5 per cent of the candidates.

Performance on Part (a) was good as most of the candidates were generally familiar with the requirements for each of the given elements for a food preparation facility.

In Part (b) (i), while candidates could name the carrots cuts and the knives, they did not provide illustrations of these.

Part (c) was done only fair, as candidates could not fully explain the procedure for sharpening a knife using a knife steel.

UNIT 2**PAPER 01 - SHORT ANSWER QUESTIONS**Question 1

This question tested candidates' understanding of ways to combat under-nutrition in a community and the impact of cultural beliefs on the nutritional status of pregnant women.

The overall performance on this question was very good for the most part.

In Part (a), candidates were able to put forward strategies such as having kitchen gardens, conducting educational sessions and providing food supplements.

In Part (b), candidates gave examples of popular fads and fallacies concerning pregnancy which could have an impact on the woman's nutritional status

Question 2

This question tested candidates' understanding of food security, improving access to food at the household level, and food poisoning.

The overall performance on this question was good.

In Part (a) (i), which dealt with food security, even though most candidates did not fully define food security, they were able to score at least one point for having the basic elements of the definition.

For Part (a) (ii), candidates listed ways of improving household food security. Popular answers included having a budget, buying local foods and having a meal plan. Other possible answers are: buying cheaper cuts of meat, government subsidies for farmers, use of foods in season and preserving foods when there is a glut.

In Part (b), candidates listed measures that the Environmental Health Officers could take to address food poisoning from a school's cafeteria. Most of them indicated that the cafeteria should be closed and that foods should be tested to identify the source. Other expected answers were: (1) the facilities should be inspected, (2) recommendations should be made for improved sanitation and (3) food safety training should be provided for the staff of the cafeteria.

Question 3

This question tested candidates' understanding of how lifestyle changes have influenced breastfeeding patterns, national initiatives that support breastfeeding and guidelines to be followed after a prolonged power outage in order to ensure the safety of refrigerated foods.

In Part (a) (i), candidates listed factors such as the mass media and both parents working outside of the home as major factors which have a negative influence on breastfeeding. Other factors worthy of noting are the (1) prevalence of HIV/AIDS, since the virus can be transmitted through breastmilk, this has negatively affected breastfeeding. (2) Then there is the ease of travel, which has caused many women to travel soon after delivery, either leaving their infants behind or taking formula along with them.

Many candidates were not familiar with Part (a) (ii), initiatives in support of breastfeeding, such as baby friendly hospitals, mother-to mother support groups or work-site day care facilities and therefore listed *Ministry of Health* or *using the mass media to educate women*, as the only initiatives.

Part (b) was generally well done as candidates addressed the issue of refrigerated foods and a prolonged power outage. The popular answers were to keep the refrigerator cold and to discard spoiled foods.

Question 4

This question tested candidates' ability to read and interpret a food label and to select appropriate food packaging for children.

In Part (a) they examined an actual label and identified the parts relating to (1) food allergies, (2) weight reducing diets, (3) food safety and (4) health claims. This was generally well done, however it needs to be noted that the presence or non-presence of cholesterol and transfat, while affecting quality of fats, do not directly affect caloric intake therefore, these elements do not directly relate to weight reducing diets. Instead they directly relate to health claims.

In Part (b), candidates were able to list criteria for the packaging but could not always suggest suitable reasons. A model response is as follows:

- Lightweight, so that it can be carried easily
- Resealable so that contents not used could be secured
- Not fragile, Should be made from materials which would not cause injury when broken.

Question 5

This question tested candidates' understanding of principles underlying the use of high and low temperatures in food preservation and calculating the selling price of a preserve.

In Part (a), candidates stated generally that the high and low temperatures retard the growth of bacteria or destroy bacteria, but did not give examples such as canning, sterilization or pasteurization for high temperatures nor freezing for the use of low temperatures. They did not also refer to the slowing of enzyme activity which could cause oxidation.

In Part (b), they were required to calculate the selling price of a preserved product. Many candidates listed the ingredients with their individual prices, and then totaled these to get the selling price. Candidates should be given practice in performing calculations and be encouraged to include other production costs such as fuel, packaging and labour. When these are all added, a percentage mark up must be calculated and added on to the costs to arrive at the selling price.

Question 6

This question tested candidates' understanding of the physical and chemical changes that occur during the production of cornstarch pudding and the responsibilities of food safety agencies as it relates to the food catering industry.

The overall performance on this question was poor.

In Part (a), candidates were just able to state that the starch grain swell and the pudding thickens. The responses could have been elaborated more. Candidates needed to state that during the process of production the starch is blended with liquid and a suspension is formed. During the heating of the starch, the starch grains swell forming a paste or gel. This process is called gelatinization. As the mixture cools, it further thickens. This is called retrogradation.

Part (b) was generally fairly well done, as candidates listed responsibilities of food regulatory agencies. The popular responses were certifying of workers, training, and inspection of facilities.

Question 7

This question tested candidates' understanding of menu planning requirements for elderly persons who are diabetic.

The overall response was good.

In Part (a), candidates listed points to consider when catering to the dietary needs of an elderly aunt who is diabetic. Though generally well responded to, some candidates looked at menu planning in general. The question required that both factors, "elderly" and "diabetic", be taken into consideration.

Part (b) required candidates to write a three-course menu. They generally responded well to this part of the question giving three courses and taking the dietary factors for *elderly* and *diabetic* into consideration.

Question 8

This question tested candidates' understanding of the importance of portion control, kitchen organisation and its effect on productivity.

In Part (a), the responses provided were adequate for the most part and included that it helps to reduce wastage ensures that customers are satisfied. Other expected answers are that it makes yields easier to calculate and that it helps with cost control.

In Part (b), candidates were able to put forward some points which showed how kitchen organization contributes to greater productivity including that counters should be at the right height, labour saving devices should be used and that planning and organizing of tasks should be done ahead of time.

Question 9

This question tested candidates' understanding of how the real cost of food is calculated, and modification of a popular Caribbean recipe.

In Part (a), candidates correctly provided other factors of calculating real costs of food.

Candidates were required to write a recipe in Part (b). They were able to do this; however, most candidates did not provide quantities, or methods for the recipe. Recipe writing requires a list of ingredients with quantities in good proportion and a method which indicates incorporation of all the ingredients as well as timing and oven and stove top management.

PAPER 02 - STRUCTURED ESSAY**SECTION I****Modules 1, 2 and 3 – Compulsory Question**Question 1

This question tested candidates' understanding of indigenous Caribbean dishes, health implications of nutrients, guidelines for ensuring a balanced diet is consumed, ways in which fortification can assist in improving the nutritional status of a population, the production stages for local sweet, assessing a menu for obese teenagers, and planning meals using the multi-mix principle.

This compulsory question was attempted by all candidates.

The overall performance on this question was good.

Part (a) (i) was well done. Most candidates gave very good responses, when they identified indigenous Caribbean dishes and discussed the nutritional content of these dishes.

In Part (a) (ii), most candidates outlined guidelines that can be followed by a family to ensure a balanced diet.

Performance on Part (b) (i) was fairly well done by some candidates, while some experienced difficulty identifying ways in which fortification can assist in improving the nutritional status of a population.

Part (b) (ii) was answered well. Most candidates were able to list the stages in the production of a local sweet, and identify one suitable nutrient that can be used to fortify it.

Parts (c) (i) and (ii) presented some difficulty since some candidates were unable to fully discuss the faults in the menu provided. They had a general idea of what was not correct, but could not relate these to its unsuitability for obese teenagers. Similarly, they were unable to use the four-mix principle to adjust the menu in order to address the faults identified.

SECTION II

Module 1

Question 2

This question tested candidates' understanding of the factors which influence food choices and eating patterns, and developing original recipes which would appeal to Caribbean consumers.

This question was attempted 50 per cent of the candidates.

Part (a) was very good as observed by the ability of candidates to discuss factors influencing food choices and eating patterns.

In Part (b), some of the candidates experienced weaknesses in recipe writing. Recipes were not named, attention was not paid to originality and two methods of cooking were not incorporated as requested.

Question 3

This question tested candidates' understanding of traditional and modern tools and equipment used in food preparation in the Caribbean, cleaning and sanitizing practices in food establishments.

This question was attempted by 50 per cent of the candidates. The question was generally well done.

In Part (a), candidates correctly identified traditional and modern cooking tools used in food preparation and outlined the advantages of using modern tools and equipment.

In Part (b), candidates had an idea of the importance of cleaning and sanitizing, however they did not specifically relate this to small equipment as requested.

SECTION III**Module 2**Question 4

This question tested candidates' understanding of nutraceuticals and advantages and disadvantages of bottling as a method of food preservation.

This question was attempted by 16 per cent of the candidates.

The performance of this question was satisfactory.

Performance on Part (a) (i) was fairly good. The candidates were familiar with the term nutraceuticals and were able to provide good examples and accurately listed their purposes.

In Part (b), the candidate experienced some difficulty in the interpretation of bottling and included in the discussion anything stored in bottles, as opposed to preserving food by the method bottling.

Question 5

This question tested candidates' understanding of the conservative method of cooking vegetables and the food supply network involving the farmer and retailer.

This question was attempted by 83 per cent of the candidates.

The overall performance of this question was fairly good.

In Part (a), some candidates had difficulty in the interpretation of conservative method of cooking and focused primarily on fuel and energy conservation.

Part (b) was well done by the majority of candidates who were able to identify the challenges faced by the farmer and retailer in the production and supply of food for consumers.

SECTION IV**Module 2**Question 6

This question tested candidates' understanding of improper cooling of large quantities of food, methods to reduce cooling time, and criteria used by customers to assess the quality of food and service in a restaurant.

This question was attempted by 66 per cent of the candidates.

The overall performance of this question was fairly good.

Part (a) (i) was done fairly well by some of the candidates who correctly explained why improper cooling of food is hazardous when preparing food in large quantities.

In Part (a) (ii), some candidates interpreted ways of ‘reducing the cooking time of food as ‘reducing standing time’. Expected responses include: 1. place foods into shallow pans, 2-3 inches deep; 2. stir food while cooling; 3. transfer food into small containers; 4. place containers of hot food inside a larger container with ice/ice water; 5. pre-chill foods in a freezer for 30 minutes before refrigerating; 6. use containers that facilitate heat transfer.

Part (b) was widely known by most of the candidates as they were able to outline criteria used by customers to assess the quality of food and service in a restaurant.

Question 7

This question tested candidates’ understanding of preparation of a vegetarian entrée that included dried legumes as the main ingredient and guidelines for ensuring a safe environment while preparing and cooking food.

This question was attempted by 33 per cent of the candidates.

The overall performance of this question was very good.

Performance in Part (a) was very good as candidates were familiar with types of dishes that can be prepared using legumes.

Candidates’ response to Part (b) was very good as they were able to outline food safety and hygiene practices.

INTERNAL ASSESSMENT

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all Modules. Candidates in consultation with the teacher and the guidelines provided by the Caribbean Examinations Council selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of the candidates has shown great improvement.

The majority of portfolios were very well presented. Most of the illustrations were clear and creative. In some cases the quality of the assignments was appropriate for the Advanced Proficiency Level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

Some candidates submitted exemplary portfolios. The work of these candidates was scientifically based and rigorous. These candidates are to be highly commended for their effort

Module 1 – Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. In most cases literature reviews were comprehensive, but sources used were not always cited. Data were well presented, but very little reference was made to the data. In several cases inferences, predictions, or conclusions were not attempted by the candidates. The conclusions and recommendations were not accurately or scientifically based. Similarly, they did not support the analysis of data.

Module 2 – Experimental and Recipe Modification

Candidates selected appropriate experiments and demonstrated knowledge of relevant facts. Reports were well written and presented. Most of the candidates did not formulate hypotheses, and, the procedures for experiments were in most cases not clearly documented. A large majority of the candidates showed very little evidence to prove that they modified the product after critical or unexpected outcomes

RECOMMENDATIONS TO TEACHERS

Overall the performances on the examinations were satisfactory. Performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of candidates. Although candidates had an understanding of concepts they did not elaborate and fully develop answers as was expected at the Advanced Proficiency Level. Some candidates were not fully prepared for this level of examination. It was also clear that they were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should therefore cover the entire syllabus so that they can satisfy the requirements of the examination. Modules 3 in both units were extremely weak. Since it might not be possible for teachers to cover every topic in class, it is suggested that candidates be given research on these topics and be allowed to present their work in class. Greater emphasis must be placed on those concepts which can be regarded as current areas of nutrition.

Candidates should be encouraged to:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.

Answer questions with a variety of key words, namely: discuss; explain; list; describe; and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates' inability to gain as many marks as possible.

Participate in mock examinations using past examination papers and administered under examination conditions in order to develop good examination techniques.

Utilize different media to become familiar with current nutrition issues.

Place emphasis on research techniques, case studies and problem solving.

Engage in field trips and work attachments will help students to understand fully many nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breast feeding; nutrition related disorders; and practices and procedures for ensuring safety of food, for example.

Develop ideas, and demonstrate clarity of expression. In many cases candidates showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the advanced proficiency level.

INTERNAL ASSESSMENT

Candidates should be encouraged to:

- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- Note that literature reviews for each assignment do not have to be extensive, but, should be thorough enough to outline the problem and research relevant to the same. This **cannot** be adequately done in two to three pages. Students must utilize a variety of sources and should be taught the APA referencing style for citing sources and developing a reference list.
- Develop rationales and explain the significance of the topic.

Assignment 1 – Research

Candidates must not only present the data but they should discuss the data clearly. They are not expected to present data on all of the questions, but should discuss all of the questions asked on the questionnaire or interview.

Efforts should be made to guide students in making simple inferences, and drawing conclusions yielded from the data. Give a summary or conclusion at the end of the project.

Assignment 2 – Experimental and Recipe Modification

Candidates should be advised that a detail report must be written, which accurately records and reports all observations.

Efforts should be made for students to understand that experiments are not completed on a one shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes.

Efforts should be made to introduce students to the role of product development and recipe modification. In addition, demonstrations should be completed before students engage in their individual assignments.

Candidates should be advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to reaching success. For this reason it should involve the altering of several ingredients, hence baked products is suggested as an example for modification. For example, at this proficiency it is unacceptable to modify the amount of fat or salt in “beef stew” and view this as competent work. Therefore, significant ingredients should be altered.

Each modification should be explained in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, when making a jam, the product did not set, therefore, more lime juice was added to the next modification. Examiners are not expected to compare the recipes to verify the changes that were made to the recipes.

Variations of basic recipes are not expected at this proficiency as a modification. For example, original recipe plain cake and modified recipe coconut cherry cake.

Candidates should give the original recipe and then conduct at least two modifications.

Experiences must be provided for students to fully understand that a recipe is a formula, thus any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one shot basis.

Efforts should be made for students to understand the role of major ingredients used in recipes, especially baked items. For example, if the amount of sugar in a creamed mixture is changed there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.

Candidates should be encouraged to use food composition tables to determine energy values for the original and new product.

Candidates should be encouraged to formulate valid hypotheses.

Candidates should be encouraged to record and report methods, observations and results accurately, using tables or graphs.

Candidates should include the results from the sensory evaluation in their discussion.

Candidates should develop a conclusion to summarize their findings.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2008**

**FOOD AND NUTRITION
(REGION EXCLUDING TRINIDAD AND TOBAGO)**

FOOD AND NUTRITION
ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2008

GENERAL COMMENTS

The Caribbean Examinations Council administered its sixth open examination in Unit 1 Food and Nutrition and its fifth open examination in Unit 2 in May 2008. There were some good responses to questions in both Units.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

UNIT I

Paper 01 - Short Answer Questions

Paper 01 in both Units consisted of nine compulsory short-answer questions. Candidates were required to answer all questions. There were three questions on each of the three Modules in the unit. Paper 01 tested the grasp of critical nutrition principles and mastery of relevant skills. Candidates' performance was satisfactory. The maximum possible mark was 90. In Unit 1, the mean mark was 39.32 and in Unit 2, the mean mark was 56.05.

PAPER 02 - Structured Essay

In Units 1 and 2, Paper 02 consisted of seven essay questions which tested objectives across all Modules. It was divided in four sections. Section I consisted of one compulsory question spread across all the Modules. Section II to Section IV each comprised two optional questions and candidates were required to answer one question from each section. Questions in Section II were based on Module I, those in Section III on Module 2 while questions in Section IV were based on Module 3.

The compulsory question in Section I was worth 45 marks and all others were worth 25 marks each. Overall, candidate performance was good. The maximum possible mark was 120. In Unit 1 the mean was 65.50. In Unit 2 the mean mark was 68.70.

PAPER 03 - Internal Assessment

Paper 03, the Internal Assessment, comprised a portfolio of two assignments. Candidates were expected to conduct research on a selected theme in the syllabus. The research in the first assignment was expected to form the basis of the experimentation and product development in the second assignment. Paper 03 was worth 90 marks and contributed 30 percent to the candidates' final grade.

Performance on this paper was generally good, with a mean score of 62.40 out of 90 in Unit 1, and 69.71 out of 90 in Unit 2.

DETAILED COMMENTS

UNIT I

Paper 01

Short Answer Questions

Question 1

This question tested candidates' understanding of assessing nutritional status, indicators used on the Caribbean Growth Chart, and how geographical location and food fallacies influence food choices.

The overall performance of this question was satisfactory.

Part (a) of the question was fairly well done. Most candidates were familiar with the nutrition indicator "weight for age".

Part (b) was fairly well done. Although candidates were able to explain the means of assessing nutritional status the majority of them were unable to use the correct terminology, for example anthropometry, clinical assessments, biochemical tests and dietary evaluation.

In part (c), most candidates demonstrated a good understanding of how food choices are shaped by geographical location and food fallacies.

Question 2

This question tested candidates' understanding of the impact of good nutrition for persons living with HIV/AIDS, and the dietary changes needed to help slow down their weight loss.

Candidates did not score well on part (a). The majority of the candidates were unable to identify an enzyme that will be excluded from the digestive process if the pancreas is damaged by the HIV/AIDS virus and state the function of that enzyme. The majority of candidates listed pancreatic juice, but did not name any enzyme. Expected answers included amylase, lipase, trypsin, chymotrypsin and peptase.

In Part (b) the calculation of the energy contained in the serving of peanut butter was very well done.

In Part (c), candidates were expected to outline dietary changes that persons with HIV/AIDS should make in order to help slow down their weight loss. Candidates were able to list at least one method. Surprisingly, many candidates focused on guidelines that would speed up weight loss, such as moderate intake of fats and carbohydrates as well as increasing fibre in the diet. Expected answers included moderate use of fibre; increase in high calorie foods; avoidance of drug/nutrient interactions that may decrease absorption of nutrients; and, balanced nutrient intake so that nutrients can be absorbed efficiently.

Question 3

This question tested candidates' understanding of the conditions that can contribute to under-nutrition in children and the effect on the growth line of a growth chart when children move from a state of good health to a state of under-nutrition.

Performance on Part (a) was only fair and posed some difficulty to candidates. The majority of candidates were unable to clearly state how the conditions fever, diarrhoea and vomiting could lead to under-nutrition.

Part (b) was generally well known. The candidates were required to state what happens to the growth line on the growth chart of a child who is moving from a state of good health to a state of under-nutrition. Candidates were expected to state that the line goes in a horizontal direction or levels off and that the line moves in a downward direction. However, the majority stated that the line goes downwards.

Question 4

This question tested candidates' understanding of why the use of colours in convalescent cookery can have a positive effect on nutrition intake, and the use of convenience foods to develop lunch menus for persons on a regular diet.

Performance on this question was very good.

In Part (a) the majority of candidates were able to link the relationship between the use of colours in cooking for convalescents and the fact that this would encourage them to eat. However, they were unable to indicate that colours in fruits and vegetables represent various nutrients. For example, carotene in carrots and pumpkin represents vitamin A, and convalescents were recovering from illness or surgery and therefore needed nutrient-dense foods.

Responses in Part (b) indicated that candidates were familiar with ways of ensuring that pre-schoolers included adequate dietary fibre in their diet. The majority of candidates were able to list inclusion of fruits as well as vegetables and other high-fibre foods.

In Part (b) many candidates planned menus with two courses, but did not indicate the convenience foods used. Others did not follow the correct format for menu writing or provided only the main course.

Question 5

This question tested candidates' understanding of the health effects of an excessive intake of vitamin A and vitamin C, and food groups that should be promoted in an effort to control energy intake.

The overall performance on this question was weak.

Performance on Part (a) was only fair. Most candidates were aware that there were toxic effects of excessive consumption of vitamin A. They also were, to a large extent, familiar with the fact that vitamin A, being a fat-soluble vitamin would be stored by the liver and other organs of the body. Some correctly gave the effects of its toxicity such as slow growth in children and damage to connective tissues.

In Part (b) many candidates demonstrated that they understood the food groups that should be promoted in an effort to control the energy intake. There were, however, quite a few candidates who listed nutrients instead of food groups.

Question 6

This question tested candidates' understanding of the conservation of nutrients.

The overall performance on the question was weak.

In Parts (a) and (b) some candidates recognized the nutrients that were lost as a result of baking soda being added to the cooking water of peas and beans and lettuce leaves being cut instead of torn. They noted that the alkalinity of baking soda would soften tissues as well as lead to a loss in water-soluble nutrients. Similarly, most candidates were aware that when lettuce leaves are cut, they are exposed to the oxygen in the air which leads to oxidation of vitamin C.

In Part (c) some of the candidates correctly identified how the refrigerator helps to conserve the nutrients in butter and pumpkin, while others did not discuss the effect of each.

Question 7

This question tested candidates' understanding of removing a build-up of minerals from a percolator, and precautions to reduce the risk of electrical shock.

In general, responses to this question were weak.

Part (a) was challenging to many candidates, who seemed not to be familiar with a percolator is. The expected answer was as follows:

- (i) Fill the percolator with equal amounts of cold water and white vinegar.
- (ii) Assemble all parts, plug in and let go through the perk cycle.
- (iii) When perking has stopped, let sit another 15 minutes.
- (iv) Unplug and drain the percolator.

Alternately lime scale remover could be used instead of vinegar.

Performance on Part (b) was fairly good as candidates gave good responses for precautions that could be taken to reduce the risk of electrical shock from a percolator.

Question 8

This question tested candidates' understanding of symptoms of physiological shock as a result of severe cuts and burns; the first response that is recommended in the first aid treatment of shock; and, methods of tenderizing tough cuts of meat prior to cooking.

The overall performance on the question was poor.

In Part (a), although some candidates responded fairly well, many did not pay attention to the term 'physiological shock' and therefore correct symptoms were not provided. Expected responses included: irritability; altered consciousness; pale clammy or moist skin; rapid breathing; discomfort; and, rapid pulse. The first response treatment included covering the victim with a warm blanket, reassuring the victim, making the victim comfortable or having the victim lie down.

Performance on Part (b) was only fair. Candidates confused methods of tenderizing tough cuts of meat with cooking methods and were not able to score maximum marks. Some candidates were familiar with at least two procedures, namely, pounding to break up muscle fibres and the use of enzymes or meat tenderizing powders.

Question 9

This question tested candidates' understanding of the scientific principles underlying properties of eggs and ways of making eggs more appealing to children.

The overall performance on this question was weak.

Performance on Part (a) was weak. Most candidates were unable to explain the scientific principles underlying the emulsifying and thickening properties of eggs. However, many candidates were able to cite examples of how these properties of eggs were used in food preparation.

Expected responses include that lecithin in egg yolk acts by stabilizing the emulsion between oil and water and that this property is often used in the making of salad dressings, such as mayonnaise or in ice-cream production. In terms of thickening properties, the proteins present in eggs, mainly ovalbumin and mucin, coagulate when heated, forming a gel. This property is often used to thicken custards and soufflés.

In Part (b), the majority of candidates gave excellent responses for ways in which eggs can be prepared to make them more appealing to children.

Paper 02 - Structured Essay

Section I - Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the importance of iron intake in the diet of a young child; enhancers and inhibitors as they relate to absorption of iron; preparation techniques for increasing the iron intake of children; developing menus for children who are anaemic; creating a recipe for a snack using coloured vegetables; and, illustrating interesting shapes to encourage children to consume vegetables.

This compulsory question was attempted by all the candidates and the overall performance was fairly good.

In Part (a) (i), the responses were generally good as candidates noted the importance of iron in the diet of a young child.

Part (a) (ii) was fairly well done by candidates. However, many of them neglected to name one enhancer and one inhibitor as requested.

In Part (a) (iii), candidates were required to suggest five food preparation techniques or dietary guidelines that would be helpful to parents for increasing the iron intake of their children. While some of them were able to list the guidelines, not many of them cited examples, such as: cooking foods in larger pieces; using meat drippings and fruit pulp; reducing bulk in the diet; reducing intake of antacids; increasing calcium intake; and, serving iron-rich foods with vitamin C rich foods. In addition, some candidates ignored the term 'iron intake' and gave general guidelines for encouraging children to eat.

Part (b) required candidates to create a day's menu for a three-year-old child who was anemic. Most candidates received high scores in this section. However, some of them did not pay attention to suitability for a three-year-old and in some cases no consideration was given to enhancers and inhibitors of iron absorption. Generally iron-rich foods and snacks were provided.

In Part (c) (i), many candidates created an interesting recipe for a snack using coloured vegetables that would encourage young children to eat. Some outlined how they would prepare the vegetables, without giving the dish a name. Candidates should practice recipe writing and become familiar with the format which includes a list of ingredients with quantities as well as a method showing incorporation of ingredients and the management of temperature and service.

In Part (c) (ii), not all candidates illustrated shapes of vegetables. However, the majority of them named vegetables and stated how they could be cut.

Section II - Module 1Question 2

This question tested candidates' understanding of the energy and protein needs of young children and the elderly, calculating energy requirements, and outlining measures that a caregiver could implement to ensure that the intake of children was adequate.

This question was attempted by 35 percent of the candidates. The overall performance on this question was fairly good.

Performance on Part (a) was very good. Most candidates adequately calculated the additional energy needed by the persons whose details were provided in the stimulus of the question.

In Part (b), candidates did not handle the comparison of the protein needs of the young child and the grandmother very well. Both sides of the argument were not discussed. For example, if one says that children require protein for growth, the comparison is incomplete unless it is stated that the grandmother is no longer at that stage of life, but does require protein for the maintenance of body tissues. Other issues that may have been addressed include: hormonal activity; quality of proteins required by both young children and older persons; and, energy needs per kilogram of body weight in the two age groups.

In Part (c), candidates were required to outline five measures that a care-giver could implement in order to ensure that the child's food intake was adequate and were to give a reason for each. Candidates were able to put forward good measures that related to regularity of feeds, nutrient density of foods, encouraging meals or coaxing during meals, ensuring manageable portion sizes and making meal times pleasant.

Question 3

This question tested candidates' understanding of nutritional benefits of the Caribbean Six Food Groups, and the benefits of breastfeeding for infants, mothers, and the environment.

This question was attempted by 65 per cent of the candidates and performance was fairly good.

In Part (a), candidates were generally unfamiliar with arranging the six food groups into three categories according to their nutritional benefits. However, they demonstrated a good understanding of the major nutrient in each group. The former GO, GLOW and GROW grouping is still useful for categorizing foods or analyzing diets.

Part (b) was done well. Candidates were aware of the nutritional, social and economic benefits of breastfeeding. However, some candidates had difficulty in identifying benefits to the environment, which would include: less disposal of waste; less industrial waste from the production of formulas; and, resources used for rearing cows could be diverted into other areas.

Section III - Module 2

Question 4

This question tested candidates' understanding of the advantages and disadvantages of the use of fat-replacers and sugar substitutes for persons on a weight-reducing diet, and the nutritional information provided on labels which is critical to the health of a diabetic.

This question was attempted by 22 per cent of the candidates and the overall performance was fairly good.

Performance on part (a) was fairly good as most candidates were aware of the benefits of using fat-replacers and sugar substitutes in terms of calorie reduction. Not many recognised that sugar-substitutes would not promote dental caries, or that very little was required to achieve a sweet taste since they had a high sweetness index. Some fat replacers are made with trans-fatty acids which can be harmful to health. Using replacers in large amounts just to fulfill satiety can also lead to diarrhea.

Part (b) was fairly well done as most candidates gave suitable responses for the types of nutrition information on food labels that were critical to the health of diabetics. A few candidates experienced some difficulty stating why nutrition information was important.

Question 5

This question tested candidates' understanding of the organisation of a kitchen area to ensure adequate food safety, indicators of the spoilage of canned foods and food hazards.

This question was attempted by 78 per cent of the candidates.

Performance on Part (a) was fairly good. Candidates gave good responses even though some focused on personal hygiene instead of standards that must be met in organising the kitchen area. Issues such as pest control, garbage disposal, suitable surfaces, adequate storage, safety, ventilation and ergonomics needed to be taken into account.

In Part (b) candidates were aware of indicators of spoilage of canned foods.

Part (c) was not done well. Most candidates were unable to identify the hazards that could contaminate foods. These hazards consist of biological agents which include bacteria, moulds, parasites and poisonous plants and animals. Chemical agents include: overuse of additives, contamination with mercury or incidental contamination by unlabelled chemicals in the kitchen and physical hazards such as equipment which may be rusted or flaked, and contamination with hair, nails, or jewelry. Many candidates listed cross contamination or poor storage but did not provide examples of contaminants.

SECTION IV - Module 3

Question 6

This question tested candidates' understanding of quality assurance and recipe modification in order to make dishes appropriate for persons on reduced fat and salt diets.

The question was attempted by 63 per cent of the candidates and performance was satisfactory. Performance on Part (a) was very good as most of the candidates were able to provide suitable responses.

In Part (b) candidates were expected to outline basic steps in sensory evaluation, which include selection of persons who have an interest in consuming foods with reduced fat and salt, choosing appropriate time of the day, serving at the correct temperature, allowing persons to sample and assess the modified dish and provision of sensory evaluation forms. Though the expected approach was not always given, responses such as making the food more palatable by using colourful garnishes, counseling patients, letting patients know the advantages of modification and allowing patients to taste were acceptable.

Question 7

This question tested candidates' knowledge of the effects of radiant heat methods of cooking on the physical and chemical properties of meat, and recipe conversion.

The question was attempted by 37 per cent of the candidates and performance was satisfactory.

Performance on Part (a) was unsatisfactory as most of the candidates experienced difficulty discussing the effects of radiant heat methods of cooking on the physical and chemical properties of meat. Most candidates named changes such as shrinking and melting. Not many candidates were able to identify changes such as: gelatinization of the collagen; development of flavours; loss of some amino acids; formation of some carcinogens; and, the breakdown of fats present in the meats.

In Part (b) candidates were required to do conversions on a meat loaf recipe for 10 persons in order to serve 220 persons. Candidates generally did well on this question although they did not always round off their quantities as required. They also needed to indicate the conversion factor in order to gain the maximum mark.

Part (c) was done very well as candidates suggested appropriate fillers that could be substituted for bread and other herbs that were used in the meatloaf.

UNIT 2

Paper 01 - Short Answer Questions

Question 1

This question tested candidates' understanding of indigenous Caribbean dishes and equipment.

The overall performance on this question was very good.

Part (a) was answered well by the majority of candidates. However, candidates did not always match the tool with the correct use, which suggests that they should not learn the names of traditional tools in isolation but should have an understanding of how they are used.

Part (b) required candidates to create a recipe for a topping or sauce using a local fruit. Many candidates listed ingredients but omitted the method and a thickening agent. In some cases no quantities were given.

Question 2

This question tested candidates' understanding of hygiene practices that should be observed by street food vendors, and guidelines for preparing foods for persons predisposed to hypertension.

The overall performance on this question was very good.

In Part (a) the majority of candidates responded to this section reasonably well by outlining hygiene practices that street food vendors should observe when presenting prepared foods to the public.

In Part (b) candidates were required to suggest guidelines that could be followed by a hypertensive family when preparing their meals. The responses of candidates were adequate and earned them maximum marks in many cases. Most candidates referred to restrictions in sodium and inclusion of more fruits and vegetables in the diet. However, other options such as avoidance of processed foods, reading of labels, observing portion control and restrictions in the use of saturated fats were not suggested.

Question 3

This question tested candidates' understanding of reasons for not relying on self-medication for the treatment of chronic diseases and ailments, and assessing the nutritional accuracy of a statement on the benefits of fish.

The overall performance on this question was good.

Candidates responded fairly to Part (a) as they were able to identify at least two reasons why self-medication was unwise. Popular responses included: the unavailability of information on the level of active ingredients and the possibility of further complications. Many candidates stated that the person's condition was likely to worsen. Other expected answers were: (i) self medication relied on the trial and error method; (ii) there is no scientific evidence to support claims made; (iii) food items or parts of plants used may mask the symptoms and yield misleading blood test results; (iv) may lead to quick temporary relief and cause persons to stop taking medication or stop monitoring their condition; (v) there was no credible explanation for the apparent health benefits; and, (vi) during self-medication, there was no monitoring by health professionals.

In Part (b) many candidates showed an excellent understanding of assessing the nutritional accuracy of the statement "Fish is a brain food".

Question 4

This question tested candidates' understanding of the measures that farmers could take to ensure that produce reached consumers in good condition.

The overall performance on this question was weak.

Performance on Part (a) was only fair. Candidates' responses, for the most part, focused on storage and packaging. Other anticipated responses were: (i) harvesting of slightly under-ripe produce in order to ensure firmness by the time it reached the consumer; (ii) sorting according to size or type and rejecting damaged produce in order to ensure consistency of quality; (iii) providing suitable transportation, for instance, trucks and vans must be sanitized; and, (iv) providing a suitable temperature for transporting.

In Part (b), candidates experienced difficulty comparing the effects of green peas preserved by freezing with preservation by canning. While candidates seemed to be familiar with the two methods of preservation, they were not able to provide clear distinctions between the effects of these two methods on green peas. Many of them were able to state the temperature differences but did not state the effect of these temperature differences on the peas. Also they were aware that in both cases micro-organisms were destroyed or rendered inactive. Generally frozen peas retain more of the nutrients, namely, the water-soluble vitamins, whereas the heat treatment given to canned peas causes a loss of the water-soluble vitamins. Minerals are better retained in the frozen peas, while minerals may be leached out in the canning liquid of canned peas. The canned peas have a saltier taste because of the added salt, whereas frozen peas have a taste and texture closer to that of the fresh peas. There are also differences in colour and sodium content which could have been highlighted.

Question 5

This question tested candidates' understanding of food additives.

In Part (a) candidates were required to name nutrients that were commonly used as additives and give an example of a food to which each was added. Many candidates misinterpreted the question and named additives such as salt and sugar. It is also very important that when candidates are asked to name nutrients, that they be specific in naming them and not just state *vitamins and minerals*.

Part (b) required candidates to distinguish between intentional additives and incidental additives. About fifty percent of the candidates were able to provide adequate explanations. However, more studies on food additives need to be conducted to improve students' understanding and to help them to distinguish between preservatives and additives.

Question 6

This question tested candidates' understanding of physical changes that occurred in legumes when they were soaked, and ways of serving legumes.

The overall performance on this question was good.

Part (a) was done fairly well as many candidates were able to name nutrients in legumes. Simply stating minerals and vitamins as the responses would not have garnered any points.

In Part (b) (i), candidates listed physical changes that occurred in legumes, when they were soaked and cooked. The majority of candidates stated changes such as the legumes swell and soften. Other expected responses were: gas-producing oligosaccharides were removed; foam was formed during cooking; and, beans became palatable and digestible.

For Part (b) (ii), most candidates named stews in response to ways in which legumes could be utilized. Other ways include: burgers; steaks; puddings; loaves; shakes; muffins; spreads; pate's; salads; desserts; and, beverages.

Question 7

This question tested candidates' understanding of ensuring consistent portion sizes, and quality assurance in food preparation and service.

The overall performance on this question was fairly good.

In Part (a) many candidates had difficulty identifying measures that could be taken to ensure

consistent portion sizes. Expected responses included: (i) use of standard portioning tools; (ii) use of measuring machines; (iii) use of standard-sized glasses for beverages; (iv) use of established serving sizes; (v) training of employees in portioning; and (vi) checking of plates before they leave the kitchen.

Performance on Part (b) was good. Many candidates were able to identify expectations of customers other than consistent portion sizes. Responses included: meals served on time; cold foods served cold; and, hot foods served hot; hospitable staff; tasty and attractive meals; clean, pleasant atmosphere; tasty food; and, clean attractive surroundings.

Question 8

This question tested candidates' understanding of using the multi-mix principle when planning meals for large groups, and evaluating menus.

In Part (a) candidates demonstrated an understanding of the multi-mix principle when planning meals for large groups.

Part (b) required candidates to evaluate a two-course menu for nutritional balance and sensory appeal. Many candidates noted that the menu lacked nutritional balance especially in relation to the use of coloured vegetables. However, not many candidates addressed the lack of variety in colour and texture. They also did not mention that there were foods which would provide good taste appeal.

Question 9

This question tested candidates' understanding of Hazard Analysis Critical Control Points (HACCP) and occupational safety.

The overall performance on this question was very good.

Performance on Part (a) was good. The stimulus indicated that a chicken packaging facility was implementing the HACCP approach. Candidates were required to explain the importance of critical points in the production process. Some candidates listed personal hygiene and sanitation practices. However, they did not clearly identify the points and explain the corresponding importance.

Part (b) was fairly well done. However, candidates focused on hygiene and not on occupational health and safety issues.

Paper 02 - Structured Essay

Section 1 - Compulsory Question, Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of factors that influenced food customs and practices in the Caribbean; indigenous Caribbean dishes; principles of food preservation; the difference between fortification and supplementation; developing à la carte menus; and, calculating selling prices of dishes.

This compulsory question was attempted by all candidates and the overall performance was good.

Part (a) (i) was well done. Most candidates gave very good responses to factors that influenced food customs and practices in the Caribbean.

In Part (a) (ii), most candidates provided interesting original recipes using the ingredients given. Candidates needed to indicate how each ingredient on the menu was incorporated, the method used, and the management of temperature.

Performance on Part (b) (i) was generally good. However, some candidates experienced difficulty identifying reasons for preserving fruits. Popular responses included: for export; to prevent spoilage; and, to have the fruit when it is out of season. Other possible responses were to utilize excess fruit during a glut; to create a wider variety of foods; for convenience and ease of use; and, for use in other recipes such as fruit flans, cakes and puddings.

Part (b) (i) was not thoroughly answered. Most candidates were able to select the methods of preservation and name the products which were preserved by that method. However, they were limited in their responses to the principles underlying the methods of preservation. Simply stating that micro-organisms are rendered inactive is insufficient. It must be stated that the lack of moisture makes the growth of microorganisms impossible or that an acidic medium retards the growth of certain microorganisms or that vacuum packing restricts oxygen so that the bacteria which require oxygen cannot grow.

In Part (b) (ii), candidates were required to differentiate between fortification and supplementation. The majority of candidates gave good explanations for fortification and were able to provide appropriate examples. In a few cases, candidates encountered difficulty in defining supplementation.

Performance on Part (c) (i) was hampered by candidates' inability to write *a la carte* menus. In many cases options were not provided and prices were omitted. Some candidates wrote one-course menus instead of two courses as required.

In Part (c) (ii), many candidates were unable to calculate the selling price for one entrée on the menu that they wrote in (c) (i).

Section II - Module 1

Question 2

This question tested candidates' understanding of the impact of imported foods on the Caribbean food systems; availability of food; and, ensuring adequate nutrition after a natural disaster.

This question was attempted by 37 per cent of the candidates.

Performance on Part (a) was generally satisfactory. While many candidates had difficulty defining the term 'food systems', they were able to provide an adequate discussion on the impact of imported foods. In defining "food systems", candidates needed to include terms such as produced, transported, processed, stored, distributed, sold, consumed and regulated.

In Part (b) (i), the majority of candidates were able to provide strategies that were used by disaster preparedness organizations to ensure the availability of food in a disaster situation.

In Part (b) (ii), some candidates had difficulty providing factors to ensure adequate nutrition apart from having to consider special needs and vulnerable groups. Other issues included: ensuring the safety of foods; ensuring variety of foods; calculating daily rations; and, ensuring that nutrient-dense foods were available.

Question 3

This question tested candidates' understanding of health implications of nutrients, and the importance of food safety and hygiene regulations.

This question was attempted by 63 per cent of the candidates and it was generally well done.

In Part (a), candidates correctly identified the nutrients of each food being promoted. It must be borne in mind that implications connote possible benefits as well as possible results of excessive intake.

Part (b) requested candidates to explain the importance of food safety and hygiene regulations. Candidates focused on personal hygiene practices rather than food safety regulations. Expected responses included: provision of supervision; information and training for employees; surfaces should be easy to sanitize; premises should be secured against pests; adequate provision should be made for removal of waste; and, employees should be in possession of valid health certificates.

Section III - Module 2

Question 4

This question tested candidates' understanding of biotechnology and the importance of food protection agencies requiring the labelling of packaged foods that have been genetically modified.

This question was attempted by 69 per cent of the candidates and the overall performance was satisfactory.

Performance on Part (a) (i) was fairly good. Candidates were able to identify the reasons why foods were genetically modified through biotechnology, but had difficulty naming the foods altered by biotechnology. These foods included: corn that required fewer applications of pesticides and herbicides; soy beans that are lower in saturated fats and higher in oleic acid offering better frying stability; virus resistant papayas; peppers improved to be tastier and remain firmer after harvest; potatoes that were disease resistant; rice with higher levels of iron and vitamin C; and, tomatoes with improved ripening qualities allowing them to reach full flavour and colour without rotting.

Candidates performed fairly well on Part (a) (ii) as they effectively discussed the benefits and potential problems of the use of genetically modified foods. Ethical issues and possible allergies were cited as some of the major problems, while benefits given were mainly financial or related to the quality of the foods.

In Part (c), candidates generally performed well by explaining the importance of food protection agencies requiring the labeling of packaged food products that have been genetically modified. Candidates noted food safety, environmental and consumer rights as major issues.

Question 5

This question tested candidates' understanding of the chemical and physical changes which take place during food preparation, and the criteria for selecting packaging material.

This question was attempted by 31 per cent of the candidates and the overall performance of this question was fairly good.

Part (a) was fairly well done by the candidates who attempted this question. Most candidates experienced difficulty explaining maillard browning but were familiar with enzymatic or oxidative browning, caramelization and dextrinization.

In Part (b) most of the candidates were able to provide criteria for selecting packaging material for a pastry product.

Section IV - Module 2

Question 6

This question tested candidates' understanding of organizing the preparation and service of large-scale cooking.

This question was attempted by 62 per cent of the candidates and the overall performance was satisfactory.

In Part (a) candidates responded well by outlining measures that should be taken by the kitchen staff to ensure that a meal was of high quality and well presented. Candidates placed emphasis on the preparedness of the staff as well as the presentation and service of the meal. Other expected responses were foods should be checked periodically to ensure the quality of textures, colours and flavours and recipes should be carefully followed.

Part (b) was well done by the majority of candidates who correctly noted buffet as the appropriate type of meal service and suggested effective guidelines for serving the meal.

Question 7

This question tested candidates' understanding of planning five-course menus, and identifying equipment used to prepare the dishes.

This question was attempted by 38 per cent of the candidates and the overall performance was very good.

Performance in Part (a) was very good as candidates were able to plan menus which were well balanced and aesthetically pleasing.

Candidates' responses to Part (b) were generally fair. Candidates were able to name pots and pans used to prepare dishes listed at (a) but did not always match the equipment to the appropriate dishes.

Paper 03 -Internal Assessment

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all Modules. Candidates, in consultation with the teacher and the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of the candidates has shown great improvement.

The majority of the portfolios were very well presented. Most of the illustrations were clear and creative. In some cases the quality of the assignments was appropriate for the Advanced Proficiency Level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

Some candidates submitted exemplary portfolios. The work of these candidates was scientifically based and rigorous. These candidates are to be highly commended for their effort.

Module 1 - Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. In most cases literature reviews were comprehensive, but sources used were not always cited. Data were well presented, but very little reference was made to the data. In several cases inferences, predictions, or conclusions were not attempted by the candidates. The conclusions and recommendations were not accurately or scientifically based. Similarly, they did not support the analysis of data.

Module 2 - Experimentation and Recipe Modification

Candidates selected appropriate experiments and demonstrated knowledge of relevant facts. Reports were well written and presented. However, most of the candidates did not formulate hypotheses, and the procedures for experiments were, in most cases, not clearly documented. A large majority of the candidates showed very little evidence to prove that they modified the product after critical or unexpected outcomes.

RECOMMENDATIONS TO TEACHERS

Overall the performance on the examinations was satisfactory. Performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of candidates. Although candidates had an understanding of concepts they did not elaborate and fully develop answers as was expected at the Advanced Proficiency Level. Some candidates were not fully prepared for this level of examination. It was also clear that they were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should therefore cover the entire syllabus so that they can satisfy the requirements of the examination. Modules 3 in both Units were extremely weak. Since it might not be possible for teachers to cover every topic in class, it is suggested that candidates be given research on selected topics and be allowed to present their work in class. Greater emphasis must be placed on those concepts which can be regarded as current areas of nutrition.

Candidates should be encouraged to adhere to the following guidelines:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending reasons for certain principles and procedures, rather than learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of a question.
- Answer questions with a variety of key words, namely: discuss; explain; list; describe; and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates' inability to gain as many marks as possible.
- Participate in mock examinations using past examination papers and administered under examination conditions in order to develop good examination techniques.
- Utilize different media to become familiar with current nutrition issues.
- Place emphasis on research techniques, case studies and problem solving.
- Engage in field trips and work attachments will help in understanding fully nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breastfeeding; nutrition related disorders; and practices and procedures for ensuring safety of food.
- Develop ideas, and demonstrate clarity of expression. In many cases candidates showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the Advanced Proficiency Level.

INTERNAL ASSESSMENT

Candidates should be encouraged to adhere to the following guidelines:

- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are interesting and relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- Note that literature reviews for each assignment do not have to be extensive, but, should be thorough enough to outline the problem and research relevant to the same. This **cannot** be adequately done in two to three pages. Candidates must utilize a variety of sources and should be taught the APA referencing style for citing sources and developing a reference list.
- Develop rationales and explain the significance of a topic.

Assignment 1 - Research

Candidates must not only present the data but they should discuss the data clearly. They are not expected to present data on of the questions, but should discuss all the questions asked on the questionnaire or interview.

Efforts should be made to guide students in making simple inferences and drawing conclusions yielded from the data. A summary or conclusion should be provided at the end of the project.

Assignment 2 - Experimentation and Recipe Modification

Candidates should be advised that a detailed report must be written which accurately records and reports all observations.

Candidates should understand that experiments are not completed on a one-shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes.

Candidates should be to the role of product development and recipe modification. In addition, demonstrations should be completed before students engage in their individual assignments.

Candidates should be introduced advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to reaching success. For this reason it should involve the altering of several ingredients, hence a baked product is suggested as an example for modification. At this Proficiency it is unacceptable to modify the amount of fat or salt in “beef stew” and view this as competent work. Therefore, significant ingredients should be altered.

Each modification should be explained in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, when making a jam, the product did not set, therefore more lime juice was added to the next modification. Examiners are not expected to compare the recipes to determine the changes that were made to the recipes.

Variations of basic recipes are not expected as a modification. For example, the original recipe plain cake and the modified recipe, coconut cherry cake is unacceptable.

Candidates should provide the original recipe and then conduct at least two modifications.

Experiences must be provided for candidates to fully understand that a recipe is a formula, thus any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one-shot basis.

Candidates should understand the role of major ingredients used in recipes, especially baked items. For example, if the amount of sugar in a creamed mixture is changed there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.

Candidates should be encouraged to use food composition tables to determine energy values for the original and new product.

Candidates should be encouraged to formulate valid hypotheses.

Candidates should be encouraged to record and report methods, observations and results accurately, using tables or graphs.

Candidates should include the results from the sensory evaluation in their discussion.

Candidates should develop a conclusion to summarize their findings.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2009**

FOOD AND NUTRITION

FOOD AND NUTRITION
ADVANCED PROFICIENCY EXAMINATION

MAY/JUNE 2009

OVERALL COMMENTS

The Caribbean Examinations Council administered its seventh examination in Unit 1 Food and Nutrition and its sixth examination in Unit 2 in May 2009. There were some good responses to questions in both Units.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

GENERAL COMMENTS

Paper 01

Short-Answer Questions

Paper 01 in both units consisted of nine compulsory short-answer questions. There were three questions on each of the three Modules in the unit. Paper 01 tested the grasp of critical nutrition principles and mastery of relevant skills. Candidates' performance was satisfactory. The maximum possible mark for Paper 1 in each unit was 90. In Unit I the mean mark was 50.45 and in Unit II the mean mark was 52.30.

Paper 02

Structured Essay

Paper 02, in each unit consisted of seven essay questions which tested objectives across all Modules. It was divided into four sections. Section I consisted of one compulsory question which tested all three of the Modules. Section II to Section IV each comprised two optional questions. Candidates were required to answer one question from each section. Questions in Section II were based on Module 1, those in Section III on Module 2 and those in Section IV on Module 3.

The compulsory question in Section I was worth 45 marks and all others were worth 25 marks each. Overall, candidates' performance was good. The maximum possible mark was 120. In Unit I the mean was 70.48. In Unit II the mean mark was 68.43.

Paper 03

Internal Assessment

Paper 03, the Internal Assessment, comprised a portfolio of two assignments. Candidates were expected to conduct research on a selected theme in the syllabus. The research in the first assignment was expected to form the basis of the experimentation and product development in the second assignment. Paper 03 was worth 90 marks and contributed 30 per cent to the candidates' final grade. Performance on this paper was generally good, with a mean score of **57** out of 90 in Unit 1, and 60.89 out of 90 in Unit 2.

DETAILED COMMENTS**UNIT 1****Paper 01****Short-Answer Questions****Question 1**

This question tested candidates' knowledge of the term 'satiety', digestion of carbohydrates, and the knowledge of the factors that determine a person's energy requirements. The overall performance on this question was good.

Part (a) of the question was fairly well done. Most candidates were able to accurately define the term 'satiety' and to give both of the elements, namely, 'being full to satisfaction' and 'after a meal'. However, a few candidates only included the first element of satisfaction.

Part (b) was only fairly well done. Many candidates did not fully understand the process of digestion of potatoes. Even though the majority of candidates knew that the main nutrient was starch, they did not name amylase or maltase as the enzymes responsible for the breakdown of starch to maltose and dextrin or maltose to glucose.

In Part (c), most candidates correctly stated the factors that determine energy requirements; the most popular responses were age and physical activity.

Question 2

This question tested candidates' knowledge of anthropometric indicators used to identify stunting and wasting, and the understanding of the importance of managing blood sugar levels.

Candidates did not score well in Part (a). The majority of candidates named height as the indicator for stunting rather than height for age. Similarly in the case of wasting, the candidates named weight, rather than weight for height or BMI. Skin fold thickness was also accepted as an indicator of wasting. A few candidates named 'growth chart' as the indicator; however, the chart itself is not an anthropometric indicator. Anthropometrics involve body measurements.

In Part (b), candidates presented acceptable responses regarding the importance of controlling blood sugar level, including linking high blood sugar with diabetes and its effects. Expected responses included prevention of low blood sugar (hypoglycemia) which could in turn lead to sweating, dizziness, anxiety, irritability and headaches, as well as prevention of high blood sugar (hyperglycemia), which could develop into a diabetic coma. Other complications such as slow healing of wounds and loss of limbs were cited by some candidates.

In Part (c), candidates were required to outline measures for the management of high blood sugar. Most of the candidates responded well, giving measures such as maintaining a balanced diet, taking medication, maintaining healthy body weight and regular exercise.

Question 3

This question tested candidates' understanding of the causes and risk factors associated with heart disease, and their knowledge of reliable sources of nutrition information.

Performance on Part (a) was very good. The majority of candidates were able to explain how excessive consumption of fats contributes to heart disease. Candidates noted that fatty deposits led to a decrease in blood flow to the heart, and the heart which is a muscle, can become enlarged as a result of having to work harder to pump the blood.

Part (b) was generally well known. Candidates were able to state the risk factors for heart disease, including high cholesterol intake, being male, increasing age, stress, heredity, obesity, lack of exercise, high blood pressure, smoking, excessive alcohol consumption, positive energy balance and low blood pressure.

In Part (c), the majority of candidates were not able to identify resource materials published by CFNI. 'Cajanus' was more widely known than 'Nyam News'.

Question 4

This question tested candidates' knowledge of reasons why elderly persons lose their appetite, and understanding of meal planning for the elderly. Performance on this question was very good.

In Part (a), the majority of candidates were able to suggest reasons why elderly persons lose their appetite. Popular answers were loss of teeth, which made chewing a painful exercise, slower metabolic rate, use of some medications that may suppress appetite, and reduction of sense of taste. Other important reasons included special diet which might be monotonous or restrictive, loneliness or stressful circumstances, reduced salivation and slow digestion.

In Part (b), candidates demonstrated their menu-planning skills by planning for the elderly, a breakfast menu which included two convenience foods. Most candidates were able to plan a suitable menu but did not always include the convenience foods. Suitable convenience foods included instant cereals, canned juices, corned beef and sardines.

Question 5

This question tested candidates' understanding of the importance of nutrition information on food labels, and health effects of an excessive intake of Vitamin A. The overall performance of this question was good.

Performance on Part (a) was good. Most of the candidates were able to list foods for which nutrition information is not required by law. Some expected responses included fresh fruits, fresh vegetables, fresh fish, fresh meat and poultry as well as small packaged items such as sweets and cakes. Several candidates listed items such as flour, sugar and rice. It is important to note that these items are retailed in some territories in small bags without labels, however these products do leave the factories in labeled bags as required by law.

In Part (b), many candidates demonstrated their understanding of the importance of providing nutrition information on food labels.

In Part (c), the majority of candidates were not able to explain why an excessive intake of Vitamin A can lead to a health problem. They gave responses such as it causes night-blindness, diarrhoea and vomiting. Expected responses included: Vitamin A is a fat-soluble vitamin, therefore it is readily stored by the body and accumulates in the liver and other parts of the body. Vitamin A is also not readily excreted by the body, therefore its accumulation can have toxic effects. One of its effects is slow growth in children. The condition is known medically as hypervitaminosis.

Question 6

This question tested candidates' understanding of storage of food, and destruction of microbes during microwave cooking. The overall performance of the question was good.

In Part (a), the majority of candidates demonstrated their understanding of cross-contamination and conditions that increase the growth of micro-organisms by explaining how lettuce which was shredded on a meat board and then stored in a damp plastic bag in the refrigerator could have been the source of food poisoning at a party.

In Part (b), candidates confused food storage with food preservation. Methods of storing food included dry storage, refrigerator and freezer.

Part (c), which required candidates to describe how microbes are destroyed during microwave cooking, posed difficulty for the majority of candidates as they scored poorly on this part of the question.

Appropriate responses included:

1. Cover the food whenever possible, since this allows proper heating of the surface and containment of the heat.
2. Stir and rotate food at least once or twice, as this allows for cooking of the exterior of the food and equalizes the distribution of the temperature throughout.
3. Insert the oven temperature probe or meat thermometer at several spots to allow the cook to check that the food has reached a temperature that destroys bacteria.
4. Set oven at the correct temperature as adequate heat is needed to cook and to destroy bacteria.

Question 7

This question tested candidates' knowledge of safety precautions in the kitchen, and the Heimlich manoeuvre. In general this question was done very well.

Part (a) was very well done as candidates were able to list appropriate precautions to prevent accidents.

Performance on Part (b) was only fair as some candidates were unable to name the Heimlich manoeuvre and describe it. A few candidates named CPR even though they were describing the Heimlich manoeuvre.

Question 8

This question tested candidates' understanding of methods of tenderizing tough cuts of meat prior to cooking, steaming puddings, and garnishing foods. The overall performance on the question was poor.

Part (a) was only fair. Candidates confused methods of tenderizing tough cuts of meat with cooking methods. Some candidates were familiar with at least two procedures, namely, pounding to break up muscle fibres and the use of enzymes or meat tenderizing powders.

In Part (b), the majority of candidates were unable to explain the guidelines to be followed when steaming a pudding. Expected responses included covering tightly, keeping boiling water on hand to replenish, ensuring that there was enough steam, and removing the cover to test whether the pudding was done, thus avoiding toughness.

Part (c) was well done as candidates gave appropriate garnishes for making a beef roast appealing to the eye.

Question 9

This question tested candidates' understanding of the scientific principles responsible for the browning of fruits and vegetables that have been peeled, and the changing of vegetables from bright green when raw to an olive green when cooked, and appropriate modifications to increase iron content, iron availability, energy value and flavour of a recipe.

Performance on Part (a) was poor. Most candidates were unable to explain the scientific principles underlying the changes in the fruits and vegetables during peeling. Some candidates were familiar with oxidation. However, they did not explain the exposure of enzymes present in the fruits when peeled and the formation of melanins. In the case of vegetables, the majority of candidates failed to explain that when cooked, the membrane that prevents the acids in the vegetables from coming into contact with the chlorophyll is broken, thus becoming permeable. They could have further explained that the volatile plant acids evaporate with steam. Non-volatile acids remain in the water, causing changes in colour. In addition, covering the pot can cause the volatile acids to remain in the cooking water.

Part (b) proved difficult, as few candidates gave appropriate responses. Candidates were expected to make modifications to a recipe that would increase each of the following:

1. Iron content - adding an iron rich food such as wheat germ, nuts or molasses
2. Iron availability - adding food rich in a vitamin C such as lemon juice or by removing the food with an inhibitor, such as removing milk
3. Energy value - adding sugar, honey or avocado
4. Flavour - adding cinnamon or essence

Paper 02 - Structured Essay

Section I – Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates' knowledge of the sources of important nutritional information; modifications suitable for addressing wasting caused by chronic diseases; ability to analyse menus and make suitable modifications for elderly persons; ability to explain methods of attractively preparing vegetables; and to conduct sensory evaluation of new dishes.

The compulsory question was attempted by all the candidates. The overall performance of this question was fairly good.

In Part (a) (i), candidates were required to identify resource materials for various types of nutrition information including the number of calories that should be consumed daily, the nutrient content of foods and food that can be substituted within the same group. This aspect of the question posed enormous challenges to candidates. Only a few of the candidates were able to accurately identify sources of the nutrition information requested. It was expected that candidates would have noted that the recommended daily allowances and the daily food guide provide reliable information on the number of calories needed by an individual. Information on the nutritional content of foods can be garnered from food composition tables and nutrition labels on foods, while information on substitutions of foods can be obtained from Food Exchange lists and Food Group.

In Part (a) (ii), most of the candidates experienced difficulty in supplying modifications suitable for addressing wasting caused by chronic diseases. Even those candidates who understood wasting did not know how to correctly address this situation. However, some candidates provided excellent suggestions, such as ensuring that there were enough enhancers to aid in the absorption of nutrients such as calcium and iron. Expected responses were as follows:

- Adding suitable high-energy foods such as honey, avocado and olive oil to salads
- Increasing protein in the form of grated cheese, peanut butter and other minced or grated forms of protein foods
- Increasing frequency of meals
- Adding powdered milk to foods and beverages
- Using prepared nutritional supplements
- Adding coconut milk to beverages, rice dishes, stews and custards

In Part (b) (i), where the candidates were required to analyse a given menu, most candidates were able to score high marks. Many candidates pointed to the fact that the menu was high in fat, salt and sugar.

Expected answers included:

- The menu was not mechanically soft and could pose difficulties with chewing and swallowing.
- The predominant cooking method was frying, which could mean that many persons could develop stomach upsets or indigestion.
- The diet was also lacking fruits and vegetables, making it unbalanced.

In Part (b) (ii), candidates suggested changes to the menu to make it suitable for elderly persons.

In Part (c) (i), candidates were required to suggest dishes in which carrots and broccoli could be attractively prepared. Many candidates gave steamed or boiled vegetables although these methods do not usually yield dishes that are very attractive. Some very attractive vegetable items included carrot cake, pizzas, vegetable pureed soups or beverages, chocolate cake with vegetables included and vegetable cheese pies. In writing the recipe for the dishes, candidates did not include a method of preparation.

In Part (c) (ii), the candidates were familiar with sensory characteristics but could not outline the steps in conducting the sensory evaluation. Important steps in sensory evaluation are as follows:

- Selecting a panel of testers within the target group
- Providing water for testers
- Devising an evaluation form

- Allowing testers privacy to give their own responses
- Collecting and analysing responses
- Modifying the product after each evaluation until the desired result is obtained

Section II

Module 1

Question 2

This question tested candidates' knowledge of the reasons for the difference in the energy requirements of a grandmother and a grandson, ability to calculate energy requirements, and to outline strategies for ensuring that the energy needs of adolescents are met.

It was attempted by 35 per cent of the candidates. Overall the performance was fairly good.

Performance on Part (a) was very good. Most candidates were able to provide four reasons for the difference in the energy requirements of a grandmother and her grandson.

In Parts (b) (i) and (ii), candidates' calculations of kcal which comprised the meal eaten at lunch and the amount needed to meet the energy requirements of the teenager were correct for the most part. Some candidates did not multiply or add correctly but clearly demonstrated that they understood the process involved.

In Part (b) (iii), although candidates gave appropriate strategies that could be used by the teenager to ensure that his energy needs were met, for example, planning balanced meals, and increasing food intake, they were unable to explain specific strategies. Expected responses included:

- Having snacks between meals
- Using food supplements
- Increasing portion sizes
- Consuming foods high in calories
- Checking labels for energy content
- Using the multi-mix principle

Question 3

This question tested candidates' understanding of ways in which adequate protein intake could be maintained while cutting food costs, and the ability to plan low cost menus.

It was attempted by 65 per cent of the candidates. Performance was fairly good.

In Part (a), candidates were required to discuss ways that a housewife could maintain adequate protein intake for her family, while cutting costs. The majority of candidates were able to answer this question adequately. However, some candidates merely listed points rather than providing discussion on each. Candidates discussed points such as: the use of textured vegetable proteins, soymilk and beans which are cheaper alternatives. Many candidates did not discuss the use of complementary proteins as expected.

Part (b) was not done well. Some candidates did not develop a low-cost day's menu, instead they planned lunch menus.

Section III

Module 2

Question 4

This question tested candidates' ability to plan meals for toddlers using the multi-mix principle, and nutrient conservation.

It was attempted by 22 per cent of the candidates. The overall performance was fairly good.

Performance on Part (a) was very good. Candidates were able to plan a five-day snack menu which was suitable for toddlers. A few candidates lost marks because they included potentially hazardous foods such as peanuts or fruits with stone-like seeds.

Part (b) was fairly well done as most candidates gave suitable ways to achieve nutrient conservation in vegetables. Some expected responses that were not provided by the candidates included:

- Preparation of vegetables just before serving time; using sharp knives to cut vegetables
- Paring vegetables as thinly as possible
- Eating vegetables raw
- Discarding bruised and damaged leaves of vegetables

Question 5

This question tested candidates' knowledge of the nutrients found in the Caribbean food groups and understanding of the importance of adequate iron intake, and reasons why persons with chronic diseases should read the nutrition information on food labels.

It was attempted by 78 per cent of the candidates.

Part (a) was well done by most candidates. Candidates were generally familiar with the food groups of the Caribbean; however they needed to be specific in the naming of vitamins and minerals. For instance, for the food group fruits one of the major nutrients is vitamin C and not merely vitamins.

In Part (b), candidates were required to discuss iron and its importance in the diet. This was well done by most candidates. The majority of candidates indicated that iron forms a part of the haemoglobin molecule in the blood and is particularly important to teenage girls because of the monthly loss of blood through menstruation.

Part (c) was done well. Candidates demonstrated that they were familiar with the dietary requirements for persons suffering from diabetes and hypertension.

Section IV

Module 3

Question 6

This question tested candidates' understanding of the measures required for setting up well-organized food preparation areas and knowledge of kitchen layout and knife skills.

Performance on this question was good. The question was attempted by 63 per cent of the candidates.

Performance on Part (a) was very good. Most of the candidates mentioned areas such as adequate storage, colour of walls, floor surface, ventilation, adequate equipment, water supply and pest control as measures which should be put in place to ensure that premises were suitable for food preparation. A few candidates misinterpreted the question and wrote responses related to personal and kitchen hygiene.

In Part (a) (ii), most candidates were able to sketch suitable kitchen layouts, showing all the work centres. Others either did not sketch the layout or omitted one of the work centres.

In Part (b), candidates were expected to illustrate and label knives. Most candidates were able to answer this question adequately. However, some candidates could not name all four parts of the knife as required.

Question 7

This question tested candidates' knowledge of heat transfer, and decorations for cakes.

Performance on this question was unsatisfactory. The question was attempted by 37 per cent of the candidates.

Performance on Part (a) was unsatisfactory as most of the candidates experienced difficulty discussing how heat is transferred during the baking of a cake in a convection oven. Very few candidates made reference to the role of the pan in heat transfer. The metal, from which most pans are made, is a good conductor of heat. In a convection oven also, heat is circulated evenly around the oven with the help of the fan. However, some of the candidates were able to state that heat is transferred by convection in the oven and that the cake is heated through the pan by conduction.

In Part (b) (i), candidates were required to write a cake recipe for a cake made by a method other than all-in-one or creaming. The majority of candidates chose to describe either the rubbed-in method or the whisking method. Candidates did not, however, state the method, nor discuss how the heat is transferred.

In Part (b) (ii), candidates were required to select a method of cooking the cake mixture which they selected in (b) (i) using the stove top and to describe the process of cooking the cake. This part of the question proved to be extremely difficult for the candidates. Steaming and dry cooking were the methods expected.

Part (c) was done very well by the candidates who appropriately suggested decorations that could be used for cakes using local fruits or other suitable food products.

UNIT 2

Paper 01

Short-Answer Questions

Question 1

This question tested candidates' knowledge of factors to be considered by the authorities responsible for procuring supplies for a hurricane shelter in order to ensure the safety of raw meat prior to cooking as well as their understanding of food hygiene and sanitation standards.

The overall performance on this question was good.

Part (a) was very well done by a few of the candidates, but the majority of candidates gave general responses about food safety and cooking of meat, instead of focusing on ensuring the safety of raw meat. Expected responses included:

- Ensure that the farmer or retailer is reputable.
- Verify that the meat was slaughtered in an approved environment.
- Ensure clean and temperature controlled transportation.
- Raw meat should be clean and well drained.
- Raw meat should be cut on surfaces designated for the cutting of meat to avoid cross-contamination.
- Portion according to how it will be used to avoid re-freezing.
- Refrigerate immediately and hold at the appropriate temperature until ready for use.

In Part (b), candidates demonstrated a clear understanding of the importance of good hygiene and sanitation standards for food vendors.

Question 2

This question tested candidates' knowledge of ethnic groups in the Caribbean that have influenced the cuisine and knowledge of procedures for the management of hypertension. The overall performance on this question was very good.

In Part (a), the majority of candidates responded well by listing ethnic groups in the Caribbean as well as dishes associated with each of these ethnic groups. A few candidates confused ethnic groups with religious groups.

In Part (b) (i), candidates accurately listed methods of lowering sodium intake in the diet.

In Part (b) (ii), where candidates were required to list other guidelines that a person with hypertension should follow, the majority of candidates focused on dietary factors rather than providing answers which addressed other lifestyle factors such as physical exercise, reduction of stress and cessation of smoking.

Question 3

This question tested candidates' knowledge of how to develop nutritious snacks, and understanding of iron-deficiency anaemia. The overall performance on this question was fairly good.

Candidates responded fairly well to Part (a) as they suggested savoury yam chips with interesting flavours such as cheese, barbecue or spicy. Others suggested muffins or cakes and some of the names were very interesting. It should be noted that when developing recipes, there must be an understanding of the characteristics of the various ingredients and the basic proportions needed to create a high-quality product.

Part (b) posed difficulty for some candidates who could not identify the negative aspect of over-consumption of beets. Most of the candidates were however accurate in stating that too little attention would be paid to other beneficial foods. Some of the candidates stated that the beets are high in carbohydrates (sugars) and that excessive consumption could lead to obesity. It was expected that candidates would establish that persons with anaemia require an iron-rich diet.

Beets are not a source of iron thus, failure to eat other iron rich foods would result in dietary shortage and cause the condition to deteriorate.

Question 4

This question tested candidates' understanding of food preservation. The overall performance was fairly good.

Performance on Part (a) was only fair. Candidates were required to identify methods of preserving guavas. The majority of candidates listed guava preserves namely, guava cheese and guava jam. Other methods include bottling or canning, dehydration and freezing.

In Part (b), candidates experienced difficulty explaining the scientific principle of using vinegar to preserve vegetables. It was expected that candidates would have explained that vinegar is acidic with a pH of 3.5, and bacteria cannot survive in solutions below pH 4.5. Instead several candidates stated that vinegar inhibits enzyme activity.

Part (c) required candidates to state how they would preserve and package thyme. It was obvious that many candidates were unfamiliar with the herb "thyme". A few candidates noted that the thyme should be sun-dried, packaged, and sealed.

Question 5

This question tested candidates' understanding of the importance of reading food labels, and fortification of foods. This question was very well done.

Part (a) was done extremely well, as candidates gave excellent responses to the importance of food labels.

In Part (b), candidates struggled to explain reasons why fortification was necessary in the production of flour, and many confused fortification and enrichment. Expected responses were: to improve the nutrient content of foods that are widely consumed, to conform to national nutrition regulations and to address nutrient deficiencies in the population.

Question 6

This question tested candidates' understanding of food preservation, and costing products. The overall performance on this question was satisfactory.

Part (a) was not done well as many candidates were unable to note the differences between jam and candied preserves. Those who highlighted a difference stated that jam could spread, while preserves are eaten alone.

In Part (b), most candidates showed their understanding of how to cost products by explaining the process.

Question 7

This question tested candidates' understanding of the Hazard Analysis Critical Control Points (HACCP) that should be observed during the preparation and service of chicken salad. The overall performance on this question was fairly good.

In Part (a), most candidates were able to outline the process for preparing chicken salad.

Performance on Part (b) was not good as evidenced by the difficulty candidates experienced in identifying the Hazard Analysis Critical Control Points (HACCP). Control points included: thawing chicken; cleaning and marinating; cooking to appropriate temperature; avoiding cross contamination when preparing the vegetables; washing hands after each process; and storing at the correct temperature.

Question 8

This question tested candidates' understanding of the principles of planning a menu.

In Part (a), candidates were required to plan a lunch menu for persons on a weight-loss diet. Several candidates appropriately selected soups for the appetizer, however cream was added to the soups. The addition of cream was not appropriate for persons on weight-loss diets as this would increase the caloric value of the meal.

The majority of candidates planned suitable main courses while some omitted the carbohydrate dish which changed the proportion of fat and protein, thus altering the nutritional balance. Suitable methods for cooking the main course were selected. These included, steaming, grilling, baking and broiling. Most candidates aptly selected suitable fruit-based desserts.

Part (b) required candidates to list menu-planning principles other than those used to plan the menu at (a). Many candidates identified the same principles that were considered in Part (a), namely nutritional balance, variety in colour and texture, special needs and menu format. Expected responses included: the number of persons being catered for; type of meal service; available income; use of foods in season; and the skill of staff.

Question 9

This question tested candidates' knowledge of guidelines related to maintaining a safe working environment, and understanding of the importance of quality assurance. Overall performance was satisfactory.

Performance on Part (a) was fair. Candidates were required to suggest guidelines that should be posted in the work area to assist employees in maintaining a safe working environment. Many candidates provided reasons for having a safe environment instead of suggesting guidelines.

In Part (b), candidates outlined appropriate responses for maintaining consistent quality in a catering business. Responses included profitability, maintaining clientele, avoiding law suits, and attracting new clientele through patrons telling others about the product.

Paper 02 - Structured Essay

Section I - Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of how family resources influence the food choices of teenagers; knowledge of indigenous Caribbean dishes and tools used in their preparation; knowledge of regulations that apply to food labelling; methods of preparing popular main dishes enjoyed by teenagers; and quality assurance measures used when preparing and serving food.

This compulsory question was attempted by all candidates. The overall performance on this question was good.

Part (a) (i) was fairly well done. Candidates were required to examine how the lunch choices of teenagers were affected by the availability of family resources. For the most part, adequate answers were provided; however, all responses needed to be linked to available family resources. Responses included: with increased spending power teenagers have more choices. More choices may mean greater access to wide variety of convenience foods which are not necessarily healthy. Some poorer families may be located in rural communities which may not necessarily have access to certain foods. This limits the choices of those teenagers.

In Part (a) (ii), most candidates provided indigenous dishes and indigenous tools that were used to prepare them. In a few cases electrical appliances were named and not indigenous tools.

Part (b) (i) was generally well done by candidates as this part of the question provided them with the scope to exercise their creativity by designing a poster which included a food label for a home-made preserve, showing three types of nutritional information. The majority of candidates were able to score well in this area. They also performed commendably in explaining the role of different types of nutritional information.

In Part (b) (ii), candidates were knowledgeable about regulations that apply to labelling food products. In Part (c) (i), candidates were required to select a popular main dish and describe its preparation. Some candidates ignored the term main dish, and just chose a popular dish. They were, however, able to explain its preparation.

In Part (c) (ii), in response to quality assurance measures used when providing buffet service, many candidates focused on the hygiene aspect of quality assurance but ignored some areas, such as correct holding temperature, use of separate utensils for each dish served and covering of dishes.

Section II

Module 1

Question 2

This question tested candidates' understanding of how to modify recipes to make them suitable for persons with chronic diseases, the health implications of nutrients and ability to develop original snack recipes.

This question was attempted by 37 per cent of the candidates.

Part (a) was generally satisfactory. Candidates were given a recipe for meat patties and required to suggest adjustments to the recipe to make it appropriate for a diabetic adult. Candidates were able to suggest suitable modifications to the recipe as well as give reasons why they chose those modifications. Popular answers included reducing the fat or changing the fat to low-fat margarine. Some candidates suggested changing the flour to whole wheat flour, which would increase fibre and reduce the simple sugars. Another popular suggestion was to change the meat to minced chicken or even pulses.

In Part (b), candidates were also able to identify nutrients, however, in listing the implications, many candidates simply wrote responses such as: obesity or hypertension, without giving any explanation, thereby giving the impression that nutrients named could actually cause these conditions.

An acceptable explanation would be: an excessive intake of simple carbohydrates could lead to obesity since the excess sugars not utilized for energy are converted to fats and stored under the skin of the person.

In Part (c), candidates developed interesting recipes for various types of snacks, including cakes and pastries. Some candidates did not include all the ingredients given. In developing an original recipe, attention must be paid to the proportion of ingredients as well as the method of incorporation, management of temperature, service and packaging.

Question 3

This question tested candidates' understanding of how to ensure food safety after a hurricane. It was attempted by 63 per cent of the candidates. The question was generally well done.

In Part (a), candidates struggled to find responses to the functions of food regulating agencies in ensuring the safety of food sold immediately after a disaster. Many candidates wrote responses related to kitchen hygiene, rather than more specific responses such as examining food samples, overseeing the removal of contaminated meat and other products from establishments, overseeing the decontamination of food establishments and monitoring the hygiene practices of food establishments.

Part (b) requested candidates to plan a menu to be served on the first day in a hurricane. It was expected that the meals would have consisted of a number of foods not involving too much cooking, a mix of foods that may have been frozen and refrigerated, together with some canned products as well as nutrient-dense foods.

Performance on Part (c) was very good. Candidates were able to suggest food safety measures that should be practised by families returning to their homes after flooding.

Section III

Module 2

Question 4

This question tested candidates' understanding of food preservation, and changes that occur during the cooking of vegetables and pulses.

This question was attempted by 69 per cent of the candidates. The overall performance was satisfactory.

Performance on Parts (a) and (b) was fair. The majority of candidates were quite familiar with different types of tomato products. The most popular products named were ketchup, pizza sauce and paste or puree. Other products included salsa and chutney. In terms of describing the procedure for the bottling/canning of tomatoes, most candidates were able to state that the tomatoes should be selected and prepared, bottles should be sterilized and that a preserving liquid is used in the bottles or cans. Some candidates omitted to mention that after the jars are filled, the tomatoes should be completely covered with the tomato juice, jars sealed and then sterilized. After jars have been sealed, they should also be dated and labelled.

In Part (c), candidates generally performed well by explaining the changes that occur in green leafy vegetables and dried pigeon peas during cooking. The majority of candidates were able to name some changes although the following changes were not described:

Steamed green leafy vegetables

- Cell walls become increasingly permeable when they are heated.
- Loss of turgor in the cells occurs.
- Colour changes from bright green to olive green, and if overcooked becomes dark.

Pigeon peas

- Cellulose is softened.
- Gelatinization of starch occurs.
- Peas become digestible.
- Colour changes to a darker opaque colour.

Question 5

This question tested candidates' knowledge of the criteria used to select packaging for milk products, and justification of health claims found on food packaging.

This question was attempted by 31 per cent of the candidates. The overall performance was fairly good.

In Parts (a) (i) and (ii), most candidates were able to identify criteria to use when selecting suitable packaging material for milk products.

Performance on Parts (b) and (c) was poor, as most of the candidates did not seem to be familiar with health claims on labels. Therefore they focused on discussing the nutritional recommendations associated with each of the claims. Popular claims related to the various conditions were as follows:

- (i) Osteoporosis - Calcium rich, may help in the prevention of osteoporosis.
- (ii) Hypertension - Low in sodium, sodium free or light sodium.
- (iii) Heart Disease - Cholesterol free, low in saturated fat, oatmeal helps reduce cholesterol.
- (iv) Cancer - Contains lycopene, no additives, no preservatives, zero trans fat.

Section IV**Module 2**Question 6

This question tested candidates' ability to evaluate the nutritional suitability of menus for persons with chronic diseases, and to modify menus using the multi-mix principle.

It was attempted by 62 per cent of the candidates. The overall performance was satisfactory.

In Part (a), candidates responded well by evaluating the nutritional suitability of a menu for persons with chronic diseases

Part (b) was well done by the majority of candidates who were able to suggest a suitable three course menu for persons with chronic diseases.

Question 7

This question tested candidates' understanding of the factors to be considered in calculating the real cost of meals and determining portion sizes. It was attempted by 38 per cent of the candidates. The overall performance was poor.

In Part (a) candidates were unable to explain the factors which should be considered when calculating the real costs of meals served in a restaurant.

Candidates' response to Part (b) (i) was also poor. They were unable to give factors for determining portion sizes.

Performance on Part (b) (ii) was fair, as the majority of candidates were able to suggest strategies for controlling the cost of menu items such as purchasing in bulk, use of items in season, budgeting, using standard portions and avoiding the use of expensive ingredients. Other expected responses included: use of local foods; avoiding wastage; and ensuring that standard portions are used.

Internal Assessment

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all Modules. Candidates in consultation with the teacher and the guidelines provided by the Caribbean Examinations Council selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of the candidates has shown great improvement.

The majority of portfolios were very well presented. Most of the illustrations were clear and creative. In some cases the quality of the assignments was appropriate for the Advanced Proficiency Level while others were not of the standard expected at this level. It is imperative that teachers become aware that a portfolio should be submitted, instead of two distinct pieces.

A few candidates submitted exemplary portfolios. The work of these candidates was scientifically based and rigorous. These candidates are to be highly commended for their effort.

Module 1 - Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. In most cases literature reviews were comprehensive, but sources used were not always cited. Data were well presented, but very little reference was made to the data. In several cases inferences, predictions, or conclusions were not attempted by the candidates. The conclusions and recommendations were not accurately or scientifically based. Similarly, they did not support the analysis of data.

Module 2 - Experimental and Recipe Modification

Candidates selected appropriate experiments and demonstrated knowledge of relevant facts. Many reports were not well written and presented. Most of the candidates did not formulate hypotheses, and the procedures for experiments were in most cases not clearly documented. A large majority of the candidates showed very little evidence to prove that they modified the product after critical or unexpected outcomes.

Recommendations to Teachers

Overall the performance on the examinations was satisfactory. However, performance can be improved if recommendations to teachers are used as guidelines to help address the weaknesses of candidates. Although candidates appeared to understand the concepts they did not always elaborate and fully develop answers as was expected at the Advanced Proficiency Level. Some candidates were not fully prepared for this level of examination.

It was also clear that some candidates were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should therefore cover the entire syllabus so that they can satisfy the requirements of the examination. Performance in Module 3 of both units was extremely weak. In situations where it might not be possible for teachers to cover every topic in class, it is suggested that candidates be given the task of conducting research on the topics not covered and be allowed to present their work in class. Greater emphasis must be placed on nutritional information related to control and prevention of chronic diseases.

In addition, it is important that candidates revisit concepts in the CAPE syllabus which were studied at the CSEC level and that these topics be discussed in greater detail and additional accumulated information be presented to the candidates. Teachers must be cognizant that it is possible to study nutrients at several levels, primary, secondary, tertiary, and post-graduate. At each level, the information regarding the concept of nutrients is increased.

Candidates should be encouraged to:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.
- Answer questions with a variety of key words, namely: discuss; explain; list; describe; and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates obtaining fewer marks than they should have.
- Participate in mock examinations using past examination papers and administered under examination conditions in order to develop good examination techniques.
- Utilize different media to become familiar with current nutrition issues.
- Place emphasis on research techniques, case studies and problem solving.
- Engage in field trips and work attachments to help them to understand fully many nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breast feeding; nutrition-related disorders; and practices and procedures for ensuring safety of food, for example.
- Develop ideas, and demonstrate clarity of expression. In many cases candidates showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the Advanced Proficiency level.

Internal Assessment

Candidates should be encouraged to:

- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- Develop rationales and explain the significance of the topic.
- Note that literature reviews for each assignment do not have to be extensive but should be thorough enough to outline the problem and research relevant to the same. This **cannot** be adequately done in two to three pages. Students must utilize a variety of sources.
- There was a heavy reliance on the Internet and in many cases this was the only source cited. At this level of examination it is critical that students be exposed to the correct method of citing references. It is suggested that students be taught the APA referencing style for citing sources and developing a reference list.

Assignment 1 - Research

- Candidates must not only present the data but they should discuss the data clearly. They are not expected to present data on all of the questions, but should discuss all of the questions asked on the questionnaire or interview. Field observations must be adequately highlighted and discussed.
- Efforts should be made to guide students in making simple inferences, and drawing conclusions yielded from the data. A summary or conclusion should be given at the end of the project.

Assignment 2 - Experimental and Recipe Modification

- Candidates should be advised that a detailed report must be written, which accurately records and reports all observations.
- Efforts should be made for students to understand that experiments are not completed on a one shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes.
- Efforts should be made to introduce students to the role of product development and recipe modification. In addition, demonstrations should be completed before students engage in their individual assignments.
- Candidates should be advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to reaching success. For example, at this proficiency it is unacceptable to modify the amount of fat or salt in “beef stew” and view this as competent work. Therefore, significant ingredients should be altered.

- Each modification should be explained in detail, giving reasons for the particular modification. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, when making a jam, the product did not set; therefore more lime juice was added to the next modification. Examiners are not expected to compare the recipes to verify the changes that were made to the recipes.
- Variations of basic recipes are not expected at this proficiency as a modification. For example, an original recipe for plain cake and a modified recipe for coconut cherry cake.
- Candidates should give the original recipe and then conduct at least two modifications.
- Experiences must be provided for students to fully understand that a recipe is a formula, thus any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one shot basis.
- Efforts should be made for students to understand the role of major ingredients used in recipes, especially baked items. For example, if the amount of sugar in a creamed mixture is changed, there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.
- Candidates should be encouraged to use food composition tables to determine energy values for the original and new product.
- Candidates should be encouraged to formulate valid hypotheses.
- Candidates should be encouraged to record and report methods, observations and results accurately, using tables or graphs.
- Candidates should include the results from the sensory evaluation in their discussion.
- Candidates should develop a conclusion to summarize their findings.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
ADVANCED PROFICIENCY EXAMINATION
MAY/JUNE 2010**

FOOD AND NUTRITION

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GENERAL COMMENTS

The Caribbean Examinations Council administered its eighth examination in Unit 1 Food and Nutrition and its seventh examination in Unit 2 in May 2010. This year was the first time that the Unit 1, Paper 01 and Unit 2, Paper 01 consisted of multiple choice items.

There are some areas of the syllabus where greater depth of coverage is required. These areas are highlighted in the detailed comments on individual questions.

Paper 01 - Multiple Choice Questions

Paper 01 in both units consisted of 45 multiple choice questions. Candidates were required to answer all questions. There were 15 questions on each of the three modules in the unit. Paper 01 tested the grasp of critical nutrition principles and mastery of relevant skills. The maximum possible mark was 90. Candidates' performance was good. In Unit 1, the mean mark for Paper 01 was 55.44 and in Unit 2, the mean mark for Paper 01 was 57.07.

Paper 02 - Structured Essays

Paper 02 in Units 1 and 2 consisted of seven essay questions which tested objectives across all modules. It was divided into four sections. Section I consisted of one compulsory question which tested three of the modules. Section II to Section IV each comprised two optional questions. Candidates were required to answer one question from each section. Questions in Section II were based on Module 1, those in Section III on Module 2 and those in Section IV were based on Module 3.

The compulsory question in Section I was worth 45 marks and all other questions were worth 25 marks each. Overall, candidates' performance was good. The maximum possible mark was 120. In Unit 1 the mean was 73.05; in Unit 2 the mean mark was 73.11.

Paper 03 - Internal Assessment

Paper 03, the Internal Assessment, comprised a portfolio of two assignments. Candidates were expected to conduct research on a selected theme in the syllabus. The research in the first assignment was expected to form the basis of the experimentation and product development in the second assignment. Paper 03 was worth 90 marks and contributed 30 per cent to the candidates' final grade.

Performance on this paper was generally good, with a mean score of 59.68 out of 90 in Unit 1, and 60.56 out of 90 in Unit 2.

DETAILED COMMENTS

UNIT I

Paper 01 - Multiple Choice Questions

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was very good.

Paper 02 - Structured Essay

Section I - Compulsory Question Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of calculating and comparing the percentage of total calories obtained from the energy nutrients; dietary guidelines for adhering to the Recommended Dietary Allowances (RDAs); planning menus; nutritive value of genetically modified foods; kitchen organization and service of desserts.

The compulsory question was attempted by all of the candidates. The overall performance on this question was good.

In Part (a) (i), candidates were required to calculate the percentage of total calories obtained from carbohydrates, proteins and fats having been given the total number of calories obtained from each. This aspect of the question posed an enormous challenge to candidates. It is recommended that in preparing for the examination, candidates be provided with guidance and practice in calculating a variety of problems involving energy values. Many candidates interpreted the question to be one which required a 4, 4, 9, calculation. Only a few of the candidates were able to accurately complete the calculations. The calculations are as follows:

1000 kcal from carbohydrates
400 kcal from protein
720 kcal from fat
 $1000 + 400 + 720 = 2120$

Carbohydrates	$\frac{1000}{2120} \times 100$	= 47.2%
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Protein	$\frac{400}{2120} \times 100$	= 18.9%
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Fat	$\frac{720}{2120} \times 100$	= 33.2%
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In Part (a) (ii), most of the candidates experienced difficulty in comparing the actual intake of persons with the recommended intake of 15 per cent calories from protein, 55 per cent from carbohydrates and 30 per cent from fat. Since they did not have the correct calculations from (a) (i), it was difficult to provide appropriate advice regarding the intake of each nutrient. A few candidates used their general knowledge that a high intake of fat can be harmful and offered advice based on this, but could not address the insufficient intake of carbohydrates or high intake of protein.

Part (a) (iii) was well done, as evidenced by the ability of candidates to state dietary guidelines to assist adults to adhere to the RDAs. Most candidates suggested guidelines such as eating in moderation, using the multi-mix principle, reduction of foods high in fat and using more fruit and vegetables.

In Part (b) (i), the majority of candidates were able to plan two-course lunch menus for a two-day workshop. Some of them did not write two-course menus, while a few planned a menu for lunch instead of planning menus for one day. The candidates were required to include convenience foods in their menus but these foods were not clearly indicated by many candidates. Some of the menus were quite pleasing aesthetically and included entrees such as baked, roasted, grilled or fried meats with a suitable choice of meats for each menu and appropriate accompaniments. Conversely, some menus were not suitable for lunches at a workshop, for example, sandwiches, pizza and one-pot meals.

In Part (b) (ii), candidates were required to discuss the nutritive value of genetically modified tomatoes which were made purple by adding anthocyanins from egg plant. Unfortunately, the candidates missed the opportunity of simply stating the nutritive value of the tomatoes or the phytochemicals present in the tomatoes. Expected responses included

- | | |
|-----------------|--|
| • Vitamin C | antioxidant and anti-infective properties |
| • Vitamin E | antioxidant |
| • Beta Carotene | a yellow pigment that converts to Vitamin A |
| • Lycopene | a red pigment that can reduce the risk of cancer |

These together with the purple coloured pigment anthocyanin which has anti-oxidant properties make the purple tomato highly nutritious.

In Part (c) (i), candidates were required to recommend steps to organize the kitchen for the preparation of main meal salads and desserts. Some candidates misinterpreted the question and discussed kitchen layouts. Candidates were expected to address the following:

- preparation of a time-plan or work-plan
- workstations set up with all needed equipment and ingredients
- standardized recipes and the correct yield available
- appropriate pre-preparation such as portioning, marinating, and batching of meats
- using appropriate work flow
- room well ventilated and lit
- proper garbage disposal

In Part (c) (ii), the candidates gave excellent descriptions of how desserts could be served.

Section II - Optional Questions

Module 1

Question 2

This question tested candidates' understanding of the nutritional considerations and precautions that must be made when planning and preparing meals for children with HIV and AIDS. This question was attempted by 35 per cent of the candidates. The overall performance on this question was good.

Performance on Part (a) (i) was very good. Most candidates were able to spell out the acronyms and adequately differentiated between HIV and AIDS.

Part (a) (ii) required candidates to state how the nutritional status of young children with AIDS may be affected. This presented some difficulty to candidates, many of whom were unable to make the connection between the virus causing disease and the depletion of nutrients from the body, thus leading to malnutrition.

In Part (b) (i), candidates' responses to the precautions that can be taken by a caregiver to assist a young child in coping with the demands of AIDS were correctly given for the most part. Expected responses included

- ensuring that the child eats on time
- having the child practise good hygiene
- educating the child about the condition
- ensuring that the child has a healthy diet
- monitoring the child's play
- ensuring that the child takes medication
- making sure that the child gets adequate sunshine
- ensuring that the child visits the doctor regularly
- making sure that the child gets adequate rest
- offering support to the child
- encouraging the child to eat
- avoid having the child eat burnt or charred foods

In Part (b) (ii), the majority of candidates gave appropriate dietary recommendations for planning and preparation of meals for children with AIDS. Popular responses included: ensure that the child gets adequate fruits and vegetables; give the child foods that he can eat and give the child nutritionally balanced meals. However, the following are some very important points with respect to HIV that were missed:

- Avoiding foods that may cause stomach irritations
- Avoiding too many high-fibre foods as this may be of concern if diarrhoea is present
- Consuming supplements such as Ensure or Pediasure
- Avoiding left-over foods
- Avoiding too many preserved foods with chemical additives
- Avoiding foods that may cause drug-nutrient interactions

Question 3

This question tested candidates' understanding of the synergistic relationship between diarrhoea, vomiting, and malnutrition in young children, and signs of good nutritional status. It was attempted by 65 per cent of the candidates. Performance on this question was good.

In Part (a), candidates were required to discuss the synergistic relationship between the three variables. Candidates had difficulty explaining the synergistic relationship even though they could define each one separately. Synergy means that two things together work more dangerously against the child. One gives rise to the other, in that vomiting and diarrhoea deplete the body of water and other nutrients causing malnutrition. Dehydration and malnutrition in turn weakens the child's resistance to infection, thereby predisposing the child to diarrhoeal diseases.

Part (b) was well done by candidates, since they were quite familiar with the benefits of physical exercise to children. Many of them were able to score maximum marks for this section. Expected answers included: *helps them to perspire thereby getting rid of toxins, increases bone density; increases activity level and healthy lifestyle; helps children to eat better; and participation in competitive sports increases social well being.*

In Part (c), most of the candidates identified physical signs of good nutrition, however, the majority were unable to list a laboratory test which could determine nutritional status apart from stating "blood" or "urine" test. Expected responses were *haemoglobin test, blood glucose, blood cholesterol or glucose in urine.*

Section III - Optional Questions

Module 2

Question 4

This question tested candidates' understanding of planning meals for lacto-vegetarians and reading labels on convenience food packages.

This question was attempted by 68 per cent of the candidates. The overall performance was very good.

Performance on Part (a) was good as candidates were able to plan menus which were suitable for lacto-vegetarians. Unfortunately, about 40 per cent of the candidates did not read the question thoroughly and therefore missed gaining maximum marks on some parts of the question. For instance, some candidates planned one meal instead of a day's menu. Some candidates included fish on the menu, even though it was for a lacto-vegetarian, while other candidates ignored the format for menu writing.

Candidates responded well to Part (b) as they gave suitable responses for reasons why labels on convenience food packages should be read. Popular answers included:

- For ease in identifying products that have ingredients that they may be allergic to
- For identifying manufacturer's information, so as to be able to get redress

- Find instructions for use
- Checking expiry dates
- Identifying ingredients which may be of animal origin

Other suitable answers could be:

- Helping with portion control
- Identifying foods that are fortified with nutrients they may need such as iron
- Allowing for comparison nutrients in different foods, thus enabling them to make wise choices

In Part (c), most candidates adequately discussed possible benefits of the use of convenience foods. Responses included: *saving time, fuel, and energy; adding variety to the diet; economical; easy to prepare and longer shelf life.*

Question 5

This question tested candidates' understanding of safety of stored foods. It was attempted by 32 per cent of the candidates. Performance on Part (a) was very good. Candidates were generally familiar with criteria for assessing the safety of canned foods stored for several years. However, a few candidates misinterpreted the question to mean safety measures for storage of canned foods.

In Part (b), candidates were required to discuss hazards that may cause food-borne illnesses apart from bacterial contamination of foods. Unfortunately, many of the responses given related to bacterial contamination, such as poor personal hygiene, cross contamination of foods, flies and other pests coming into contact with foods.

Expected responses included:

- Illness caused by parasites such as tapeworms, flatworms and roundworms that may be caused by eating fish or pork that is undercooked
- Mercury contamination from long-lived fish such as shark and tuna that may have become contaminated with mercury through industrial waste
- Ciguatera or Red Tide poisoning from toxins in certain seafood
- Use of poisonous plants such as certain types of mushrooms
- Chemicals from utensils
- Viruses
- Mould
- Yeast

- Allergens in certain food products and accidental addition of poisonous substances to food

Part (c) was done well as candidates demonstrated that they were familiar with guidelines for storing foods in the freezer. However, many could not provide adequate justification and therefore did not score maximum marks. Some expected responses were:

- foods should be properly wrapped
- foods should be labelled
- foods should be properly portioned to avoid thawing and re-freezing
- frozen meats should be thawed in the refrigerator or microwave and not at room temperature
- vegetables should be blanched before freezing
- the first in, first out rule should be observed
- over-packing the freezer may cause food not to freeze thoroughly

Section IV - Optional Questions

Module 3

Question 6

This question tested candidates' understanding of microwave cookery and kitchen equipment. It was attempted by 85 per cent of the candidates. Performance on this question was good.

Performance on Part (a) was very good. Most of the candidates identified advantages of using the microwave cooker apart from reducing cooking time even though some ignored the clause, 'apart from reducing cooking time'. Popular answers were *easy to use, saves energy, nutrients are conserved*. Some other responses that were expected were *less likelihood of food poisoning as food does not have to be kept warm, frozen food can be defrosted safely, the oven itself does not heat up, making it comfortable to work in the kitchen, and it is convenient to use*.

In Part (b) (i), most candidates were unable to explain the principles of microwave cookery. They seemed not to be familiar with the principles of microwave cookery, apart from it being based on radiation. Many of them focused on guidelines for use of the microwave cooker. The expected response was

the microwave oven is fitted with a magnetron which generates the microwaves. The microwave is an electromagnetic wave which moves at very high frequency. These waves are readily absorbed into food substances. The vibrations of the microwave cause agitation of the molecules within the food which leads to friction and rapid rise in the temperature of the food.

In Part (b) (ii), candidates were expected to explain standard procedures to be followed when using the microwave oven. These procedures included

- stirring of porridges at intervals
- repositioning of chicken drumsticks
- use of oven-proof or ceramic dishes

The first two procedures were well explained, however, most candidates were unaware that the materials listed in the third procedure allow microwaves to pass through them. Candidates focused on the heat resistance or suggested that they were good conductors of heat.

Part (c) was well done as evidenced by candidates' ability to accurately provide the purpose of the equipment even though about ten per cent of them attempted to list advantages of the tools named instead of uses.

Question 7

This question tested candidates' knowledge of characteristics and accompaniments of ice-cream and preparation of custards. Performance on this question was below average. The question was attempted by six per cent of the candidates.

In Part (a), candidates were required to list characteristics of a good quality ice-cream. Performance on this part of the question was satisfactory for the most part, but vague in some cases. For instance, some candidates gave vague responses such as "texture, flavour, odour" rather than *light soft texture, pleasant distinctive flavour of whatever flavouring was used and pleasing sweet aroma*.

In Part (b) (i), candidates were required to outline the steps for preparing a custard that was thickened with cornstarch or custard powder. Only about half of the candidates who attempted this question were able to adequately respond. Important steps were omitted, such as *use of a double boiler, blending of the starch with cold water and adding the eggs after the cooking of starch and removal from direct heat*.

For Part (b) (ii), candidates were required to discuss how syneresis and retrogradation affected the quality of custard. This part of the question proved to be extremely difficult for the candidates. Syneresis is often referred to as weeping or leaking and this liquid can cause the custard to be a bit unpalatable. Retrogradation, on the other hand, causes custards to become too thick as the mixture gets colder, altering the texture.

Part (c) was very well done by the candidates who appropriately suggested interesting and creative accompaniments for home-made ice-cream.

UNIT 2

Paper 01 - Multiple Choice Questions

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was very good.

Paper 02 - Structured Essay

Section I - Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of eating habits, food availability in the Caribbean, genetically engineered foods and safety of processed foods.

This compulsory question was attempted by all candidates. The overall performance on this question was very good. Part (a) (i) was well done. Candidates were required to discuss factors that influence the eating habits of Caribbean people during adulthood.

In Part (a) (ii), most candidates correctly defined the term 'food availability' and provided reasons why it is necessary to increase food availability in the Caribbean. Candidates focused on *the need to have the population well nourished; trade and economics among CARICOM states; ability to attract tourists and reduction in infant mortality rate.*

Performance on Part (b) (i) was generally well done by candidates. This part of the question required candidates to discuss the advantages and disadvantages of using genetically engineered foods. The majority of candidates clearly outlined advantages which included *increase in shelf life and greater resistance to pests.* Other responses that were expected included *increased diversity of the world food supply and having more food available.* Most candidates were able to mention at least one disadvantage, expected responses were:

- There remains controversy regarding the safety of these foods to the human body
- There remains controversy regarding the safety of these foods to the environment
- Persons may be allergic to some of the ingredients in these products
- GE foods can result in a food supply that is dependent on a few specifically designed plants
- Unforeseen problems such as climate change, or a natural disaster can endanger the entire supply of a particular food
- Crops monopolize the market and lead to higher food prices and lower biodiversity of crops and other plants

- New diseases might be introduced through the mutation of genes

In Part (b) (ii), candidates listed factors that can affect the safety of processed foods. However, their responses lacked depth of explanation which resulted in them scoring less than the maximum possible marks. Responses expected included *the safety of packaging materials used; storage conditions; chemical additives; hygiene and safety practices of food handlers and cross contamination during processing*.

Part (c) provided candidates with scope to exercise their creativity in developing a recipe that included spinach, which would be appealing to adults. Most candidates did not create interesting and appealing recipes. Some of the recipes developed were fritters, burgers, logs, pies — other options such as pizza, omelette, croquettes and casseroles could have been suggested. It is clear that more guidance and practice needs to be given to the process of recipe writing. The following were not indicated: *name of recipe, ingredients with quantities and the method of preparation*. In writing the method, it is expected that candidates state the procedure for incorporation of ingredients, the steps to be followed in the method of cooking; the temperature to be used; the length of time for cooking or baking; and the service of the dish. A few candidates wrote menus instead of recipes.

Section II - Optional Questions

Module 1

Question 2

This question tested candidates' understanding of traditional beliefs about foods, nutritional accuracy about the beliefs; menu planning using indigenous Caribbean foods, and traditional and modern tools that can be used to prepare the dishes on the menus. It was attempted by 70 per cent of the candidates.

Part (a) was fairly well done. Responses to this question were varied and very interesting. Many candidates were able to list traditional beliefs, but could not provide an adequate assessment. Some candidates listed nutritional facts about foods rather than traditional beliefs, for example, *Milk is a good source of calcium*. An example of a widely known traditional belief in the Caribbean is that

“Plantains or green bananas are rich in iron and therefore build blood.” In terms of nutritional accuracy, these fruits/vegetables are a rich source of starch and therefore high energy foods. They also have moderate amounts of fibre and vitamin C. Both plantains and green bananas are rich in potassium. They are not sources of iron, hence their ability to correct bad blood or anaemia is minimal, therefore the statement is false.

In Part (b) (i), candidates were required to write a one-course menu using indigenous Caribbean food. Most candidates wrote good one-course menus, however, some wrote two-course menus, while others wrote items such as chicken and potato chips. Though these foods may be indigenous, some preferred dishes would have been *pepperpot, stews, cou cou, curries, dhal, pones, metemgee, oil down, fufu and rotis*.

For (b) (ii), candidates had to identify three traditional tools that could be used in the preparation of items on their chosen menu. Some candidates chose traditional tools, but did not in every case relate them to the chosen menu. For instance, if curry was chosen, they could say that a kahari would be used to cook the meat, while a massala brick would be used to grind the massala and a tawah would be used to cook the roti.

In Part (c), candidates did very well in responding to the question on the advantages of using modern equipment. Most candidates referred to the fact that they are easy to clean, more efficient, save time and energy and that instructions for use are provided.

Question 3

This question tested candidates' understanding of evaluating regulations relating to the handling and sale of food; and Caribbean food systems. It was attempted by 30 per cent of the candidates and was generally well done.

In Part (a), many candidates struggled to find responses to food regulations relating to the handling and sale of food. In response to the first regulation that *passengers passing through the air and sea ports must have all food contained in their luggage inspected*, candidates responded fairly well. Some candidates mentioned important points such as *it was important to protect citizens by ensuring that food is wholesome; customs should be aware of what is coming into the country and controlling of diseases, for example, mad cow disease*.

For the second regulation, *food handlers must complete sixty hours of food safety training*, candidates gave responses such as *persons become knowledgeable about how to prevent food borne illness; the credibility of the business is improved; food borne illnesses are prevented and rules are established for how food should be handled*.

The third regulation, *inspecting the internal temperatures of raw and cooked foods and discarding any that is not in keeping with the established temperature standards* was the most problematic. Some students just repeated that meats not held at the required temperature should be discarded. Expected responses were as follows:

- Improper cooling and reheating of food can cause food borne illness
- Bacteria grow best in the danger zone of 41 to 140 degrees Fahrenheit, so that foods must be kept out of this zone
- Steaming tables and chafing dishes must be kept at 140°F or higher, so as to prevent foods being in danger zone temperatures

Part (b) required candidates to discuss the impact on Caribbean food systems if the importation of selected foods is restricted. Candidates responded well to this question as they considered the socio-economic and health impacts as well as the impact on food accessibility.

Section III - Optional Questions

Module 2

Question 4

This question tested candidates' understanding of food production and calculating the selling price of products. It was attempted by 57 per cent of the candidates. Overall performance on this question was satisfactory.

Performance on Part (a) was fair. Candidates were required to name items produced in home-based businesses and to outline the stages of production for one of the items. Most of the candidates were able to name food items produced in home-based businesses such as jams, jellies, preserves and various confectioneries. Some unexpected responses were received such as bananas, ground provisions and oranges. Candidates were, however, unable to adequately describe the stages of production. Candidates had much scope in terms of describing the stages from selection of good quality raw materials to packaging and marketing. In most cases, even though stages were named they were not elaborated upon and therefore candidates could not score maximum marks.

In Part (b), candidates were required to calculate the selling price of the food item produced in the home-based business. This posed major difficulty for most candidates as many of the elements of the pricing process were omitted. It was expected that the costing of the product would follow the format listed below:

- List of ingredients with quantities
- Price per quantity
- Inclusion of overheads such as fuel, packaging and labour
- Cost of the produced item
- Cost per portion
- Percentage mark up
- Calculated selling price which is the mark up added to the cost

Candidates can be provided with practice where actual products are produced and priced as a classroom exercise.

Question 5

This question tested candidates' understanding of characteristics of white fish, preservation of the fish and food fortification. It was attempted by 43 per cent of the candidates. Overall performance on this question was below average.

Part (a) (i) and (ii) posed difficulty to most of the candidates. Apart from stating that the flesh is white and that it flakes easily, they could not adequately address the question. Some candidates

mentioned the fact that white fish is low in cholesterol, low in fat, possess scales and flakes easily when cooked. Not many candidates mentioned that it is an excellent source of protein or that it is low in calories, compared to other types of fish. Some candidates attempted to discuss changes that take place in the fish during preservation without mentioning the method of preservation. Methods of preservation include freezing, salting, dehydrating and smoking. Changes depend on the method of preservation, but occur in the texture, weight, taste, colour and nutrient content.

Performance on Part (b) was weak as most of the candidates did not seem to be able to provide examples of foods which are fortified with nutrients that are not found naturally in the foods. Candidates seemed to miss the point that the nutrients are not naturally occurring in the foods. Many therefore provided examples such as salt being fortified with iodine or milk being fortified with calcium and vitamins A and D. Expected responses included *infant formulas*, or *cookies being fortified with iron*; *soya milk fortified with calcium, vitamins A and D*; and *fruit juices fortified with calcium*.

Section IV - Optional Questions

Module 3

Question 6

This question tested candidates' understanding of HACCP and buffet service of meals. It was attempted by 68 per cent of the candidates. The overall performance of this question was satisfactory.

In Part (a) (i), candidates were required to state the meaning of the acronym HACCP. The majority of candidates correctly stated that the acronym means Hazard Analysis Critical Control Points.

In Part (a) (ii), candidates were required to give ways in which the HACCP approach to food safety can be helpful in ensuring the quality of food in large-scale food preparation. The majority of candidates misinterpreted the question, stating mainly personal and kitchen hygiene practices. Expected answers were:

- It identifies potential hazards before they occur
- Measures can be put in place to avoid hazards
- Excellent record keeping allows for proper monitoring
- It ensures that workers are trained in food safety

Part (b) focused on the organization of a food service area. This part of the question was well done. Candidates referred to *proper arrangement of tables*, *setting up queues so that there is entrance and exit*, *organizing service by groups* and *portioning food prior to service*.

In Part (b) (ii), candidates were expected to outline measures to be put in place to avoid hazards during the service of the meal. Candidates responded with references to physical hazards that can cause accidents as well as food safety hazards that can lead to sickness.

Question 7

This question tested candidates' understanding of quality assurance in restaurants, food batching and promotion of new menu items.

The question was attempted by 32 per cent of the candidates. Overall performance was satisfactory.

In Part (a) (i), candidates were required to suggest five measures that can be put in place to address the length of time between placing an order in a restaurant and receiving the meal. Candidates responded very well to this question. Popular answers included *employing enough staff*, *encouraging pre-ordering*, *entertaining patrons while they wait*, *ensuring adequate pre-preparation is done and organizing the kitchen for better efficiency*. Other expected answers were *retraining of staff*, *holding food at the correct temperature*, *offering buffet service* and *ensuring that adequate and appropriate equipment is provided*.

In Part (a) (ii), candidates were expected to outline procedures for the batching of the house special entrée. Many candidates did not understand the two major terms 'batching' which referred to the pre-preparation of the meats and 'entrée' which is the main dish (protein) of a meal. The process for completing the batching included steps such as cleaning, portioning, marinating, wrapping of individual portions, packing in batches in suitable containers, such as covered food savers or hotel pans, and placing in batches in the freezer or refrigerator.

Part (b) required candidates to suggest strategies that would encourage patrons to try a new item on the menu. Candidates responded well to this part of the question, giving several interesting promotional ideas, such as using testimonials of celebrities who had tried the item, presenting the item attractively, distributing free samples and educating the waiter/waitress about how to introduce the new item to guests.

Paper 03/1 – Internal Assessment

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all modules. Students, in consultation with the teacher and using the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of candidates has improved.

The majority of portfolios were very well presented. Most of the illustrations were clear and creative. In some cases, the quality of the assignments was appropriate for the advanced proficiency level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

A few candidates submitted exemplary portfolios. The work of these candidates was scientifically based and rigorous. These candidates are to be highly commended for their efforts. In some instances, the candidates used a thematic approach where the research assignment was linked to the product development.

The major area of concern continues to be the communication of information. While some candidates were able to communicate information in a logical manner with few grammatical errors, several candidates continue to present information with numerous grammatical errors which reduced the overall quality of the portfolios.

Module 1 - Research

Most of the candidates selected appropriate topics and demonstrated knowledge of relevant facts. In some cases, literature reviews were not comprehensive; some candidates often did not utilize appropriate formats for citations and in some instances the sources used were not always cited.

Data were well presented but very little reference was made to the data. The discussion of findings lacked depth of interpretation. In some cases, findings were not based on the research conducted. Instead, generalizations from the literature or guidelines were made regarding the topics.

In several cases, inferences, predictions, or conclusions were not attempted by the candidates. Sometimes the conclusions and recommendations were not accurately or scientifically based and did not support the analysis of data.

Although communication of information was satisfactory in some instances, the standard of communication for this level is extremely poor. Spelling and grammatical errors that can be easily corrected using the spell check on a computer were too often overlooked.

Module 2 - Experimental and Recipe Modification

Many creative products and modifications were attempted and most candidates utilized sensory evaluation to determine the quality of the product. Candidates selected appropriate experiments and demonstrated knowledge of relevant facts.

Many reports were not well written and presented. Most of the candidates formulated hypotheses but they were not always realistic. The procedures for experiments were in most cases not clearly documented. A large majority of candidates showed very little evidence to prove that they modified the product after critical or unexpected outcomes.

RECOMMENDATIONS TO TEACHERS

Overall performance on the examinations was satisfactory. However, performance can be improved if recommendations to teachers are used as guidelines to help address the weaknesses of students. Although candidates appeared to understand the concepts, they did not elaborate and fully develop answers that are expected at the advanced proficiency level. Some candidates were not fully prepared for this level of examination.

It was also clear that candidates were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Candidates should therefore cover the entire syllabus so that they can satisfy the requirements of the examination. Module 3 in both units was extremely weak. Since it might not be possible for teachers to cover every topic in class, it is suggested that students be given research on these topics and be allowed to present their work in class. Greater emphasis must be placed on nutritional information related to control and prevention of chronic

diseases. In addition, it is important that students revisit concepts in the CAPE syllabus which were studied at the CSEC level and that these topics be discussed in greater detail and additional information be presented to them. Teachers must be cognizant that it is possible to study nutrients at several levels — primary, secondary, tertiary and post graduate — and that at each level the information expands.

Candidates should be encouraged to

- read questions carefully, paying attention to key words
- place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote
- develop responses fully, paying attention to the marks allocated for each part of the question
- answer questions with a variety of key words, namely: discuss, explain, list, describe and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in candidates' inability to gain as many marks as possible
- participate in mock examinations using past examination papers and administered under examination conditions in order to develop good examination techniques
- utilize different media to become familiar with current nutrition issues
- place emphasis on research techniques, case studies and problem solving
- engage in field trips and work attachments to help them to fully understand many nutritional concepts such as methods for assessing the nutrition status of children; complementary feeding and breast feeding; nutrition related disorders; and practices and procedures for ensuring safety of food
- develop ideas, and demonstrate clarity of expression. In many cases, candidates showed some knowledge of the concept being tested, but could not adequately respond to questions at the standard that is required at the advanced proficiency level.

Internal Assessment

Students should be encouraged to

- seek guidance in choosing topics for projects as well as throughout the entire exercise
- select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project
- note that literature reviews for each assignment do not have to be extensive, but, should be thorough enough to outline the problem and research relevant to the same. This **cannot** be adequately done in two to three pages. Students must utilize a variety of sources. There was a

heavy reliance on the internet and in many cases this was the only source cited. At this level of examination, it is critical that students be exposed to the correct method of citing references. It is suggested that students be taught the APA referencing style for citing sources and developing a reference list

- develop rationales and explain the significance of the topic.

Assignment 1 - Research

- Students must not only present the data but they should discuss the data clearly. They are not expected to present data on all of the questions, but should discuss all of the questions asked on the questionnaire or interview. Field observations must be adequately highlighted and discussed.
- Efforts should be made to guide students in making simple inferences and drawing conclusions yielded from the data. A summary or conclusion should be given at the end of the project.

Assignment 2 - Experimental and Recipe Modification

- Students should be advised that a detailed report must be written, which accurately records and reports all observations.
- Efforts should be made for students to understand that experiments are not completed on a one shot basis. It is necessary to repeat and modify experimental methods after critical or unexpected outcomes.
- Efforts should be made to introduce students to the role of product development and recipe modification. In addition, demonstrations should be completed before students engage in their individual assignments.
- Students should be advised that product development or recipe modification is more than removing or changing one ingredient or just throwing ingredients together. This assignment entails detailed experimentation which usually necessitates several trials prior to reaching success. For this reason, it should involve the altering of several ingredients, hence baked products is suggested as an example for modification. At this proficiency, it is unacceptable to modify the amount of fat or salt in 'beef stew' and view this as competent work. Therefore, significant ingredients should be altered.
- Each modification should be explained in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, when making a jam, the product did not set; therefore more lime juice was added to the next modification. Examiners are expected to compare the recipes to verify the changes that were made to the recipes.
- Variations of basic recipes are not expected at this proficiency as a modification. For example, original recipe plain cake and modified recipe coconut cherry cake.

- Students should give the original recipe and then conduct at least two modifications.
- Experiences must be provided for students to fully understand that a recipe is a formula, thus any change in an ingredient will necessitate a substitution of ingredients. Reliable and quality products cannot be achieved on a one shot basis.
- Efforts should be made for students to understand the role of major ingredients used in recipes, especially baked items. For example, if the amount of sugar in a creamed mixture is changed there must be a suitable substitute or the texture and flavour of the cake will be changed. The goal of recipe modification is to make changes to the ingredients yet retain the flavour, colour, shape, texture and acceptability of the product. Similarly, product development entails creating a product which is pleasing to consumers.
- Students should be encouraged to use food composition tables to determine energy values for the original and new product.
- Students should be encouraged to formulate valid hypotheses.
- Students should be encouraged to record and report methods, observations and results accurately, using tables or graphs.
- Students should include the results from the sensory evaluation in their discussion.
- Students should develop a conclusion to summarize their findings.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
ADVANCED PROFICIENCY EXAMINATION**

MAY/JUNE 2011

FOOD AND NUTRITION

UNIT 1

GENERAL COMMENTS

In Unit 1, overall performance was comparable with that of 2010 with 99 per cent of candidates achieving Grades I-V. Candidates' performance on the School-Based Assessment improved. Candidates performed better on Module 1 (Principles of Nutrition and Health) and Module 2 (Food Selection and Meal Planning) than on Module 3 (Food Preparation and Service: Principles and Methods).

DETAILED COMMENTS

Paper 01 – Multiple Choice Questions

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was good.

Paper 02 – Structured Essay

Section I – Compulsory Question Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the importance of adequate protein and calcium intake for adolescents and combination dishes rich in these nutrients; digestion of foods in the mouth and stomach and the principles of storing dry foods. The question also tested candidates' ability to differentiate between cleaning and sanitizing and to explain why they are important to health and safety. In addition, the question tested candidates' knowledge of the changes that occur during the cooking of eggs and cheese and their ability to explain how the knowledge of the properties of eggs and cheese could be used in cooking. The question also tested candidates' knowledge of the precautions to be taken to avoid burns and electrocution in the kitchen.

This compulsory question was attempted by all candidates. Overall performance on this question was good.

In Part (a) (i), the majority of candidates were able to outline reasons for the importance of calcium and protein to be included in the diet of adolescents. A few candidates generalized their responses, in stating that calcium and protein were needed for 'strong bodies'. This type of general response was not awarded maximum marks. Responses given for protein included:

- growth
- repair of worn tissues
- maintenance
- building muscles
- providing energy

Other correct responses are:

- build lean body mass
- facilitate growth spurts
- essential for hormone production, thereby facilitating puberty

In Part (a) (ii), candidates were required to list three combination dishes rich in protein and calcium. It was evident that not all candidates were familiar with the term *combination dish*. Although many of them incorrectly gave three meals, it was clear that they were familiar with foods that are rich in calcium and protein. Expected responses included, but were not limited to

- custards
- fish
- florentine
- macaroni cheese/pie
- peanut punch
- cream of spinach soup
- calaloo au gratin
- salmon salad
- three bean salad
- cheese sandwiches

In Part (a) (iii), the majority of candidates correctly described the process of digestion in the mouth and the stomach.

In Part (b) (i), candidates were able to list guidelines which should be posted in a food storage area. Correct responses were:

- arrange items so that first in will be first out
- check expiry dates before using
- check food cans for dents and discard if damaged
- store transparent bottles away from light
- clean up spills immediately
- properly cover storage bins after use
- store containers with labels at the front
- do not place items on the ground

Part (b) (ii) was fairly well done. In most cases, candidates emphasized the prevention of food-borne illnesses and the removal of harmful substances that can cause illnesses. Other correct responses are:

- cleaning removes chemical contaminants and prevents rusting, which can also cause food poisoning
- cleaning reduces spoilage and removes allergens from equipment.

In Part (c) (i), candidates correctly explained the changes that occurred during the cooking of eggs and cheese.

In Part (c) (ii), many candidates experienced difficulty in explaining how knowledge of the properties of eggs and cheese could be helpful in food preparation. Some candidates interpreted this to mean how the changes referred to in Part (c) (i) affected preparation. Expected responses included:

Eggs

- coagulation begins at around 60°C, this means that they can be successfully used to thicken custards and sauces
- the property of coagulation makes eggs effective in binding ingredients together in dishes such as meatballs and risoles
- they are an effective coating, thus preventing foods from breaking up during frying
- the presence of lecithin in egg yolk makes it an emulsifier and this property is used to make mayonnaise, which is used as a salad dressing

Cheese

- when cheese is used as a topping on soups, sauces and pies it provides flavour and color
- when heated, it melts, forming an attractive glaze
- when baked in pastries, it blends into the flour, improving the texture and making it flavourful
- when used as a topping for pizza and macaroni pie, it melts and gives an attractive brown color

Part (c) (iii) was well done with the majority of the candidates being able to state the precautions that a canteen operator could implement to prevent burns and electrocution.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of the risks and challenges faced by pregnant teenagers, and the nutritional requirements of pregnant teenagers. This question was attempted by 61 per cent of the candidates.

The overall performance on this question was good.

In Part (a), some candidates correctly outlined the physical risks of a pregnancy during the early teenage years. Responses given included issues related to body image, such as *loss of shape*, *loss of hair*, *breasts becoming large*, and *becoming malnourished*. Expected responses included:

- low birth weight babies
- premature babies
- stillborn babies
- having miscarriages
- developing anaemia, tooth loss and bone loss
- risk of dying during childbirth
- difficult delivery

In Part (b) (i), most candidates were able to identify important nutrients, for example, protein, iron, calcium and vitamin C, needed during pregnancy, but did not discuss the need for these nutrients.

An example of a fully discussed point is that *additional calories are needed to cater for the mother's continued growth as well as the baby's development.*

Part (b) (ii) was well done. Expected responses included:

- having to set new priorities or change plans
- concerns about body image
- being subjected to peer pressure which may make her not want to heed the advice of elders
- economic difficulties
- lack of social support
- inadequate health care, especially if she tries to hide the pregnancy in the early months

Question 3

This question tested candidates' understanding of the risk factors of hypertension, and the benefits of consuming a nutritionally balanced vegetarian diet for reducing the risk of hypertension. This question was attempted by 39 per cent of the candidates. Candidates' performance on this question was fairly good.

In Part (a), candidates focused on the impact of hypertension such as developing strokes or dying, instead of explaining risk factors for developing hypertension. Expected responses included:

- excess weight, especially in the upper body
- age
- heredity
- gender
- race
- high salt intake
- stress
- high alcohol intake
- smoking
- arteriosclerosis and diabetes

An example of a complete explanation is: *Age — as persons age, their arteries may become narrower, thus causing the blood pressure to rise.*

Part (b) was not well done. Only a few candidates were able to establish linkages between vegetarianism and reducing the risk of hypertension. Most candidates either did not have a full grasp of what a vegetarian diet entails or could not link vegetarianism to reducing the risk of developing hypertension. Expected responses were:

- adequate and balanced vegetarian diets are usually low in animal fats, which are saturated, so that there is less build up of plaque on the walls of the blood vessels
- retention of calcium is optimal, which helps to maintain normal blood pressure

- high fibre content, this helps with the regular elimination of waste thereby reducing a number of stresses on the body
- vegetarians may use less processed foods. Processed foods are usually high in sodium, a high level of sodium increases blood volume thereby increasing blood pressure
- vegetarians are usually meticulous in their diet and avoid alcohol, which is one of the risk factors for hypertension
- vegetarians also tend to use less caffeinated beverages such as malt drinks, carbonated beverages, tea and coffee. Caffeine raises blood pressure
- the diet tends to be lower in calories, because of the lack of meat products. This in turn reduces the risk of obesity, which is one of the risk factors for hypertension
- the diet is also low in cholesterol. Bad cholesterol can cause increased blood pressure
- certain plant foods such as watermelons, cucumbers, grapefruit and lemons are successful in lowering blood pressure. These foods are usually taken regularly as a part of the diet

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of planning meals for toddlers. It was attempted by 74 per cent of the candidates. The overall performance was very good.

Performance on Part (a) was satisfactory. Some candidates made general meal planning guidelines and did not link them to planning meals for toddlers, while others focused primarily on preparing attractive meals and using different shapes and colours. Expected responses included:

- eating meals together helps to develop good eating habits
- the stomach of a toddler is small, therefore frequent meals of small portion sizes should be given
- breast-feeding may continue early in the morning and late at nights, as this helps to secure the continued well-being of the child
- eating snacks in between meals and at bedtime will provide toddlers with adequate calories to cater for their high energy requirements
- crushed meals should be three mixes, in order to adequately cater to micronutrient needs
- snacks should include fruit juices or fruit together with iron-rich crackers or foods to promote proper absorption of iron

Part (b) was done very well as most candidates were able to plan a day's menu for the toddler. The menu should have included three main meals and two snacks. Providing two, three or four mixes would ensure that meals are nutritionally balanced, while a variety of

colours, textures and flavours would ensure that there is aesthetic appeal. The overall day's menu should provide adequate calcium and iron. Though this part was generally well done and the more alert candidates demonstrated an awareness of the fact that breast-feeding may still be taking place, there were some obvious deficiencies in the knowledge of some candidates. Quite a few of them listed only three meals — breakfast, lunch and dinner — and many of the meals were regular family meals with no indication that they should be crushed or specially prepared for the toddler.

Question 5

This question tested candidates' understanding of the nutritional value of coloured vegetables and fruits, and the principles underlying nutrient conservation in fruits and vegetables during storage, preparation and cooking. This question was attempted by 26 per cent of the candidates. The overall performance on this question was good.

Performance on Part (a) was satisfactory. Candidates were generally familiar with the nutritional value of fruits and vegetables. For the vegetables, some candidates listed appropriate nutrients and gave relevant examples, which earned them maximum marks. Very few candidates listed iron or calcium as nutrients prevalent in vegetables. For fruits, very few candidates were able to identify fructose, carotene or potassium as nutrients present in fruits.

In Part (b), the majority of candidates demonstrated that they were familiar with principles underlying nutrient conservation during storage, preparation and cooking.

Section IV – Optional Questions

Module 3

Question 6

This question tested candidates' understanding of work simplification as it related to organizing, preparing and holding food. It also tested their knowledge and understanding of the use and care of walk-in refrigerators and gas ranges. The question was attempted by 24 per cent of the candidates. Performance was satisfactory.

Performance on Part (a) was very good as evidenced by the ability of candidates to adequately discuss stages in the organizing and preparing of food, that is, mise-en place, preparation of the meal, holding of the prepared food and cleaning up.

In Part (b), most candidates were able to explain guidelines for the care and use of walk-in refrigerators and gas ranges.

Question 7

This question tested candidates' skill in adapting recipes for large groups and adapting recipes to reduce the cholesterol content of the meal. It also tested candidates' knowledge of preparation methods in cooking and their ability to make and select suitable garnishes. The question was attempted by 76 per cent of the candidates. Performance on this question was good.

Performance on Part (a) was very good as most candidates were able to adapt the meat loaf recipe which originally gave a yield for ten persons, to one with a yield for 70 persons.

Part (b) was done very well.

Part (c) was generally well done as most candidates selected beef burger patties, meat balls or meat patties. A few candidates gave unexpected responses such as meat loaf stuffed with breadcrumbs, or omelette. Candidates were generally able to describe the preparation of their dishes and appropriately suggested the method of cooking to be used.

Part (d) posed difficulty for some candidates as they could not describe the preparation of the garnishes; in some cases, sauces and salads were listed as garnishes.

UNIT 2

GENERAL COMMENTS

In Unit 2, overall performance was comparable with that of 2010 with 97 per cent of candidates earning Grades I-V. There was a decline in the candidates' performance on the school-based assessment. Candidates performed better on Module 1 (Caribbean Food Ways and Food Systems) and Module 3 (Food Preparation and Service: Large Quantity and Commercial) than on Module 2 (Food Science and Technology).

DETAILED COMMENTS

Paper 01 – Multiple Choice Questions

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was good.

Paper 02 – Structured Essay

Section 1 – Compulsory Question Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the dietary guidelines for maintaining optimum nutrition, their ability to assess nutritional facts concerning cultural beliefs and the benefits of fortification. It also tested candidates' ability to calculate the selling price of preserves and to plan a three-course lunch menu.

This compulsory question was attempted by all candidates. The overall performance on this question was good.

Part (a) (i) was well done. Candidates were required to provide dietary guidelines that could be followed by caregivers of Caribbean families. Dietary guidelines supplied by candidates

were in keeping with the expected responses, and were appropriately applied to the Caribbean context. A model answer for one guideline is *eat a variety of foods from the six food groups to ensure provision of a wide array of nutrients*.

In Part (a) (ii), candidates were required to give an assessment of three cultural beliefs related to food. Candidates were generally aware that these beliefs are all myths. For the belief regarding green paw paw/papaya softening the skin and giving a youthful appearance, many candidates stated that the enzyme, papain, is present in paw paws. They also contain vitamin C and E, folate acid, potassium and fibre. Under the popular belief that fish is a brain food, many candidates stated that no one food is useful for the development or functioning of the brain, thus making the statement misleading. Many candidates further stated that fish is a source of omega-3, fatty acids and protein which are very useful to the body.

For the belief that a pregnant woman should eat for two, many candidates assessed this correctly. They noted that a pregnant woman needs to nourish herself as well as provide for the growing foetus but this does not mean that she should double her food intake since doubling her intake could lead to obesity. Many candidates also noted that a well-balanced diet, rich in vitamins and minerals was necessary for a pregnant woman.

Part (b) (i) was generally not well done by candidates. They were required to explain ways in which fortification could assist in improving the nutritional status of the Caribbean population. Many candidates attempted to define fortification, but confused it with enrichment. Expected responses included:

- ensures that commonly used foods such as salt and flour are improved through the addition of micronutrients
- reduces nutrition deficiency diseases significantly
- improves children's physical and mental health
- provides an affordable source of essential nutrients

Most candidates were able to name at least two foods that are fortified. The most popular foods named were margarine, salt, flour, breakfast cereals and beverages.

Part (b) (ii), which required candidates to calculate the selling price of a preserve, was not attempted by many candidates. The candidates who responded correctly gave the name of a preserve, made a list of the ingredients, costed them, added a labour cost, then came up with a total cost. They decided on a percentage mark-up and added this to the cost price to attain the selling price.

In Part (c), many candidates were able to score maximum points for planning a three-course lunch, which included indigenous dishes of the Caribbean. In a few cases, appetizers were inappropriate or too heavy. In addition, some candidates did not observe using capital letters to start names of dishes.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of factors which influence food choices in the Caribbean and their ability to assess a menu and to modify a meal to make it suitable for an obese person.

This question was attempted by 55 per cent of the candidates. Overall, performance was very good.

Part (a) was fairly well done although there was a fair amount of overlap and repetition in the responses of candidates. Candidates were required to outline how the socioeconomic factors, income and education, influenced food choices in the Caribbean. Expected responses included:

Income

- income determines access to food as well as the quality and type of food and therefore food choices are wider when income is high
- persons in the lower income bracket may tend to choose familiar, low cost foods as well as convenience foods
- for those with lower incomes, nutrition may not be the key determinant in food choices but rather taste and energy density. On the other hand, persons with high income may tend to purchase lots of convenience foods and fast foods if they are very busy

Education

- access to information appears to be a key element to a better food pattern, also it allows persons to be more discerning of food fads and fallacies as well as marketing gimmicks
- allows persons to make better judgements and wiser food choices

In Part (b) (i), candidates were given a day's menu for a weight conscious individual and asked to identify one major food group that was missing from the menu. This did not pose any problems for candidates; however, they did not always correctly identify the major nutrients present in the selected group.

For Part (b) (ii), in response to the health implications of the chosen nutrients, most candidates identified the roles of these nutrients or the disease associated with deficiency of the nutrient.

In Part (b) (iii), most candidates were able to modify the meal served for breakfast using appropriate indigenous foods.

Question 3

This question tested candidates' understanding of food safety and personal hygiene standards and factors to be considered by disaster relief organizations to ensure adequate nutrition for

persons housed in shelters after a natural disaster. It also tested candidates' knowledge of vulnerable groups and the ways in which their needs could be addressed.

This question was attempted by 45 per cent of the candidates. The question was well done.

In Part (a), candidates performed well giving appropriate responses about food safety and hygiene, specific to the wearing of jewellery while preparing food; washing hands throughout food preparation and after using the bathroom and the control of holding time as well as temperature of foods. Candidates were able to gain maximum marks in many cases.

In response to the control of holding time as well as temperature of foods, candidates stated generally, that hot foods should be held hot and that cold foods should be held cold. Many candidates did not state that food should not be held for more than four hours. Some candidates made reference to the danger zone, but did not quote the correct temperatures of between 41°F and 135°F.

Part (b) (i) requested candidates to outline factors to be considered by disaster relief organizations to ensure adequate nutrition for persons in the shelter after a natural disaster. Performance on this question was very good.

Performance on Part (b) (ii) was satisfactory. Candidates were required to address the needs of vulnerable groups. Defining the term *vulnerable groups* posed some difficulty for some candidates. Responses included phrases such as 'at risk', 'susceptible', 'special needs' and 'cannot provide for themselves'. The expected response was *vulnerable groups refer to those members of the community who are at greater risk of malnutrition or whose physiological status makes them more open to the effects of malnutrition or those who have a chronic disease or HIV/AIDS*. Candidates gave excellent examples of *vulnerable groups* such as *pregnant women, the elderly, hypertensive persons and small children*.

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of genetically engineered foods and the processing of foods from field to consumers.

This question was attempted by 16 per cent of the candidates. Overall performance on this question was good.

Performance on Part (a) was very good. Candidates were quite familiar with the benefits of and potential problems with genetically modified foods. The majority of them obtained maximum marks.

In Part (b), some candidates had difficulty responding. They misinterpreted the stages of processing tomatoes from field to consumer, instead they focused on agricultural practices and the processing of by-products of tomatoes, for example, tomato puree or salsa. Those who approached it appropriately, clearly outlined the following stages: (i) *harvesting*, (ii) *selection*, (iii) *packing to prevent damage*, (iv) *storage*, (v) *transportation* and (vi)

distribution. They did not mention the ripening stage which involves storage in ripening rooms with forced air coolers.

Question 5

This question tested candidates' understanding of nutrition labelling and care instructions; criteria used to select packaging for homemade preserves; and advantages of using plastics for packaging preserves.

This question was attempted by 84 per cent of the candidates. Overall performance on this question was very good.

Part (a) (i) was generally well done although some candidates misinterpreted the instruction to mean general information on labels such as expiry date, name of manufacturer, name of product and list of ingredients. Expected responses included:

- number of servings
- serving size
- servings per container
- calories from fat
- total calories
- total fat
- total saturated fat
- total protein
- total sugars
- daily/reference values

Part (a) (ii) was well done by candidates as evidenced by the ability of candidates to correctly differentiate between use and care instructions found on food labels. An example of a use instruction is *directions for mixing*. This must be followed as it will yield the expected amount and quality of the product and prevent adverse reactions. An example of a care instruction is *refrigerate after opening*. This can prevent spoilage and food poisoning.

Performance on Part (b) was good. Candidates were able to explain the criteria for selecting packaging material for home-made sweet preserves. Responses given included:

- durable
- attractive
- minimum negative impact on the environment
- transparent
- easy to reseal
- prevent leakages
- prevent growth of bacteria

Expected answers included:

- does not spill easily
- airtight to prevent oxidation
- keeps cost reasonable

Part (c) was done well by most candidates who clearly outlined advantages of using plastics for packaging preserved foods and stated examples of suitable packaging material for sweet preserves, other than plastic. Correct responses included:

- cardboard boxes
- foil packages
- glass bottles
- polythene

Section IV – Optional Questions

Module 3

Question 6

This question tested candidates' knowledge of the responsibilities of employers and employees in ensuring a safe environment for staff and customers, and their understanding of HACCP principles.

This question was attempted by 63 per cent of the candidates. Overall performance on this question was satisfactory.

In Part (a), candidates were required to list responsibilities of employers and employees when ensuring a safe environment for customers and staff. Many candidates focused their attention on personal hygiene practices such as hand-washing and covering the mouth when coughing and also on kitchen hygiene practices, such as mopping floors and emptying garbage. Expected responses for employers included:

- ensure that workers have food handler's permits
- organize and assign tasks to workers
- provide adequate training
- post written safety policy
- maintain the premises and equipment in good working order

Expected responses for employees included:

- observe safety rules
- observe hygiene rules
- cooperate with supervisors and fellow employees
- refrain from tampering with safety devices on equipment
- report equipment that is malfunctioning
- call for help immediately if an accident occurs
- familiarize themselves with escape routes and fire exits.

In Part (b), candidates were required to explain the importance of critical control points used in the HACCP approach to ensure the safety of pork during the production process. The majority of candidates experienced difficulty in responding to this section of the question, both in terms of identification of critical control points as well as connecting HACCP with pork production.

Expected responses included:

- *Reception* (of live pigs): at this stage waste is still being eliminated and harmful bacteria can be transmitted to the premises and the workers

- *Slaughter*: as large amounts of warm blood are present that provide ideal conditions for the growth of bacteria
- *Hanging*: the area must be sanitized as blood is still present and cross contamination may occur
- *Cleaning*: removal of hair and cleaning the insides can give rise to contamination of the flesh
- *Portioning*: during the cutting and portioning utensils must be sanitized to prevent cross contamination
- *Packaging*: the machines must be sanitized to prevent the meat becoming contaminated
- *Storing*: meat must be stored at the correct temperature to prevent microbial growth
- *Transportation and distribution*: trucks must be fitted with cold temperatures. Cold temperatures must be maintained throughout the journey to prevent the pork from being in the danger zone at any time

Question 7

This question tested candidates' ability to calculate the real cost of meals and to explain the differences in the cost of à la carte and table d'hôte menus. It also tested their ability to discuss guidelines for organizing the food preparation and service of a banquet for 200 persons.

This question was attempted by 37 per cent of the candidates. Overall performance on this question was fairly good.

In Part (a) (i), candidates were unable to fully explain the factors which should be considered when calculating the real costs of meals served in a restaurant. The popular responses were:

- wages
- utilities
- equipment
- ingredients
- transportation
- advertising

Expected responses included:

- rent
- mortgages
- staff uniforms
- advertising

Performance on Part (a) (ii) was fairly good as the majority of candidates were able to differentiate between à la carte and table d'hôte menus. Some of them confused the two terms or they did not specify which was for à la carte and which was for table d'hôte. Important points to note are that table d'hôte menus are fixed and are usually cheaper and à la carte menus are usually offered for fine dining and carry high overhead costs.

Part (b) which required candidates to give guidelines for organizing the food preparation and service for a banquet was well done by a few candidates, but was misinterpreted by many. A few candidates focused on factors to be considered when planning a menu such as age,

special foods, skills of the workers, time needed for preparation of the dishes and following a time plan. Expected responses included:

- establish the menu to be used
- divide up the work
- organize equipment and ingredients
- collect table linen
- make appointments according to type of service and number of meals
- organize service area for children, the elderly and other persons with special needs

Paper 03 – School-Based Assessment

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all modules. Students, in consultation with their teachers and the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of students has shown great improvement.

The majority of portfolios were very well presented. Most of the illustrations were clear and creative. In some cases, the quality of the assignments was appropriate for the advanced proficiency level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

This year there was an increase in the number of exemplary portfolios students submitted. This indicated that more teachers are following the recommendations outlined in the feedback reports. Conversely, it is evident that schools which are offering the subject for the first time need some guidance. The work of the students with exemplary portfolios was scientifically based and rigorous. These students are to be highly commended for their effort. In some instances, the students used a thematic approach where the research assignment was linked to the product development.

One major area of concern continues to be the communication of information. While some students were able to communicate information in a logical manner with few grammatical errors, several students continue to present information with numerous grammatical errors which reduced the overall quality of the portfolios.

Module 1 – Research

Most students selected appropriate topics and demonstrated knowledge of relevant facts. In some cases, literature reviews were not comprehensive, some students often did not utilize appropriate formats for citations and, in some cases, the sources used were not always cited.

Data were well presented, but very little reference was made to the data. The discussion of findings lacked depth of interpretation. In some cases, findings were not based on the research conducted. Instead, generalizations from the literature or guidelines were made regarding the topics.

In several cases, inferences, predictions or conclusions were not attempted by students. Sometimes the conclusions and recommendations were not accurately or scientifically based and did not support the analysis of data.

Although communication of information was satisfactory in some cases, the standard of communication for this level is extremely poor. Spelling and grammatical errors that can be easily corrected using the spell check on a computer were often overlooked.

Module 2 – Experimental and Recipe Modification

Many creative products and modifications were attempted and most students utilized sensory evaluation to determine the quality of the product. Students selected appropriate experiments and demonstrated knowledge of relevant facts.

Many reports were not well written and presented. Most students formulated hypotheses but they were not always realistic. The procedures for experiments were in most cases not clearly documented. Students who modified products more than three times must be commended. Some students did not modify the product until a good quality was maintained or the requirements of the hypothesis were met. A large majority of the students showed very little evidence to prove that they modified the product after critical or unexpected outcomes.

Recommendations to Teachers

Papers 01 and 02

Overall, performance on the examinations was satisfactory. However, performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of students. Although students appeared to understand the concepts, they did not elaborate and fully develop answers as was expected at this level. Some students were not fully prepared for this level of examination.

It was also clear that students were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Students should therefore cover the entire syllabus so that they can satisfy the requirements of the examination. There was great improvement in Modules 3 in both units. Since it might not be possible for teachers to cover every topic in class, it is suggested that students be given research on these topics and be allowed to present their work in class. Greater emphasis must be placed on nutritional information related to control and prevention of chronic diseases. In addition, it is important that students revisit concepts in the CAPE syllabus which were studied at the CSEC level and that these topics are discussed in greater detail and additional information presented to the students. Teachers must be cognizant that it is possible to study nutrients at several levels: primary, secondary, tertiary and postgraduate. At each level, the information regarding the concept of nutrients widens.

Students should be encouraged to

- read questions carefully, paying attention to key words
- place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote

- develop responses fully, paying attention to the marks allocated for each part of the question
- answer questions with a variety of key words, namely: *discuss*, *explain*, *list*, *describe* and *define*. Ignoring these command words and simply listing responses when required to explain, for example, resulted in students' inability to gain as many marks as possible
- participate in mock examinations using past examination papers administered under examination conditions in order to develop good examination techniques
- utilize different media to become familiar with current nutrition issues
- place emphasis on research techniques, case studies and problem solving
- engage in field trips and work attachments to help them to understand fully many nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breast-feeding; nutrition-related disorders; and practices and procedures for ensuring safety of food
- develop ideas, and demonstrate clarity of expression. In many cases, students showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the advanced proficiency level.

School-Based Assessment

Students should be encouraged to

- seek guidance in choosing topics for projects as well as throughout the entire exercise
- select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- note that literature reviews for each assignment do not have to be extensive, but should be thorough enough to outline the problem and research relevant to the same. This *cannot* be adequately done in two to three pages, therefore literature reviews must be no less than 2,000 words. Students must utilize a variety of sources. There was a heavy reliance on the internet and, in many cases, this was the only source cited. At this level of examination it is critical that students be exposed to the correct method of citing references. It is suggested that students be taught the APA referencing style for citing sources and developing a reference list

- develop rationales and explain the significance of the topic
- present and discuss the data for the research project. They are not expected to present data on all of the questions, but should discuss all of the questions asked on the questionnaire or interview. Field observations must be adequately highlighted and discussed
- provide a summary or conclusion at the end of the project
- write a detailed report which accurately records and reports all observations for the Experimental and Recipe Modification
- repeat and modify experimental methods after critical or unexpected outcomes
- explain each modification in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, when making a jam, the product did not set; therefore more lime juice was added to the next modification. Examiners are not expected to compare the recipes to verify the changes that were made to the recipes
- give the original recipe and then conduct at least two modifications
- use food composition tables to determine energy values for the original and new product
- formulate valid hypotheses
- record and report methods, observations and results accurately, using tables or graphs
- include the results from the sensory evaluation in their discussion
- develop a conclusion to summarize their findings

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

MAY/JUNE 2012

FOOD AND NUTRITION

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GENERAL COMMENTS

In Unit 1, overall performance was comparable with that of 2011, with 99 per cent of candidates achieving Grades I–V. Candidates’ performance on the School-Based Assessment improved. Candidates performed better on Module 1 (Principles of Nutrition and Health) and Module 2 (Food Selection and Meat Planning) than on Module 3 (Food Preparation and Service: Principles and Methods).

In Unit 2, overall performance was comparable with that of 2011, with 98 per cent of candidates achieving Grades I–V. Candidates’ performance on the School-Based Assessment also improved. Candidates’ performance on all three modules — Module 1 (Caribbean Food Ways and Food Systems), Module 2 (Food Science and Technology) and Module 3 (Food Preparation and Service: Large Quantity and Commercial) — was similar.

DETAILED COMMENTS

UNIT 1

Paper 01 – Multiple Choice Questions

Paper 01 in both units consisted of 45 multiple-choice items drawn from all three modules. Candidates’ performance on this paper was good for both units.

Paper 02 – Structured Essay

Section I – Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates’ understanding of nutrition during early childhood; growth charts; complimentary feeding; harmful effect of excessive consumption of fat; meal planning; kitchen design and labour-saving devices. It was attempted by all candidates. Overall performance on this question was good.

In Part (a) (i), the majority of candidates were able to provide nutrition guidelines for early childhood. Some candidates focused on specific nutrients needed during early childhood, while others focused on public health initiatives for improving nutrition in general rather than on guidelines for early childhood nutrition. Expected responses included:

- Avoid spicy and hot foods
- Introduce solid foods at six months of age
- Exclusive breastfeeding is recommended because it gives children the best start in life
- Continue complementary feeding until the child is two years old
- Use moderate amounts of salt in preparing foods
- Introduce one new food at a time.

In Part (a) (ii), candidates were required to interpret the line on a growth chart. About ten per cent of the candidates did not attempt this part of the question. Those who attempted it responded well, indicating that the child whose growth pattern was presented in the chart was malnourished for most of the time. Candidates were expected to clearly track the growth pattern and provide the following explanation:

A descending line is a very dangerous sign for the child; it usually means that the child has experienced some serious illness and the body weight has declined. A horizontal line means that the child is not gaining weight and this is also dangerous; an ascending line means that the child is gaining weight and this is good.

In Part (a) (iii), candidates were able to state ways in which a mother could increase the energy intake of her children apart from breastfeeding. Many candidates stated that complementary foods should be used or that the multi-mix principle should be used while some gave responses such as balanced diet or complementary feeding. Expected responses included:

- Add powdered milk to buns, cakes or pastries
- Increase snacks given between meals
- Add some fried snacks to daily menus
- Increase meat portions

In Part (b) (i), candidates were provided with the stimulus that due to a drought, members of a fishing community had begun to rely on nuts from palms as their staple. Candidates correctly stated that the nuts were rich in fats. Stronger candidates observed that the fats from the nuts would be saturated. They were able to state that the long term over-consumption of fats would have a negative effect. These effects included obesity, hypertension, heart disease and atherosclerosis. A few candidates listed high blood cholesterol, which is likely to result due to the high levels of saturated fats in the nuts. Some candidates correctly posited that the community will be negatively impacted over time, by having many obese persons.

In Part (b) (ii), candidates were provided with a list of items and were asked to use them to formulate a day's menu. They were expected to list at least three meals and use all the items in the menu. Candidates were awarded marks for nutrition balance, aesthetic appeal and for employing a variety of cooking methods and dishes. About ten per cent of the candidates lost marks by only presenting one meal of the day. A model answer was:

Breakfast

Oats porridge with milk

Bakes

Lunch

Stewed Chicken

Cornmeal dumplings

Snack

Saltfish fritters

Orange juice

Dinner

Creole Saltfish

Steamed rice with red beans

Mixed Vegetable salad

In Part (c) (i), candidates were required to demonstrate their knowledge of kitchen layout and design by giving factors to be considered when designing a soup kitchen for the nursery school in the given community. Candidates focused on ergonomic features of the kitchen, such as space and height requirements, and on hygiene matters such as proper garbage disposal. Some of the candidates indicated that the kitchen should have bright colours or wall posters or that it should be safe for children. Though the question was generally well done, most candidates omitted factors such as adequate ventilation, lighting, two-compartment sinks and work flow.

In Part (c) (ii), candidates were required to suggest labour-saving devices that could be used for food preparation in the soup kitchen. They were also required to outline the use and to describe the care of the stated device. Candidates listed items such as blender, microwave cooker, food processor and pressure cooker. They were familiar with the uses of each as well as the general care.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of calculating energy requirements; identifying categories of foods and nutritional strategies for the prevention of chronic diseases.

The overall performance on this question was good. Forty-two percent of the candidates responded to this question.

In Part (a), some candidates adequately completed the list of different categories of food. Many candidates equated energy foods with those high in fats and carbohydrates. They included foods such as potatoes, rice, pasta products and oils for energy foods. For protective foods, candidates suggested a range of fruits and vegetables, grains and organ meats. For the body building foods, candidates listed meats, fish, eggs and milk. A few candidates incorrectly listed green vegetables or starch-based foods under the category of body building.

In Part (b) (i), candidates were given the number of calories needed by a male, as well as the grams each of protein, carbohydrate and fat consumed at breakfast; most candidates correctly

calculated the remaining number of calories needed to make up the 2400 calorie daily energy requirement.

In Part (b) (ii), candidates experienced difficulty stating the recommended percentage of energy in the diet that should come from fat. The majority of candidates were unfamiliar with the percentage of fat recommended and percentages given ranged from 20 per cent to 50 per cent. Some candidates did not respond to this section of the question. Although candidates were penalized for not stating the correct percentages, they were awarded points for demonstrating their understanding of the process of calculating the number of grams of fat.

The correct calculation is given below:

30% energy from fat is recommended
30% of 2400 = 720 kcal
720 kcal / 9 = 80 g

Part (c) which required candidates to outline nutritional strategies for the prevention of chronic diseases was done well.

Question 3

This question tested candidates' understanding of the terms *satiety*, *hunger* and *appetite*, their knowledge of eating behaviours and instruments used to take anthropometric measurements. This question was attempted by 58 per cent of the candidates. Performance on this question was fairly good.

In Part (a), candidates were presented with a scenario in which Joan and her friend experienced hunger, satiety and appetite. They were required to use the scenario to explain the terms. Most candidates were able to define the given terms, however not many of them actually related the scenario to the terms. They were expected to state that

the sights and smells emanating from the ice-cream parlour prompted the girls' appetite. The girls became hungry after using up calories in the gym and this prompted food-seeking behaviour. Having eaten the food and ice cream, the girls were full to satisfaction and could not eat their home-cooked dinner (satiety).

Part (b) posed a challenge for many candidates. They were required to list ways in which the eating habits of a Caribbean family who had moved to Europe may change. This tested their knowledge of factors that affect eating behaviour and food choices. Some candidates gave vague responses such as availability, cost likes and dislikes. Expected responses included:

- Use of more convenience foods because of greater availability
- Expected use of more potato products as a staple
- Adjustment of the meal pattern to suit activities
- Greater variety of food choices, which would include Mediterranean , Asian and African

In Part (c) (i), candidates were required to describe three methods that medical staff could use to determine the ideal weight of adults. Candidates were familiar with BMI and weight for height. However, the responses on anthropometrics were often vague. A few candidates gave methods suitable for children such as weight for age and head circumference. For anthropometrics, candidates were expected to mention skin fold thickness and waist circumference.

Part (c) (ii) required candidates to list two instruments used to take anthropometric measurements. Many candidates listed the scale and tape measure. Only a few candidates listed instruments such as stadiometers, skin fold calipers or length boards.

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of eating patterns in the Caribbean, their ability to plan meals with food appeal and palatability and their knowledge of food storage.

This question was attempted by 60 per cent of the candidates. The overall performance was very good.

Performance on Part (a) was good. Candidates were required to describe the main meals of the day and to include a menu for one. Candidates were very familiar with the meal patterns. The candidates who did not gain a high score simply did not respond to a section of the question or did not give a balanced menu. This emphasizes the importance of careful reading and interpretation of the question.

Part (b) was fairly well done as most candidates were able to highlight the importance of planning meals with food appeal and palatability for the elderly. Though most candidates were familiar with the concept, they did not always relate this to the elderly. Salient points expected were:

- The elderly may lack appetite due to decreased function of their senses;
- They may not get the full taste of foods given;
- Their social activities may be decreased so meal times need to be interesting;
- Foods need to be visually attractive for those who have lost their sense of smell, and very aromatic for those who may be visually impaired.

Part (c) required candidates to outline rules for storage in a nursing home. Most of the candidates performed well on this section.

Question 5

This question tested candidates' understanding of the multi-mix principle of meal planning, their knowledge of nutritive value of canned and frozen vegetables and nutritional information on labels.

This question was attempted by 40 per cent of the candidates. Overall performance on this question was good.

Performance on Part (a) was good. Candidates were asked to state the four major food groups used in multi-mix meal planning and identify the chief nutrient in each of the stated groups. Most candidates scored full marks.

In Part (b), the majority of candidates were unable to explain the difference between the nutritive value of canned mixed vegetables and frozen mixed vegetables. Expected responses included:

- The comparatively short heat treatment for frozen vegetables in order to de-activate the enzymes allows for a longer retention time of the nutrients
- Leaching of nutrients from the vegetables in the can is greater because the vegetables are soaking in liquid
- Freezing de-activates the enzymes which may cause the breakdown of some nutrients

Part (c) was very well done as evidenced by the candidates' ability to discuss the importance of the reading of labels for persons suffering with chronic diseases. Candidates went beyond just listing the points to giving detailed explanations. For example, *a diabetic person would need to know the total calories as well as the amount of sugars present in order to control his/her calorie intake*. A few candidates observed that labels allow persons to compare food products and make better choices.

Section IV – Optional Questions

Module 3

Question 6

This question tested candidates' understanding of adapting recipes for large groups; modification of recipes, sensory evaluation and the use of food garnishes. Performance on this question was fair. The question was attempted by 70 per cent of the candidates.

Performance on Part (a) was not good. Several candidates did not attempt this part of the question. It is assumed that those candidates were unfamiliar with the steps required to carry out the calculations needed to adapt the recipe. This process must therefore be taught and students

must be given practice in adapting recipes both in terms of increasing quantities and decreasing quantities. The steps required for the calculations are listed below:

- Step 1 involves finding the conversion factor.
The given recipe caters for five persons. The recipe is to be adapted for 25 persons. To find the conversion factor, divide the required amount, 25, by the original amount, 5
 $25/5 = 5$
- Step 2 — multiply each quantity in the recipe by the conversion factor and round off each quantity, if necessary, to the nearest measure available.

In Part (b) (i), most candidates were able to modify the recipe to make it into a tasty one-pot meal. Expected responses included:

- Add some starch, such as potatoes, green bananas, breadfruit and cassava
- Add coloured vegetables such as pumpkin, carrots and green beans
- Add to its tastiness by putting in some herbs or spices
- Incorporate these new ingredients, for example, boil yams and puree in blender, before adding to soup or add diced carrots and chopped spinach and simmer for a further ten minutes
- Use a good proportion of ingredients

In Part (b) (ii), some candidates misinterpreted the question and simply listed sensory characteristics, rather than stating how the principles of sensory evaluation could be used to develop the modified recipe. Expected responses included:

- Select a panel to evaluate the soup. In the case of the soup, it is pertinent to have a group of persons on the panel who have an interest in drinking soup.
- Choose the right time, such as mid-morning, when persons are neither hungry nor satiated.
- The soup samples should be at the correct temperature (hot), so as to correctly evaluate taste.
- The portion should be small but adequate enough for persons to evaluate each sensory characteristic.
- An instrument for recording responses should be provided, such as a form, questionnaire or evaluation sheet.
- The results of the panel's evaluation should be assessed.
- Adjustments should be made to the recipe, not based on the researcher's preferences, but based on the findings of the panel.

Part (b) (iii) was generally well done as evidenced by the ability of candidates to give suitable garnishes for one pot soups.

Question 7

This question tested candidates' understanding of the changes which occur when meat is cooked; suitable starch dishes to accompany grilled steak; and knife cuts.

Performance on this question was good. The question was attempted by 30 per cent of the candidates.

Performance on Part (a) was only fair. Candidates did not describe the changes which occur in a cut of steak while it is being grilled but gave one-word responses such as *shrink*, *coagulate*, *flavor* or *colour changes*. Expected responses included:

- Muscle protein is coagulated
- Gelatinization of collagen occurs, converting the protein to a more soluble form
- Maillard compounds are formed from the reaction of carbohydrates with amino acids.
- Muscle juices /drippings are lost in the dripping pan or fire, resulting in shrinkage of the meat.
- When the fat dripping from the meat comes into contact with the fire, it breaks down forming some carcinogenic compounds.
- The colour changes from red to brown due to the formation of met-haemoglobin from haemoglobin.

Part (b) was well done as evidenced by the ability of candidates to list suitable starch dishes to be served with the grilled steak. Some candidates were able to fully describe the preparation of this dish. In order to gain maximum points, candidates needed to name the dish, describe its preparation, such as *washing*, *peeling* and *dicing*, describe the method of cooking such as *boiling*, *sautéing*, describe the incorporation of other ingredients such as *herbs*, *milk*, *coconut milk* and also to describe its method of service, for example, *pipe into rosettes on prepared plates*, *scoop unto prepared tray* or *arrange in scallops on platter and garnish with a sprig of parsley*.

Part (c) required candidates to illustrate suitable cuts for stir-fried carrots. Popular responses included *julienne* or *strips*, *dice*, *rondelles* or *rounds*, and *semi-circles*. Candidates were generally unfamiliar with diagonal cuts, curls or brunoise/fine dice. Several candidates did not focus on the word *illustrate* and hence lost marks for not illustrating the cuts.

UNIT 2

Paper 02 – Structured Essay

Section I – Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of assessing nutritional facts concerning cultural beliefs; the effects of excessive consumption of margarine on health; production of local fruit preserves; food labelling and developing recipes.

Overall performance on this question was good.

Part (a) (i) was not well done. Candidates were required to show their knowledge of the nutritional facts of green bananas. Responses to this part of the question were quite surprising. At this level, it was not expected that over half of the candidates would incorrectly state that green bananas are a good source of iron. The remainder correctly noted that they were rich in starch, fibre and potassium.

In Part (a) (ii), candidates were required to use the nutritional facts stated in Part (a) (i) to evaluate the cultural belief that homemade tonics from immature green bananas or plantains, roots and stems of the plant are good suppliers of vigour and strength, and cure bad blood (anaemia). Many candidates confirmed that the popular belief that green bananas are a good cure for bad blood (anaemia) is still very prevalent. Teachers therefore need to revisit their lessons on popular fads and fallacies and reinforce the need for scientific evidence to support popular beliefs.

Candidates were expected to list *carbohydrates, fibre and potassium* as nutrients present in green bananas and note that

it is a fact that because green bananas are rich in starch and therefore a good source of energy, the tonic can be said to supply vigour and energy. The potassium present can help to maintain fluid balance, however the tonic will not cure bad blood — the common name for anaemia — since green bananas are not a source of iron.

In Part (a) (iii), candidates in response to the impact of excessive margarine on health, correctly stated *that the excessive consumption of margarine will result in too much fat in the diet, which could lead to obesity*. Some candidates stated that the *high levels of saturated fat could lead to*

high cholesterol which could lead to a build up of plaque and therefore lead to atherosclerosis. Other responses given included:

- The high levels of fat could also lead to cardiovascular disease and poor circulation
- Build up of fat around the internal organs could cause damage to these organs
- When persons become obese, they may have difficulty breathing.

Performance on Part (b) (i) was generally good. In response to the stages in the production of a local preserve, most candidates gave good responses and provided enough detail in order to gain maximum marks. Several candidates tried to generalize the stages of production and did not focus on a particular fruit. This was to their disadvantage since the choosing of a local fruit preserve helped to provide focus. For example, if a candidate named orange marmalade, this provided an example and a point of reference that would guide them through their response. They were then able to list the stages as follows:

Selection:	<i>Choose firm, mature oranges (but not overripe) as these have more pectin and will provide the best flavour.</i>
Cleaning:	<i>Wash fruit to remove dirt or dust and make it fit for consumption</i>
Processing:	<i>Peel and shred rind, separate pulp for boiling, remove seeds</i>
Addition of Sugar:	<i>Measure pulp and peel, measure sugar and add to pulp</i>
Heating:	<i>Bring pulp mixture to the boil, and add additional pectin. Add measured peel. Test for doneness, when mixture drops off a wooden spoon in flakes, remove from heat.</i>
Packaging:	<i>Sterilize jars and pour mixture into prepared jars</i>
Labelling:	<i>Label to provide ingredients list, date of production , expiry and other required specifications.</i>

Part (b) (ii) which required candidates to list the information that must be included on food labels to ensure that the product meets international standards was very well done. However, not many candidates stated that ingredients should be listed in descending order, or that net contents could be in terms of count or other measures, in addition to net weight.

In Part (c), many candidates were able to score maximum points for creating a recipe for a product which uses barley or cassava flour rather than wheat flour, in order to appeal to persons with an allergy to wheat flour. Some interesting dishes were developed, such as patties, lasagna, pizza, cupcakes and muffins. Some candidates used cassava in their recipes, rather than cassava or barley flour as required and others described the method without naming the dish. Some candidates did not mention temperature management which included oven temperatures, description of stove top temperature such as low, medium or high heat, and cooking time.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of functions of food-regulating agencies after a natural disaster; food safety measures that should be practised by consumers after a hurricane; and maintaining adequate nutrition after a hurricane.

Overall performance on this question was very good. The question was attempted by 39 per cent of the candidates.

Part (a) was fairly well done although there was a fair amount of overlap and repetition in the responses to the functions of food regulatory agencies in relation to dealing with natural disasters. Expected responses included:

- Inspection of food establishments
- Examination of selected samples of food
- Checking of food storage bonds
- Overseeing the removal of unsafe products
- Discarding of food and food-packaging material that were submerged in flood waters
- Overseeing of decontamination exercises at food establishments
- Notification to the public of hazards and public education.

For Part (b), most candidates included measures such as *discarding any food items that would have come into contact with flood waters; sanitizing all equipment and food surfaces; discarding items from the refrigerator if there was a power outage lasting for more than four hours; discarding any perishable items that would have undergone spoilage; and boiling water and disinfecting water with chlorine bleach*. Very few candidates stated that wooden spoons, boards and other wooden utensils should be discarded as they would be difficult to sanitize or that baby feeding utensils should also be discarded.

Part (c) was not done well. In response to suggesting guidelines that should be followed by caregivers to ensure adequate nutrition and health of the family after a hurricane, vague responses were given. An example of a very popular response was 'providing a balanced diet or ensure that everyone gets equal portions'. Expected responses included:

- Taking care of vulnerable groups such as the elderly, diabetics and children
- Ensuring that there is a variety of foods from the various food groups
- Providing foods high in energy and protein

- Providing an adequate supply of clean water
- providing supplements where necessary to assure nutritional balance

Question 3

This question tested candidates' understanding of the terms *food security*, *food availability*, *food accessibility*, *food utilization*; their knowledge of measures that governments can take to improve household food security and their ability to develop original recipes.

This question was attempted by 61 per cent of the candidates. The question was well done.

In Part (a) (i), candidates performed well giving appropriate definitions for the term *food security*. It is important that teachers reinforce that food security is defined as *when **all people** or the **whole population at all times** have both physical and economic **access to sufficient, safe and nutritious food** to meet their dietary needs, in order to lead a healthy and productive life.*

Part (a) (ii) required candidates to define the terms *food availability*, *food accessibility*, and *food utilization*. Performance on this part of the question was not good. Unfortunately, most candidates chose to repeat the terms given such as access, available and utilize when writing the definition. This was a clear indication that candidates did not have an understanding of these concepts. Candidates were expected to explain *food availability* by the use of phrases such as *sufficient quantities of food, domestic production, food in close proximity, foods in season, enough distribution outlets, adequate transportation for farmers.*

Food accessibility could have been explained through phrases such as *adequate income; resources to purchase or barter; able to buy food; able to obtain right levels of nutritious food; able to afford transportation to food outlets; can afford to buy.*

In terms of *food utilization*, the use of any of the following phrases would have demonstrated candidates' understanding: *food properly used; wastage of food avoided; proper food processing or storage practices; application of knowledge of nutrition to food preparation practices; proper nutrition and childcare practices.*

Part (b) was well done. Candidates ably demonstrated their knowledge of measures that governments could take to increase household food security.

Part (c) was well done by most candidates who developed original recipes for children in the Caribbean that included ingredients such as flour, cornmeal, nuts, eggs and dried fruit. Recipes included buns, muffins, biscuits, cookies and cakes. It was expected that some originality would be displayed and that ingredients would be in proportion and include a raising agent, where necessary. An example of a model answer is as follows:

Corn cake surprise

Ingredients

<i>2 cups flour</i>	<i>3 eggs</i>
<i>1 cup fine corn meal</i>	<i>1 tsp cinnamon</i>
<i>1 tbsp baking powder</i>	<i>1 tsp lemon zest</i>
<i>2 tsps almond essence</i>	<i>1 cup caster sugar</i>
<i>¼ cup almond nuts, crushed</i>	<i>¼ cup warm water</i>
<i>1 cup ground mixed fruit</i>	<i>½ lb butter</i>

Method

- 1. Grease swiss roll pan and line with waxed or grease proof paper.*
- 2. Combine butter and sugar in a deep stainless steel mixing bowl and cream together until smooth.*
- 3. Beat eggs until foamy in a separate mixing bowl. Add beaten eggs to creamed mixture a little at a time.*
- 4. Cream until all the sugar is melted, then add cinnamon, essence and lemon zest.*
- 5. Sift together flour, corn meal and baking powder, and then fold in to creamed mixture. Fold in crushed almonds and water. Preheat oven to 350°F. Allow to rest for fifteen minutes.*
- 6. Pour half of the mixture into the swiss roll pan. Spread over ground fruits and then spread the other half of the corn meal mixture.*
- 7. Place in pre-heated oven and bake for twenty minutes or until golden brown.*
- 8. Cut in one inch squares and serve plain or with a custard sauce.*

Assessing the recipe above, the item chosen is original in that it has the ground fruit in the centre of the cake; for flavour, essence, lemon zest and cinnamon were used and this will appeal to Caribbean consumers; it included all the ingredients in good proportions to obtain a cake-like and slightly heavy texture and the method was fully explained.

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of packaging material, consumer rights which are related to food safety; and differences between fats and oils. It was attempted by 57 per cent of the candidates. Overall, performance of this question was fairly good.

Performance on Part (a) was only fair. Candidates were provided with a framework to compare aluminium packaging with glass as a packaging material. The responses indicated that candidates

were not very familiar with the concepts, advantages and disadvantages of packaging material. Expected responses are shown below:

Material	Product Characteristics/food compatibility		Consumer/marketing issues		Environmental Issues		Cost
	Advantages	Dis-advantages	Advantages	Dis-advantages	Advantages	Dis-advantages	
Glass	<ul style="list-style-type: none"> • Impermeable to moisture and gases • Nonreactive (inert) • Withstands heat processing 	<ul style="list-style-type: none"> • Brittle and breakable • Needs a separate closure 	<ul style="list-style-type: none"> • Transparent: allows consumer to see product • Can be coloured for light-sensitive products 	<ul style="list-style-type: none"> • Poor portability: heavy and breakable • Relatively difficult to decorate 	<ul style="list-style-type: none"> • Reusable • Recyclable • Often contains recycled content 	<ul style="list-style-type: none"> • Heavy and bulky to transport • Relatively difficult to decorate 	<ul style="list-style-type: none"> • Low cost material, but somewhat costly to transport
Aluminum	<ul style="list-style-type: none"> • Impermeable to moisture and gases • Resistant to corrosion • Withstands heat processing 	<ul style="list-style-type: none"> • Cannot be welded • Limited structural strength 	<ul style="list-style-type: none"> • Easy to decorate • Lightweight • Good portability • Not breakable 	<ul style="list-style-type: none"> • Limited shapes 	<ul style="list-style-type: none"> • Recyclable • Lightweight • Economic incentive to recycle 	<ul style="list-style-type: none"> • No disadvantages in rigid form • Separation difficulties in laminated form 	<ul style="list-style-type: none"> • Relatively expensive, but value encourages recycling

In Part (b) (i), candidates' knowledge of the rights of consumers as they relate to food safety was tested. Candidates generally responded well, even though they did not always use the correct terminology. Responses provided included the *Right to Safety*, *Right to Choose*, *Right to Information* and the *Right to Redress*.

Part (b) (ii) required candidates to list the chemical elements in fats and oils. Many candidates did not attempt this part of the question, while others were able to list the elements hydrogen, carbon and oxygen.

In Part (b) (iii), most candidates correctly outlined two differences between fats and oils.

Question 5

This question tested candidates' understanding of the process of harvesting bananas; their ability to calculate the selling price of homemade preserves; and their knowledge of nutritional supplements.

This question was attempted by 43 per cent of the candidates. Overall performance on this question was very good.

Part (a) was done well by most candidates who clearly outlined the process of harvesting bananas.

Performance on Part (b) was only fair. Candidates were required to calculate the selling price of a batch of home-made banana chips. Several candidates were able to calculate a reasonable selling price using most of the steps outlined below, whereas the remaining candidates either did not attempt this part of the question, or simply added up the cost of ingredients. Marks were awarded for the following:

- Listing ingredients with quantities
- Stating the price per quantity
- Stating the cost of production, noting fuel as well as labour costs
- Calculating the total cost per dish
- Calculating the cost per portion, which would have been obtained by dividing the total cost of the dish by the number of portions
- Calculating the percentage mark up, which provides the profit margin
- Calculating the selling price, obtained by calculating the profit and adding it on to the cost price.

Each step in the process is important and it is recommended that teachers give their students practice in calculating real selling prices.

In Part (c), candidates were required to define the term, *dietary supplement* and suggest a nutrient supplement for three different groups, namely vegans, athletes and pregnant women.

The majority of candidates were able to define *dietary supplement*; however, some of them who attempted this question did not respond to this section. Most of those who responded stated that it was a food or nutrient that was *lacking* in the diet.

In providing a dietary supplement suitable for a vegan, a popular response was protein, while a few candidates listed Vitamin B12. Many candidates gave vague responses such as ‘vitamins’. In relation to dietary supplements suitable for an athlete, many candidates suggested *glucose* or *iron*; *energy drinks* and *protein bars* were also accepted as correct responses; for the pregnant woman, *calcium* and *multi-vitamins* were the popular responses. Other expected responses were *iron* or *folacin*.

Section IV – Optional Questions

Module 2

Question 6

This question tested candidates' ability to use the multi-mix principle to plan menus and their understanding of principles that should be considered when planning menus.

This question was attempted by 54 per cent of the candidates. Overall performance on this question was satisfactory.

In Part (a), candidates were required to utilize the multi-mix principle to plan a day's menu. Generally, candidates scored highly on this section. The difficulty presented was that some candidates planned the lunch menu only. In addition, some candidates were not aware that legumes was one of the major groups in the mixes.

A model menu for adolescent teenagers attending a seminar is shown below:

Breakfast

Orange juice
Instant cereal/milk
French toast
(Two mix)

Snack

Ham sandwiches and tea
(Two mix)

Lunch

Oven Fried Chicken/Orange sauce
Jerked Lamb kebabs
Rice and Red beans
Tossed Salad
Fruit Punch
Pineapple slices
(Four mix)

Dinner

Fish Pie
Corn on the Cob
Vegetable Platter
Chocolate Brownies
(Three mix)

In the above day's menu, the multi-mix principle is utilized in that each meal is either a two, three or four mix. There is variety in colours, texture, flavours, cooking methods and foods chosen at each meal. It is also appealing enough for teenagers at it includes some foods popular among them such as instant cereal, French toast, juice or punch, chicken, kebabs, pie, corn on the cob and brownies. Even though popular foods are included, nutritional balance is maintained in each meal.

Part (b) was more challenging for candidates than Part (a), as candidates were required to outline menu planning principles. Some candidates misinterpreted the question and wrote about

designing a menu card. In cases where candidates interpreted the question correctly, some of the responses were repetitious.

Question 7

This question tested candidates' understanding of Caribbean dishes, portion sizes and quality assurance measures for preparing and serving meals. It was attempted by 46 per cent of the candidates. Overall, performance on this question was fairly good.

Performance on Part (a) was very good as the majority of candidates were able to suggest Caribbean dishes including entrees, carbohydrate dishes and desserts.

Part (b) which required candidates to outline strategies for portion control and give a reason for each strategy was not well done. There was much repetition in this section as candidates attempted to find answers. Weighing and measuring were often repeated. Expected responses included:

- Use of standardized recipes
- Use of scoops and other standard serving tools
- The use of service personnel to maintain the standard serving sizes
- Determination of size according to the type of service being offered
- Conducting yield tests to find out the number of portions in a dish

In Part (c), candidates were required to outline measures for ensuring the quality of food presented at a buffet lunch. Some of the popular responses given were: *serve at the right temperature, garnish each dish, avoid cross contamination by using a separate serving utensil for each dish.*

Expected responses included:

- Follow recipes carefully to ensure good flavour and texture
- Measure ingredients accurately
- Maintain high standards of kitchen hygiene
- Use HACCP principles
- Observe proper plating of food
- Use appropriate portion sizes
- Manage holding temperatures
- Use appropriate and attractive serving dishes

Paper 03 – School-Based Assessment

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all modules. Students, in consultation with their teachers and the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. The overall performance of students has shown great improvement.

The majority of portfolios were very well presented. Most of the illustrations were clear and creative. In some cases, the quality of the assignments was appropriate for the advanced proficiency level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

This year there was an increase in the number of exemplary portfolios students submitted. This indicated that more teachers are following the recommendations outlined in the feedback reports. Conversely, it is evident that schools which are offering the subject for the first time need some guidance. The work of the students with exemplary portfolios was scientifically based and rigorous. These students are to be highly commended for their effort. In some instances, the students used a thematic approach where the research assignment was linked to the product development.

One major area of concern continues to be the communication of information. While some students were able to communicate information in a logical manner with few grammatical errors, several students continue to present information with numerous grammatical errors which reduced the overall quality of the portfolios.

Module 1 – Research

Most students selected appropriate topics and demonstrated knowledge of relevant facts. In some cases, literature reviews were not comprehensive, some students often did not utilize appropriate formats for citations and, in some cases, the sources used were not always cited.

Data were well presented, but very little reference was made to the data. The discussion of findings lacked depth of interpretation. In some cases, findings were not based on the research conducted. Instead, generalizations from the literature or guidelines were made regarding the topics.

In several cases, inferences, predictions or conclusions were not attempted by students. Sometimes the conclusions and recommendations were not accurately or scientifically based and did not support the analysis of data.

Although communication of information was satisfactory in some cases, the standard of communication for this level is extremely poor. Spelling and grammatical errors that can be easily corrected using the spell check on a computer were often overlooked.

Module 2 – Experimental and Recipe Modification

Many creative products and modifications were attempted and most students utilized sensory evaluation to determine the quality of the product. Students selected appropriate experiments and demonstrated knowledge of relevant facts.

Many reports were not well written and presented. Most students formulated hypotheses but they were not always realistic. The procedures for experiments were, in most cases, not clearly documented. Students who modified products more than three times must be commended. Some students did not modify the product until a good quality was maintained or the requirements of the hypothesis were met. A large majority of the students showed very little evidence to prove that they modified the product after critical or unexpected outcomes.

Recommendations to Teachers

Papers 01 and 02

Overall, performance on the examinations was satisfactory. However, performance can be improved if recommendations to teachers are used as guidelines to help address weaknesses of students. Although students appeared to understand the concepts, they did not elaborate and fully develop answers as was expected at this level. Some students were not fully prepared for this level of examination.

It was also clear that students were not familiar with some areas of the syllabus and so they performed poorly or omitted parts of questions. Students should therefore cover the entire syllabus so that they can satisfy the requirements of the examination. There was great improvement in Modules 3 in both units. Since it might not be possible for teachers to cover every topic in class, it is suggested that students be given research on these topics and be allowed to present their work in class. Greater emphasis must be placed on nutritional information related to control and prevention of chronic diseases. In addition, it is important that students revisit concepts in the CAPE syllabus which were studied at the CSEC level and that these topics are discussed in greater detail and additional information presented to the students. Teachers must be cognizant that it is possible to study nutrients at several levels: primary, secondary, tertiary and postgraduate. At each level, the information regarding the concept of nutrients widens.

Students should be encouraged to

- read questions carefully, paying attention to key words
- place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote
- develop responses fully, paying attention to the marks allocated for each part of the question
- answer questions with a variety of key words, namely: *discuss*, *explain*, *list*, *describe* and *define*. Ignoring these command words and simply listing responses when required to explain, for example, resulted in students' inability to gain as many marks as possible
- participate in mock examinations using past examination papers administered under examination conditions in order to develop good examination techniques
- utilize different media to become familiar with current nutrition issues
- place emphasis on research techniques, case studies and problem solving
- engage in field trips and work attachments to help them to understand fully many nutrition concepts such as methods for assessing nutrition status of children; complementary feeding and breast-feeding; nutrition-related disorders; and practices and procedures for ensuring safety of food
- develop ideas and demonstrate clarity of expression. In many cases, students showed some knowledge of the concept being tested, but could not adequately respond to questions to the standard that is required at the advanced proficiency level.

School-Based Assessment

Students should be encouraged to

- seek guidance in choosing topics for projects as well as throughout the entire exercise
- select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- note that literature reviews for each assignment do not have to be extensive, but should be thorough enough to outline the problem and research relevant to the same. This *cannot* be adequately done in two to three pages, therefore literature reviews must be no less than 2,000 words. Students must utilize a variety of sources. There was a heavy reliance on the internet and, in many cases, this was the only source cited. At this level of examination, it is critical that students be exposed to the correct method of citing references. It is suggested that students be taught the APA referencing style for citing sources and developing a reference list
- develop rationales and explain the significance of the topic
- present and discuss the data for the research project. They are not expected to present data on all of the questions, but should discuss all of the questions asked on the questionnaire or interview. Field observations must be adequately highlighted and discussed
- provide a summary or conclusion at the end of the project
- write a detailed report which accurately records and reports all observations for the Experimental and Recipe Modification
- repeat and modify experimental methods after critical or unexpected outcomes
- explain each modification in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, *when making a jam, the product did not set; therefore more lime juice was added to the next modification.* Examiners are not expected to compare the recipes to verify the changes that were made to the recipes
- give the original recipe and then conduct at least two modifications

- use food composition tables to determine energy values for the original and new product
- formulate valid hypotheses
- record and report methods, observations and results accurately, using tables or graphs
- include the results from the sensory evaluation in their discussion
- develop a conclusion to summarize their findings

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

MAY/JUNE 2013

FOOD AND NUTRITION

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GENERAL COMMENTS

Overall performance on Unit 1 was comparable with that of 2012 with 99 per cent of candidates achieving Grades I–V. Candidates’ performance on the School-Based Assessment improved. Candidates performed better on Module 2 (Food Selection and Meal Planning) and Module 3 (Food Preparation and Service: Principles and Methods) than on Module 1 (Principles of Nutrition and Health).

Overall performance on Unit 2 was comparable with that of 2012 with 99 per cent of candidates achieving Grades I–V. Candidates’ performance on the School-Based Assessment also comparable to performance in 2012. Candidates performed best on Module 1 (Caribbean Food Ways and Systems) followed by Module 3 (Food Preparation and Science) followed by Module 2 (Food Science and Technology).

DETAILED COMMENTS

UNIT 1

Paper 01 – Multiple Choice

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates’ performance on this paper was good.

Paper 02 – Structured Essay

Section I – Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates’ understanding of mineral consumption, its importance and deficiencies in adolescents; genetically engineered foods; and cooking methods.

The compulsory question was attempted by all candidates. Overall, performance was good.

In Part (a) (i), the majority of candidates was able to name the minerals that are most likely to be deficient in the adolescent Caribbean female and also gave suitable reasons for the deficiencies.

In Part (a) (ii), candidates were required to discuss the importance of the two minerals identified in Part (a) (i). In most cases, candidates were able to discuss the importance of the minerals.

For Part (b), candidates were required to discuss advantages and disadvantages of genetically engineered foods for the food industry in the Caribbean. The majority of candidates was able to adequately discuss the advantages and disadvantages. However, a few candidates misinterpreted genetically engineered foods for convenience foods and gave responses such as ‘genetically engineered foods are easy to prepare since they are semi-cooked and they are less time-consuming’.

In Part (c), candidates were required to compare the following pairs of cooking methods in terms of aesthetic appeal and nutrient value.

- (i) Oven barbequing vs. barbequing on open coals
- (ii) Deep frying vs. stir frying
- (iii) Braising vs. broiling

The majority of candidates was able to compare the first two pairs of terms; however, braising and broiling posed difficulty for most of them. Candidates confused broiling with boiling and were unable to define braising. A significant number of candidates explained aesthetic appeal and nutritive value for individual cooking methods rather than making a comparison between the pairs as expected, thus, maximum marks were not awarded. Expected comparisons include the following:

- (i) Oven barbequing vs. barbequing on open coals

During barbequing on open coals, food is exposed to a large quantity of direct heat which causes charring, denaturation and the loss of vitamins; during oven barbequing, the food is exposed to a small quantity of direct heat and therefore fewer nutrients are lost. The aesthetic appeal of food barbequed on open coals tends to be greater because of the charred taste and look of the food.

- (ii) Deep frying vs. stir frying

Stir-fried foods are considered healthier than deep-fried foods because food is prepared using a minimal amount of fat. Deep-fried foods are more appealing in both colour and taste than stir-fried foods especially when they are coated with a batter.

(iii) Braising vs. broiling

Braising is a combination method which involves both moist and dry heat; broiling is a dry method of cooking. Nutrients tend to be lost during broiling because of the high temperatures associated with it whereas nutrients are retained during braising. Braised dishes are usually more aesthetically pleasing since many herbs and spices are normally used and flavours are normally retained.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of hunger and appetite; nutrients; the multi-mix principle of meal planning; and calculating caloric intake.

Fifty-five per cent of the candidates responded to this question and overall performance was very good.

In Part (a), the majority of candidates correctly differentiated between hunger and appetite.

In Part (b) (i), most candidates were able to use the multi-mix principle to plan a menu for a pre-school child. However, a significant number of them did not explicitly state the type of triple-mix used to plan the meal and as such, they were not awarded maximum marks.

In Part (b) (ii), candidates were able to state the nutrients provided by the triple-mix lunch and listed functions of each nutrient.

Part (c) (i), which required candidates to calculate the total caloric intake of a meal, was well done. However in Part (c) (ii), some candidates had challenges accurately calculating the alcohol percentage of the total caloric intake. The expected response was:

Carbohydrate	=	240 x 4	960
Protein	=	120 x 4	480
Fat	=	50 x 9	450
Alcohol	=	5 x 7	<u>35</u>
Total calories	=		1925
% Alcohol	=	$\frac{35 \times 100}{1925}$	= 1.8%

Question 3

This question tested candidates' understanding of the benefits of breastfeeding; the digestion process and absorption of food; and their ability to calculate total caloric percentage and the caloric content of a meal. It was attempted by 45 per cent of the candidates; performance was very good.

In Part (a), candidates demonstrated that they were familiar with the general benefits of breastfeeding. However, some of them were unable to distinguish between those which were specific to the mother and those which were specific to the child.

In Part (b), most candidates were able to adequately explain the digestion process of a meal consisting of rice and curried chicken.

Part (c) required candidates to calculate the caloric value of a meal. Most candidates were able to accurately calculate the total calories provided by the meal. However, some candidates had difficulty calculating the percentage of calories from fat. The expected response is given below.

$$4 \text{ kcal} \times 50 \text{ grams protein} = 200 \text{ kcal}$$

$$4 \text{ kcal} \times 150 \text{ grams carbohydrates} = 600 \text{ kcal}$$

$$9 \text{ kcal} \times 20 \text{ grams fat} = 180 \text{ kcal}$$

$$\text{Total kilocalories} = 980$$

% of calories from fat:

$$\frac{180}{980} \times 100 = 18\%$$

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of the benefits of consuming a vegetarian diet; guidelines for preparing vegetables to minimize nutrient loss; and menu planning. It was attempted by 53 per cent of the candidates. Overall performance was excellent.

Performance on Part (a) was very good. Candidates were able to adequately discuss the health benefits that can be derived from adopting a vegetarian diet.

Part (b) was well done as most candidates were able to give suitable guidelines to minimize nutrient loss when preparing vegetables.

Part (c) was done very well as evidenced by candidates' ability to plan appropriate three-course dinner menus to be served at a graduation ball and outline suitable accompaniments for each course.

Question 5

This question tested candidates' understanding of menu planning principles and the use of convenience foods.

The question was attempted by 47 per cent of the candidates. Overall, performance was very good.

Performance on Part (a) was good. The stimulus information noted that a sixteen-year old teenage boy complained frequently about meals his hypertensive mother prepared. He said that they were bland and had a mushy taste, and she often cooked the same type of dishes. Candidates provided suitable responses in explaining the principles of menu planning that would improve the meal preparation and presentation skills.

In Part (b), only a few candidates were able to give suitable reasons why meals prepared by a hypertensive mother appeared unattractive to her son. Some candidates were not able to make the connection between the hypertensive condition of the mother and the son's perception of the unappetizing meal. They gave inappropriate responses such as 'The meal may appear unappetizing because it does not smell appealing to the son and because of poor presentation the food will not look appealing'. Expected responses included:

- Mother being hypertensive plans meals to suit her therapeutic diet
- Less frying done at home so meal is mushy
- Adequate herbs may not be used when preparing meal
- Preparation methods may be monotonous
- Foods may be bland with low use of salt
- Low fat/skimmed milk is preferred by the mother

In Part (c), most candidates were able to plan a day's menu suitable for a hypertensive mother and a teenage boy with the aid of convenience foods. Some candidates were not awarded maximum marks because they included inappropriate convenience foods such as those high in sodium and fat. Additionally, some candidates wrote one menu as opposed to a day's menu.

Section IV – Optional Questions

Module 3

Question 6

This question tested candidates' understanding of categories of kitchen equipment; entrees appropriate for the elderly; and the use of food garnishes. Performance on this question was good. The question was attempted by 15 per cent of the candidates.

The stimulus in the question referred to the setting up of a special kitchen to prepare meals for elderly persons who are on special diets. Part (a) posed difficulty for the majority of candidates as they were required to select and provide examples of the categories of tools and equipment needed for setting up the special kitchen. In most cases, this part was not attempted and where responses were given for the categories of tools and equipment, they were incorrect. Popular responses given were 'knives, spoons, pots, stove and mixer'. Expected responses included:

- Cleaning tools and equipment examples — dishwasher, sinks, mops, brooms
- Labour-saving devices examples — mixer, pressure cooker, food processor
- Cutting and grinding examples — knives, graters, chopping boards
- Pots and pans examples — frying pans, wok, muffin pans, pudding moulds
- Measuring tools examples — scales, measuring cups and spoons
- Cookers and other large equipment examples — ovens, microwave ovens, steamers and freezer

Part (b) was not done well as most candidates were unable to suggest entrées that are appropriate and regularly prepared for the elderly. They seemed not to be familiar with the term *entrée* and gave examples of main course and two course meals. However, most of them were able to state suitable garnishes for the entrées identified while a few candidates did not understand the difference between garnishes and decorations and as such gave examples like cherries and whip cream. Expected responses included:

- Fish dishes, for example, steamed fish, baked fish, grilled fish, fish loaf garnished with lemon wedges, orange slice, parsley
- Chicken dishes, for example, baked chicken, stewed chicken, braised chicken garnished with carrot curls, parsley, onion rings, chives, celery
- Dishes made with legumes, for example, stewed peas, lentil loaf, pilau garnished with parsley, tomato rose, tomato wedges, celery
- Veal or other lean meat dishes, for example, stews, braised dishes garnished with sweet pepper, eschallot, chives, red onion rings

- Soya textured vegetables, for example, chunks stew, chunks loaf, mince stew garnished with sweet pepper, tomato rose, chives

Question 7

This question tested candidates' understanding of kitchen layouts; work centres; work triangles; kitchen safety; and the use and care of knives.

Performance on this question was very good. The question was attempted by 85 per cent of the candidates.

Performance on Part (a) was good. However, some candidates had challenges sketching an efficient kitchen layout showing the major work centres and the work triangle. In other cases, the work triangle and major work centres were not clearly identified or labelled and as such candidates were not awarded maximum marks.

Part (b) was well done as evidenced by the ability of candidates to adequately discuss safety measures used to prevent potential dangers in the kitchen.

Part (c) required candidates to discuss the use and care of kitchen knives making reference to different types. A majority of the candidates were able to adequately provide general information on the use and care of knives but did not reference specific knives and as such they were not awarded maximum marks.

UNIT 2

Paper 01 – Multiple Choice

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was good.

Paper 02 – Structured Essay

Section I – Compulsory Question Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the indigenous and modern tools used in the preparation of Caribbean dishes. It also tested candidates' ability to assess the nutritional importance of callaloo or spinach; chemical and natural preservatives; nutritional information on food labels; multi-mix principles of menu planning; and HACCP principles.

Overall, performance on this question was good.

In Part (a) (i), most candidates were able to adequately list indigenous tools used in the preparation of Caribbean dishes, suggest alternative modern equipment and state advantages of using them compared to using indigenous tools. Only a few candidates were unable to correctly state indigenous tools; they gave responses such as 'oven and stove'; as such they were not awarded maximum marks.

In Part (a) (ii), most candidates were able to accurately assess the nutritional importance of using callaloo or spinach in the diet. In most cases, candidates emphasized that regular intake of callaloo or spinach prevents iron deficiency anaemia and provides fibre in the diet.

Part (b) (i) was generally well done by candidates as evidenced by their ability to provide examples of natural and chemical preservatives used in the home.

Part (b) (ii) required candidates to list the specific nutritional information that must be included on food labels. Many candidates experienced difficulty in accurately providing specific nutritional information and gave general information found on food labels such as 'the name and address of

the manufacturer, list of ingredients in descending order and expiry date'. Additionally, some candidates were not able to accurately give examples of how each type of information is shown on the labels and as such, they were not awarded maximum marks. Expected responses included:

- Serving or portion size: Amounts of food customarily eaten at one time, serving sizes are standardized to make it easier to compare similar foods. They are provided in familiar units such as cups or pieces, followed by the metric amount, for example, number of grams. On the label it would be shown as *1 cup, 8 oz, 2 bars*.
- Servings per container: The number of servings in the container. On the label it would be shown as *1 serving, 2 servings*.
- Calories from fat: The number of calories of fat in one serving. On the label it would be shown as *72 calories*.
- Daily reference values: Given for key nutrients in a serving of food based on the needs of a person requiring 2000 calories per day. These are based on public health experts' advice. The daily reference values are recommended levels of intake. On the label it would be shown as *fat 6%, sodium 25%*.

In Part (c) (i), candidates were required to use the three mix to plan a two-day cycle menu for a daycare centre catering for children ages one to three. Most candidates were able to plan suitable menus. However, some candidates did not indicate the type of three mix used to plan the meal while others gave a day's menu as opposed to two days thus, preventing them from being awarded maximum marks.

Part (c) (ii) was not done well. Candidates were required to use the HACCP principles to explain the critical control points (CCP) during the cooking, holding, serving, cooling and reheating of a beef patty. Most candidates had difficulty explaining the critical control points for each process and gave general information such as 'when serving, each food should have its specific utensils to prevent cross contamination', "check on the critical control points", "do not hold beef patty for too long with your hands", "ensure beef patty is cooled before eating". Others gave the meaning for the acronym HACCP and in other cases, this part was not attempted. Expected responses included:

- Cooking: The patty will be cooked to the established end point temperature to kill any pathogens bacteria. This is considered CCP because the patty could be served at this point.
- Holding: The beef patty must be held at an appropriate temperature to retard bacterial growth. This is considered a CCP.

- Service: If the patty is held for a short time during service, the concern regarding this time will be addressed. This is NOT considered a CCP. A short serving period is NOT considered a CCP.
- Cooling: The patty must be cooled at an appropriate holding temperature. This is a CCP since reheating would be needed before consumption
- Reheating: Reheating to an appropriate temperature for a specific period would kill any disease causing bacteria. Reheating would be a CCP.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of factors that influence the food choices of children and their ability to develop original recipes.

Overall, performance on this question was very good. The question was attempted by 71 per cent of the candidates.

Part (a) was well done as evidenced by the ability of candidates to give factors that influence food choices of children in the Caribbean. Most candidates emphasized the importance of parental involvement and available resources as major factors.

In Part (b), candidates were required to develop a recipe for a main meal/dish salad using local fruits and vegetables. Most candidates misinterpreted the question and developed a vegetable salad instead of a main meal salad. Additionally, some candidates only listed the ingredients and the proportions but did not provide the method of preparation, which prevented them from being awarded maximum marks. Expected responses included:

- Local fruits and vegetables
- Protein, for example, ham, chicken, tuna
- Carbohydrates, for example, grains, pasta, ground provisions
- Dressings and flavourings
- Procedure for preparation

Question 3

This question tested candidates' understanding of food hygiene and healthy lifestyle guidelines. It was attempted by 29 per cent of the candidates. Performance on this question was excellent.

The stimulus in this question referred to the importance of food safety as outbreaks of food-borne illnesses have resulted in substantial costs to individuals, food industries and governments.

In Part (a) (i), candidates were required to suggest and justify topics that should be included in a food hygiene course. Most candidates were able to state suitable topics. However, the majority of them was unable to write plausible justifications for the inclusion of the topics. In other cases, a few candidates gave topics that were not related to food hygiene such as 'food handlers' permit' while others stated the topics without any form of justification and as such were not awarded maximum marks.

In Part (b), candidates provided suitable reasons for providing food hygiene training to food handlers. They emphasized the importance of providing safe foods for consumers and increasing business sales.

Part (c) was done well by most candidates who discussed guidelines that family members could adopt to maintain a healthy lifestyle. The majority of candidates emphasized the importance of eating balanced meals and exercising regularly in order to maintain a healthy lifestyle.

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of food additives and their ability to calculate the selling price of products, and distinguish between fortification and enrichment. It was attempted by 69 per cent of the candidates. Overall, performance on this question was good.

Performance on Part (a) was good. Candidates were required to discuss the advantages and disadvantages of using food additives. Most candidates were able to adequately discuss the advantages. However, discussing the disadvantages proved to be challenging. Popular responses for the advantages included: *increase shelf life* and *enhances the colour and flavour of food*. Inappropriate responses given for disadvantages included 'some foods have to be rehydrated', 'nutrients loss will occur' and 'may cause product to be less appealing to consumers'. Expected responses for disadvantages included:

- Some food additives are toxic in large quantities, for example, sodium benzoate and benzoic acid
- Some food additives may be carcinogenic, for example, sodium nitrate has been shown to cause cancer in mice and may also cause cancer in human beings.
- Some food additives may have side effects such as allergy and hyperactivity, for example, MSG may be responsible for the ‘Chinese Restaurant syndrome’ — headaches, thirst and chest pains.
- The yellow colouring tartrazine (E102) may cause hyperactivity in children. Sulphur dioxide and sulphites can cause allergies and breathing difficulties in people suffering from asthma.

In Part (b), candidates were required to define *fortification* and *enrichment* and to state one example of a food treated by each method. Some candidates were able to clearly distinguish between the two terms while others had challenges making that distinction. However, most of them were able to provide suitable examples of foods treated by each method. Expected responses included:

- Fortification is the addition of nutrients not found in the food in its natural state or present in significant amounts.
- Enrichment is the addition of nutrients which were lost during processing in order to meet the specified standards for food.

Part (c) required candidates to calculate the selling price of a home-based food product. Most candidates demonstrated an understanding of the steps involved in calculating the selling price of a product. However, important aspects such as the name of the dish, cost per portion and percentage mark-up were not included in some cases and as such candidates were not awarded maximum marks.

Question 5

This question tested candidates’ understanding of the processing of plantain chips; food packaging and labelling. It was attempted by 30 per cent of the candidates. Overall, performance on this question was fairly good.

Part (a) required candidates to describe the stages of processing plantain chips. Some candidates were able to adequately describe the stages involved in the processing of the plantain chips while in other cases, candidates focused only on the cultivating and post-harvesting handling of the

plantain prior to processing. A few candidates only described the steps involved in marketing the plantain chips and as such they were not awarded maximum marks. Expected responses included:

- Selection of raw materials: Select unripe plantains for preparing chips. Bigger size fruits are preferred to produce large-sized slices and an attractive product. Different varieties give products of different colour, flavour and taste. Cross-wise slicing gives uniformity.
- Preparation of raw material: Separate individual fingers from the bunch. Peel and immediately slice cross-wise into thin circular shapes, about one or two millimetres thick. Brush them with a solution of ascorbic acid or lemon/lime juice or honey.
- Heat treatment: Heat vegetable oil to 180° – 200 °C. Use a thermometer to check the temperature of the oil. Place the chips into the mesh basket, this will be lowered in the hot oil, shake. Remove chips from the oil when golden brown.
- Cooling and shaping: Leave the chips in the basket to drain off excess oil. When the chips have been slightly cooled, while they are still sticky and warm, add the desired flavourings such as salt, chilli powder and pepper.
- Packaging: Place in an airtight bag and seal the bag.
- Labelling: Apply food labelling and nutrition information.

Performance on Part (b) was fair. Candidates were required to explain the criteria that should be used when selecting packaging for plantain chips and suggest the most suitable one. Most candidates were able to explain the criteria and gave correct responses such as *durable*, *seals well*, *easy to open* and *light weight*. Most candidates gave plastic as a suitable packaging for the plantain chips.

In Part (c), candidates were required to outline appropriate details for food safety, health claim and nutritional/nutrient content claims on the label of a package of plantain chips. Most candidates were able to provide general information such as *nutritional/nutrient content claims — carbohydrate, fats and oils, sodium, total calories, vitamin*; *food safety — this will show customers that selective measures and precautions were used in the preparation of the chips*; and *health claims — important as it should not contain any misinformation such as weight gain* instead of providing pertinent details related to the plantain chips. Expected responses included:

- Food safety: This product is packed on equipment that also packages products that contain milk, soy and nuts. No trans fat added, Keep refrigerated.
- Health claims: Diets low in sodium may reduce the risk of high blood pressure.
- Nutrition/nutrient content claims: Low fat, No sugar added.

Section IV – Optional Questions

Module 3

Question 6

This question tested candidates' ability to use menu planning tools and resources when planning menus. It was attempted by 35 per cent of the candidates. Overall, performance on this question was very good.

In Part (a), candidates were required to discuss menu planning tools or resources that can be used when planning meals for a college cafeteria. Some candidates had challenges interpreting the phrase *menu planning tools and resources* and generally provided responses in relation to tools and equipment used in food preparation such as 'large cutting boards', 'stove' and 'heat trays'; such responses were not awarded maximum marks. Other candidates gave factors to consider when planning meals such as 'nutritionally balanced', 'special needs', 'availability of food', and 'suitable methods of cooking'. Expected responses included:

- Meal planner software: A daily meal planner makes it easier to prepare healthy, economical meals by helping to organize recipes and meals for each day.
- A core set of seven to ten recipes/recipe books: Using these, a schedule of meals can be created that repeat each week or each month by utilizing a rotating menu of favourite recipes.
- Standardized recipes: A standardized recipe is one that has been tried, adapted and retried several times and has been found to produce the same good results and yield every time.
- Food exchange lists: These are used in meal planning to cater to people suffering from various diseases as well as for weight reduction. Meals planned using the food exchange system are generalized, allowing foods from the food exchange lists to be inserted into the menu based on food preferences.
- Caribbean six food groups: A great tool for planning a nutritious and balanced meal plan for each day. It outlines various food groups and food choices that if eaten in the right quantities, form the foundation of a healthy life.

Part (b) was well done as the majority of candidates was able to plan suitable six-course menus. A few candidates did not include a fish or salad course and as such, they were not awarded maximum marks.

Question 7

This question tested candidates' understanding of portion sizes; quality assurance measures when preparing and serving meals; and planning and organizing large-scale service.

The question was attempted by 65 per cent of the candidates. The overall performance was fairly good.

In Part (a) (i), candidates were required to suggest measures that can be employed to minimize the long waiting time between placing an order and receiving the meal. Most candidates were able to suggest appropriate measures and gave popular responses such as *ensure adequate pre-preparation is done, develop a delivery service and briefing staff members*.

Performance on Part (a) (ii) was good as the majority of candidates was able to suggest feasible measures to reduce the service of small portion sizes and gave responses such as *use standardized recipes, ensure sufficient ingredients are available and train staff in portioning*.

Part (b) required candidates to discuss guidelines to be followed by restaurant staff to ensure effective planning and organization of work in order to serve 300 patrons. Some candidates were able to adequately discuss the guidelines and gave responses such as *ensure that there is adequate staff available for serving, ensure that there is adequate seating and make plans in advance to ensure that everything flows smoothly*. In other cases, candidates focused on guidelines for preparing meals rather than those for serving meals and were therefore not awarded maximum marks.

Paper 03 – School-Based Assessment

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all modules. Students, in consultation with their teachers and the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30 while the second was marked out of 60. Overall performance has shown great improvement.

The majority of portfolios was very well presented. Most of the illustrations were clear and creative. In some cases, the quality of the assignments was appropriate for the CAPE level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, instead of two distinct pieces.

This year, there was an increase in the number of exemplary portfolios students submitted. This indicated that more teachers are following the recommendations outlined in the feedback reports. Conversely, it is evident that schools which are offering the subject for the first time need some guidance. The work of the students with exemplary portfolios was rigorous and scientifically based. These students are to be highly commended for their efforts. In some instances, the students used a thematic approach where the research assignment was linked to the product development.

One major area of concern continues to be the communication of information. While some students were able to communicate information in a logical manner with few grammatical errors, several students continue to present information with numerous grammatical errors; this reduced the overall quality of the portfolios.

Module 1 – Research

Most students selected appropriate topics and demonstrated knowledge of relevant facts. In some cases, literature reviews were not comprehensive; students often did not utilize appropriate formats for citations and, in some cases, the sources used were not cited.

Data were well presented, but very little reference was made to the data. The discussion of finding lacked depth of interpretation. In some cases, findings were not based on the research conducted. Instead, generalizations from the literature or guidelines were made regarding the topics.

In several cases, no inferences, predictions, or conclusions were attempted by students. Sometimes the conclusions and recommendations were not accurately or scientifically based and did not support the analysis of data.

Although communication of information was satisfactory in some cases, the standard of communication for this level was extremely poor. Spelling and grammatical errors that can be easily corrected using the spell check on a computer were often overlooked.

Module 2 – Experimental and Recipe Modification

Many creative products and modifications were attempted and most students utilized sensory evaluation to determine the quality of the product. Students selected appropriate experiments and demonstrated knowledge of relevant facts.

Many reports were not well written and presented. Most students formulated hypotheses that were not realistic. The procedures for experiments were, in most cases, not clearly documented. Students who modified products more than three times must be commended. Some students did not modify the product until a good quality was maintained or the requirements of the hypothesis were met. A large majority of the students showed very little evidence that they modified the product after critical or unexpected outcomes.

Recommendations to Teachers

Students should be encouraged to:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.
- Answer questions with a variety of key words, namely: *discuss*; *explain*; *list*; *describe*; and *define*. Ignoring these command words and simply listing responses when required to explain, for example, resulted in students' inability to gain as many marks as possible.
- Participate in mock examinations using past examination papers administered under examination conditions in order to develop good examination techniques.
- Utilize different media to become familiar with current nutritional issues.
- Place emphasis on research techniques, case studies and problem solving.
- Engage in field trips and work attachments to help them fully understand concepts such as methods for assessing the nutritional status of children; complementary feeding and breast feeding; nutrition-related disorders; and practices and procedures for ensuring food safety.
- Develop ideas and demonstrate clarity of expression. In many cases, students showed some knowledge of the concept being tested, but could not adequately respond to questions at the required standard for CAPE.

- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- Note that literature reviews for each assignment do not have to be extensive but should be thorough enough to outline the problem and research relevant to the same. This *cannot* be adequately done in two to three pages, therefore, literature reviews must be no less than 2,000 words. Students must utilize a variety of sources. There was a heavy reliance on the internet and in many cases this was the only source cited. At this level, it is critical that students be exposed to the correct method of citing references. It is suggested that students be taught the APA referencing style for citing sources and developing a reference list.
- Develop rationales and explain the significance of the topic.
- Present and discuss the data for the research project. They are not expected to present data on all the questions but should discuss all questions asked on the questionnaire or interview. Field observations must be adequately highlighted and discussed.
- Provide a summary or conclusion at the end of the project.
- Write a detailed report which accurately records and reports all observations for the experimental and recipe modification.
- Repeat and modify experimental methods after critical or unexpected outcomes.
- Explain each modification in detail, giving reasons why the particular modification was done. After an expected outcome, changes should be noted by making a statement concerning the specific modification. For example, *when making a jam, the product did not set; therefore more lime juice was added to the next modification*. Examiners are not expected to compare the recipes to verify the changes that were made to the recipes.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

MAY/JUNE 2014

FOOD AND NUTRITION

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GENERAL COMMENTS

This subject consists of two units — Unit 1 and Unit 2. Each unit comprises two papers.

Overall performance on Unit 1 was comparable with that of 2013 with 99.34 per cent of candidates achieving Grades I–V. Candidates’ performance on the School-Based Assessment (SBA) improved. Candidates performed better on Module 2 (Food Selection and Meal Planning) and Module 3 (Food Preparation and Service: Principles and Methods) than on Module 1 (Principles of Nutrition and Health).

In Unit 2, overall performance was comparable with that of 2013 with 99.37 per cent of candidates achieving Grades I–V. Candidates’ performance on the SBA improved. Candidates performed similarly on Module 1 (Caribbean Food Ways and Food Systems), Module 2 (Food Science and Technology) and Module 3 (Food Preparation and Service: Large Quantity and Commercial).

DETAILED COMMENTS

UNIT1

Paper 01 – Multiple-Choice Questions

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates’ performance on this paper was good.

Paper 02 – Structured Essay

Section I – Compulsory Question Modules 1, 2 and 3

Question 1

This question tested candidates’ knowledge and understanding of the chronic diseases that affect teenagers; modifications which can prevent the occurrence of these chronic diseases; guidelines for safe and effective storage, handling and preparation of food; types of accidents that can occur in a kitchen; and ways that food safety can be achieved in the kitchen of food establishments. The question also tested the steps involved in the cleaning of a blender and the appropriate use of different types of knives.

The compulsory question was attempted by all the candidates. Overall performance on this question was good.

In Part (a) (i), the majority of candidates was able to identify chronic diseases and suitable modifications to prevent the occurrence of chronic diseases. Some candidates were not awarded maximum marks because they did not discuss how the modifications would result in the prevention of the diseases. Expected responses were:

- *Increase physical activity in order to maintain energy balance*
- *Replace meat with pulses and beans to facilitate low calorie and fibre intake*
- *Increase the use of complex carbohydrates to promote the feeling of fullness therefore discouraging overeating*
- *Increase intake of low calorie foods to maintain energy balance*
- *Decrease the amount of alcohol consumed, lowering the caloric intake*

For Part (a) (ii), candidates were required to examine a menu and make modifications suitable for teenagers with HIV/AIDS. In most cases, candidates gave modifications such as replacing the pork with other meat, replacing orange juice with fruit punch and adding more vegetables to the menu. However, they had challenges giving reasons for the modifications.

Part (b) (i) was well done as evidenced by the ability of candidates to correctly discuss guidelines that should be considered to ensure that food is stored, handled and prepared in a safe manner. In Part (b) (ii), most candidates were able to identify accidents that can occur in the kitchen of a food establishment and explain ways in which food safety can be achieved in the kitchen.

In Part (c), the majority of candidates was able to state five steps that should be taken when cleaning a blender, and in Part (c) (ii), candidates correctly suggested appropriate activities for the various types of knives. However, some candidates were unable to adequately explain reasons for the suggestions.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of how the factors anxiety, poverty and the loss of an elderly spouse may affect eating behaviour; the synergistic relationship between diarrhoea and malnutrition in young children; and the assessment of the nutritional status of individuals.

Fifty-three per cent of candidates responded to this question and overall performance was satisfactory.

In Part (a), the majority of candidates correctly suggested how anxiety, poverty and loss of an elderly spouse may affect eating behaviours.

For Part (b), explaining the synergistic relationship between diarrhoea and malnutrition in young children was challenging for candidates. They gave brief definitions of each term and could not be awarded maximum marks. An expected response was:

A cycle is created in which the young child with diarrhoea may not be fed with milk and other nutrient dense foods. This creates a deficiency of calories and nutrients resulting in under-nourishment. Malnourishment also results from depletion of fluids and nutrients through diarrhoea. Malnourished children in turn have a low resistance to infectious diseases, including food-borne illnesses which cause diarrhoea and vomiting.

In Part (c), the majority of candidates was able to adequately explain methods of assessing the nutritional status of an individual and provide suitable examples. In Part (c) (ii), candidates were able to identify tools used to determine the growth of young children.

Question 3

This question tested candidates' understanding of the advantages of breastfeeding to babies; factors which affect the basal metabolic rate; and follow-up actions that a family may take to ensure the improvement of children's health and nutrition.

This question was attempted by 38 per cent of the candidates. Performance on this question was good.

In Part (a), candidates demonstrated that they were familiar with the advantages of breastfeeding to babies.

In Part (b), most candidates were unable to define basal metabolic rate (BMR) and discuss factors which may raise or lower the rate. An expected response was:

Basal metabolic rate is the minimum amount of energy (calories) the body uses to carry out its functions when at rest, for example, circulation and respiration.

Factors Which Affect BMR

- Increase in weight and height.
- Body composition: Fat tissue has a lower metabolic activity than muscle tissue. As lean muscle mass increases, metabolic rate increases.
- Health: Fever, illness, or injury may increase resting metabolic rate two-fold.
- Climate and body temperature: The BMR of people in tropical climates is generally 5 to 20 per cent higher than their counterparts living in more temperate areas because it takes energy to keep the body cool.
- Age: In youth the BMR is higher; age brings less mass and lower BMR.
- Growth: During periods of rapid growth such as growth in children or in pregnancy, BMR increases.
- Exercise (physical activity) uses up energy and increases the BMR.
- Increased intake of food requires the digestive system to process more material which requires more energy.
- Increased stress and anxiety requires an increase of energy.
- Fasting and malnutrition: When individuals desist from eating, the BMR is lowered.
- Gender: The basal metabolic rate (BMR) averages 5 to 10 per cent lower in women than in men. This is largely because women generally possess more body fat and less muscle mass than men of similar size.
- Thyroxine: the more thyroxine produced the higher the BMR; if thyroxine production is reduced, the BMR will be lowered.

For Part (c), most candidates were able to outline the follow-up actions that a family may take to ensure improvement of children's health and nutrition.

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of the roles and negative impacts of Vitamin A in the diet as well as the advantages and disadvantages of using genetically engineered foods.

This question was attempted by 25 per cent of candidates. Overall, performance was poor.

Performance on Part (a) was poor. While candidates were able to adequately outline the roles of Vitamin A in the diet and give examples of Vitamin A food sources, many had challenges

explaining the negative impacts of consuming a diet high in Vitamin A. Expected responses included:

- *When a diet is high in Vitamin A, the carotenoids turn the skin to a yellow colour. The retinol converts to this yellow colour.*
- *Excess intake of vitamins is known as hypervitaminosis which leads to problems with the digestive system causing nausea, loss of appetite, vomiting, abdominal pain, diarrhoea and weight loss.*
- *Too much Vitamin A in the diet is poisonous or toxic as it is stored in the body and can seriously affect the skin and the joints especially in children.*
- *A diet rich in Vitamin A may cause lower bone density, increasing the risk of osteoporosis.*

Part (b) was well done as evidenced by candidates' ability to discuss the advantages and disadvantages of using genetically engineered foods to increase food supply.

Question 5

This question tested candidates' understanding of food storage; the need for persons with high cholesterol and cardiovascular disease to read nutrition information on food labels; and conserving nutrients during the preparation and cooking of meat and vegetables.

This question was attempted by 75 per cent of candidates. Overall, performance was fairly good.

Performance on Part (a) was good. The majority of candidates responded well as they gave suitable responses for the guidelines to be followed when storing food in the freezer; however, some candidates had challenges justifying the responses given, and were not awarded maximum marks. Expected responses included:

- *Foods should be properly wrapped or packaged to prevent freezer burn and to prevent contamination of other foods.*
- *Storage time and First-In, First-Out (FIFO) principle should be observed in order to avoid freezer burn.*
- *Do not freeze large quantities of unfrozen foods at the same time. This can raise the temperature of the entire unit and damage stored foods.*
- *Defrost freezer regularly to keep an inventory of foods and for the compartments to function effectively.*
- *Set freezer to correct temperature to ensure food is not in the danger zone.*

In Part (b), some candidates were able to explain the importance of persons suffering from high cholesterol and cardiovascular diseases reading nutrition information on labels. However, only a few of them made the connection between the two conditions and the caloric content of food and recognized that both conditions require persons to maintain a healthy body weight.

In Part (c), most candidates adequately explained the guidelines used to conserve nutrients in vegetables during preparation and cooking; however, outlining similar guidelines for meat proved to be challenging. Expected responses for the guidelines used to conserve nutrients in meat during preparation and cooking included:

- *Steaming meats rather than boiling, or broiling rather than frying, can significantly reduce the loss of nutrients when meats are being cooked.*
- *Shortening the cooking time since potassium can be lost when meat is cooked.*
- *Selecting appropriate methods for cooking certain cuts of meats because different cuts of meats require different times for cooking and if these times are exceeded then the nutrients will be lost.*
- *Minimizing cooking time because Vitamin A is heat liable (sensitive to heat) and can be lost during cooking.*
- *Using the fat from pan drippings from meat and poultry to make gravy or soup because the nutrients will be contained in the drippings.*
- *Washing or soaking meats and poultry for long periods may result in significant loss of nutritive value and flavour therefore wiping with a damp cloth is sufficient.*
- *Avoiding the use of water directly on frozen meats to hasten thawing because this promotes the leaching of nutrients.*

Section IV – Optional Questions

Module 3

Question 6

This question tested candidates' understanding of sweet and savoury; garnishes and decorations; and guidelines for frying fish using pan/shallow frying. Performance on this question was fairly good. The question was attempted by 85 per cent of candidates.

In Part (a) (i), the majority of candidates was able to provide suitable suggestions for both savoury and sweet dishes, however, some candidates did not clearly identify the sweet or savoury dishes and were not awarded maximum marks. For Part (a) (ii), the majority of candidates did not

receive maximum marks because they did not describe two ways in which the selected foods may be used as either a garnish or decoration; instead, they identified suitable foods that can be garnished or decorated with the selected foods.

Part (b) was well done; most candidates were able to explain the guidelines for frying fish using the pan-frying or shallow-frying method.

Question 7

This question tested candidates' understanding of the preparation of a chicken salad; modifications needed to make the salad suitable for a person on a low calorie diet; and changes that may occur in beef when cooked by a moist method.

Performance on this question was below average. The question was attempted by 14 per cent of the candidates.

Performance on Part (a) was good as some of the candidates were able to provide a sequence of activities to be followed before preparing a chicken salad. However, some candidates rather than providing pre-preparation activities gave actual preparation activities such as combining all ingredients in a mixing bowl.

Part (b) was fairly well done as evidenced by the ability of candidates to adequately suggest suitable modifications that would make a chicken salad suitable for a person on a low calorie diet. Some candidates gave general modifications to improve the aesthetics of the salad and were not awarded maximum marks.

Part (c) required candidates to discuss changes that may occur in beef when cooked using a moist method. Some candidates were able to provide an accurate response.

UNIT 2**Paper 01 – Multiple Choice Questions**

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was good.

Paper 02 – Structured Essay**Section I – Compulsory Question
Modules 1, 2 and 3**Question 1

This question tested candidates' knowledge and understanding of factors that influence food customs and practices in the Caribbean; strategies to be considered by food and health agencies to ensure that persons are adequately nourished after a natural disaster; food preservation techniques; and planning meals using the multi-mix principle.

Overall, performance on this question was very good.

In Part (a) (i), most candidates were able to adequately explain factors that influence food customs and practices in the Caribbean but in Part (a) (ii), most candidates were unable to explain strategies that should be considered by food and health agencies to ensure that people are adequately nourished after a natural disaster. Expected responses included:

- *Ensure the safety of all food so that it is of a high quality and fit for human consumption so as to prevent food poisoning.*
- *Ensure that persons belonging to vulnerable groups (children, elderly persons and persons suffering from chronic diseases) are provided with adequate foods suited for their special needs since without their food, several consequences can occur. Special kitchens can be set up to feed such persons.*
- *Ensure nutrient dense foods are distributed as a means of providing persons with adequate nutrients to prevent undernutrition.*
- *Provide potable water to prevent persons from consuming unsafe water which can cause food-borne diseases.*

- *Provide a help hotline to ensure that those who cannot reach centres still have a means of accessing food and medical supplies.*
- *Provide immunization to prevent water-borne diseases.*
- *Provide medication to persons with chronic diseases or other persons who need to access to medication.*
- *Set up mobile clinics to monitor the health status of those affected.*

Performance on Part (b) (i) was generally weak as evidenced by candidates' inability to provide an accurate explanation for the terms *fortification* and *enrichment*. However, a significant number of candidates were still able to provide suitable examples of both terms. For Part (b) (ii), most candidates were unable to outline reasons for food spoilage and a significant number incorrectly gave food storage as a cause. Additionally, most candidates had challenges interpreting the question; many identified freezing as a method of preservation even though the question specifically asked for the use of methods *other than* low temperatures. Canning was also given as a popular response to methods of preservation that can be done in the home. Expected reasons for food spoilage included:

- *Moisture Loss – This occurs mainly in fruits and vegetables which contain large amounts of water. Fruits and vegetables continue to respire after harvesting and therefore lose water through their leaves and skin. After harvesting, there is no way that the lost water can be replaced, so the vegetable or fruit shrinks in size, becomes limp and the skin becomes wrinkled and leathery. Moisture loss occurs in other foods such as meat, fish and cheese due to the evaporation of water from the surface.*
- *Enzyme Action in Food – Enzymes are chemicals which are present in all foods. They speed up chemical changes that result in the loss of flavor, colour and texture.*
- *Micro-organisms – The micro-organisms responsible for the contamination of food are bacteria, moulds and yeasts. They are capable of multiplying rapidly in the correct moisture, food and temperature conditions. These conditions must be avoided if the risk of food spoilage is to be reduced.*
- *Insects, worms and rats – Insects or rodents invade food items and make holes in the food items, spreading bacteria. The food becomes unfit for human consumption.*

In Part (c), candidates were required to use the three mix principle to plan a five-course menu for a graduation dinner. Some candidates planned interesting menus while others eliminated either the Fish/Salad or soup courses and were not awarded maximum marks. Additionally, some menus did not reflect variation in shape, colour or texture.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' ability to create original recipes and to evaluate sanitation conditions of food facilities.

Overall, performance on this question was very good. The question was attempted by 27 per cent of the candidates.

Part (a) was done well as most candidates were able to create an interesting recipe using the stated ingredients. However, some recipes lacked proportions and the use of appropriate herbs/marinade to improve the flavour of the dish. Some candidates had challenges sequencing tasks and outlining the preparation methods of the dish. A small number of candidates wrote a menu instead of a creating a recipe.

In Part (b), candidates were required to design a food premises inspection checklist to evaluate the sanitation conditions of a cafeteria facility. Some candidates misinterpreted the question and supplied personal hygiene rules. Additionally, some candidates did not supply the reason for the items given on the checklist. Expected responses included:

- *Are all foods stored off the floor? This prevents water, dust or other contaminants from soaking through bags or otherwise contaminating the food.*
- *Is the FIFO method of inventory being practised? This ensures that stocks are rotated and remain fresh, new and in good condition for the consumer.*
- *Is there a three-compartment sink for washing, rinsing and sanitizing set up? This is necessary because cleansing alone does not kill microbes, and microbes contaminate food.*
- *Are all refrigerators, freezers and holding equipment commissioned and operational? This is to ensure that items are kept at a temperature that prevents the growth of microbes.*
- *Is a working thermometer available at the premises? This is important so that staff can check and make sure food is below the temperature danger zone.*

Question 3

This question tested candidates' knowledge and understanding of dietary guidelines for promoting good health and reducing the risk of chronic diseases as well as the nutritional facts concerning

food beliefs. This question was attempted by 73 per cent of the candidates. The performance on this question was good.

In Part (a), the majority of candidates was able to outline dietary guidelines that can be used by family members to promote good health and reduce the risk of chronic diseases.

In Part (b), while some candidates adequately provided popular beliefs from the different territories they were unable to explain the nutritional facts in relation to each belief. Additionally, some candidates gave nutritional facts rather than popular beliefs, for example, ‘milk is an excellent source of calcium’. In such cases, candidates were not awarded maximum marks. It was expected that candidates would have explained the correct nutritional facts associated with the belief. Expected examples included:

- ***Fish is a brain food.*** *There is no scientific evidence to suggest that fish is particularly useful for the brain. The statement can be misleading. Nutritionally, fish is an excellent source of protein of high biological value. The omega-3 fatty acids present in fatty fish have been found to be beneficial in the prevention and management of cardiovascular disease.*
- ***Skimmed milk powder results in diarrhoea.*** *Skimmed milk powder is rich in calcium and potassium. It contains no fat making it low in calories. Persons may be lactose intolerant which may lead to diarrhoea. Hence the belief as given is not true.*
- ***To cure asthma tie children to a paw paw tree.*** *Paw paw is rich in carotene and carbohydrates. The enzyme papain found in paw paw is an excellent meat tenderizer. There is no proof that the fruit will cure asthma.*

Section III – Optional Questions

Module 2

Question 4

This question tested candidates’ knowledge of *denaturation* and *coagulation*; the challenges faced by farmers when supplying food to consumers; and ways to reduce spoilage of food during transportation from the farm to the manufacturer.

This question was attempted by eight per cent of the candidates. The overall performance on this question was good.

Performance on Part (a) was poor as the majority of candidates was unable to clearly differentiate between denaturation and coagulation. Additionally, the majority of the candidates had challenges explaining methods of denaturation and providing suitable examples. Expected responses included:

Denaturation is a physical alteration of the shape of a protein molecule or the breaking of hydrogen bonds that allow the molecule to unfold.

Coagulation is the change of liquid into a soft semisolid clots or solid mass.

Methods of denaturation

- 1. Heat- how much and how fast the protein denatures depends on both the temperature and structure of the protein. Examples: egg white, meat, poultry and fish*
- 2. Mechanical treatment and agitation such as beating or whipping foods into foam. Examples: eggs, kneading of bread, pounding of meat, grinding of food*
- 3. Certain salts cause protein to precipitate. Examples: ammonium sulphate, sodium chloride, vinegar and lemon juice.*

In Part (b) (i), most candidates outlined challenges faced by farmers when supplying food to consumers but did not discuss them; hence, they were not awarded the maximum marks. For Part (b) (ii), the majority of candidates gave suitable methods of reducing the spoilage of food during transportation from the farm to the factory.

Question 5

This question tested candidates' knowledge of food preservation; understanding of the steps used to preserve freshly harvested green peas by freezing; and disadvantages of consuming genetically engineered foods.

This question was attempted by 92 per cent of the candidates. Overall, performance on this question was very good.

Part (a) required candidates to define the term *food preservation* and explain reasons for preserving food. This part was very well done. Performance on Part (b) was good. Candidates were required to discuss the steps for preserving freshly harvested green peas and they were able

to provide accurate responses. For Part (c), most of the candidates were able to adequately discuss the disadvantages of consuming genetically engineered foods.

Section IV – Optional Questions

Module 2

Question 6

This question tested candidates' ability to evaluate the nutritional suitability of a menu for persons with diabetes and heart conditions, and their knowledge of factors to consider when calculating the real cost of a menu.

This question was attempted by 49 per cent of the candidates. Overall, performance on this question was poor.

In Part (a), candidates were required to evaluate a menu which was planned for a banquet at the end of Diabetes and Heart Health Week. The majority of candidates had challenges evaluating the nutritional suitability of the menu. In most instances, emphasis was placed on aesthetics and flavour rather than evaluating the nutritional content and suitability for the chronic diseases given. Others developed alternative menus which indicated better choices for the special group. Expected responses included:

- *Contains food from all the food groups but not in the correct balance. Persons with chronic diseases should consume a well-balanced diet.*
- *Foods in the category of carbohydrates/staples are all prepared with too much fat. A large consumption of saturated fats and cholesterol complicates the conditions of diabetes and hypertension.*
- *Protein dishes are low in fat. This will help persons to consume the recommended 12-15 per cent protein intake.*
- *Adequate vegetables are not provided. Pasta and potato salad are not good sources of vegetables. A diet rich in vegetables is advocated for persons with chronic diseases since they are nutrient dense.*
- *Two of the desserts are high in fat and sugar; only one healthy choice was given which was the fruit salad. Persons who choose the first two items will consume several calories and this can lead to obesity, high cholesterol and heart disease.*

Part (b) was not well done as the majority of candidates had challenges explaining factors to consider when calculating the real cost of the menu. Most candidates gave responses in relation to selecting and purchasing ingredients, tools and equipment. Expected responses included:

- *Establishments either rent or have a mortgage on their facility. If they own the property, land tax must be paid.*
- *In most Caribbean territories businesses must pay to government some form of tax.*
- *Businesses cannot operate without paying a number of utilities, including water, electricity, and telephone.*
- *Staff salaries or wages must be generated and paid from the profits of the business.*
- *Equipment must be replaced occasionally and new ones purchased as the menu is extended. Supplies such as containers, napkins and sanitizers are used daily and must constantly be replaced.*
- *Food ingredients constitute a large cost to any establishment and must be purchased regularly.*
- *Establishments are in business to make profits, therefore mark-up percentage must be calculated.*

Question 7

This question tested candidates' understanding of HACCP as well as maintaining a safe environment during the preparation of meat products.

This question was attempted by 51 per cent of the candidates. Overall, performance on this question was good.

Part (a) (i) was well done as the majority of candidates was able to identify critical control points and gave sound reasons for their choice. Performance on Part (a) (ii) was good as the majority of candidates correctly suggested how the monitoring of critical control points was conducted and identified the person responsible for monitoring each point.

In Part (b), the majority of candidates was able to provide guidelines to ensure that a safe environment is maintained during the preparation of meat patties.

Paper 03 – School-Based Assessment (SBA)

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all modules. Students, in consultation with the teacher and the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. Overall, candidates' performance has shown great improvement.

The majority of portfolios was very well presented. Most of the illustrations were clear and creative. In some cases the quality of the assignments was appropriate for the CAPE level while others were not of the standard expected at this level. It is imperative that teachers are aware that a portfolio should be submitted, and not two distinct pieces.

This year there was an increase in the number of exemplary portfolios students submitted. This indicated that more teachers are following the recommendations outlined in the feedback reports.

One major area of concern continues to be the communication of information. While some students were able to communicate information in a logical manner with few grammatical errors, several students continue to present information with numerous grammatical errors. This reduced the overall quality of the portfolios.

Module 1 - Research

Most candidates selected appropriate topics and demonstrated knowledge of relevant facts. In some cases, literature reviews were not comprehensive, some students often did not utilize appropriate formats for citations and, in some cases, the sources used were not always cited. In addition, a variety of sources were not utilized.

Data were well presented but very little reference was made to the data. The discussion of findings lacked depth of interpretation. In some cases, findings were not based on the research conducted. Instead, students used the literature or guidelines and made generalizations regarding the topics.

In several cases, no inferences, predictions, or conclusions were attempted by students. Sometimes the conclusions and recommendations were not accurately or scientifically based and did not support the analysis of data.

Although the communication of information was satisfactory in some cases, the standard of communication for this level is extremely poor. Spelling and grammatical errors that can be easily corrected using the spell check on a computer were often overlooked.

Module 2 - Experimental and Recipe Modification

Many creative products and modifications were attempted and most students utilized sensory evaluation to determine the quality of the product. Students selected appropriate experiments and demonstrated knowledge of relevant facts.

Many reports were not well written and presented. Most students formulated hypotheses but they were not always realistic. The procedures for experiments were in most cases not clearly documented. Students who modified products more than three times must be commended. Some students did not modify the product until a good quality was maintained or the requirements of the hypothesis were met. For a large majority of candidates, there was very little evidence to prove that they modified the product after critical or unexpected outcomes.

Recommendations to Teachers

Students should be encouraged to:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending the reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.
- Practise answering questions with a variety of key words, namely: discuss; explain; list; describe; and define. Ignoring these command words and simply listing responses when required to explain, for example, resulted in students' inability to gain as many marks as possible.

Participate in mock examinations using past examination papers. These should be administered under examination conditions in order to develop good examination techniques.

Utilize different media to become familiar with current nutrition issues.

Place emphasis on research techniques, case studies and problem solving.

Engage in field trips and work attachments to help them fully understand many nutrition concepts such as methods for assessing the nutrition status of children, complementary feeding and breast feeding, nutrition related disorders, and practices and procedures for ensuring safety of food.

Develop ideas and demonstrate clarity of expression. In many cases, students showed some knowledge of the concept being tested but could not adequately respond to questions to the standard that is required for CAPE.

Seek guidance in choosing topics for projects as well as throughout the entire exercise.

Select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.

Note that literature reviews for each assignment do not have to be extensive but should be thorough enough to outline the problem and guide relevant research. This cannot be adequately done in two or three pages; literature reviews must be no less than two thousand words.

Utilize a variety of sources: there was a heavy reliance on the internet and in many cases, this was the only source cited.

Use the correct method of citing references. It is suggested that students be taught the APA referencing style for citing sources and developing a reference list. At this level of examination, this is critical.

Develop rationales and explain the significance of the topic.

Present and discuss the data for the research project. Students are not expected to present data on all of the questions but a discussion of all the questions asked on the questionnaire

or interview is necessary. Field observations must be adequately highlighted and discussed.

Provide a summary or conclusion at the end of the project.

Write a detailed report which accurately records and reports all observations for the experimental and recipe modification.

Repeat and modify experimental methods after critical or unexpected outcomes.

Explain each modification in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, *when making a jam, the product did not set; therefore more lime juice was added to the next modification*. Examiners are not expected to compare the recipes to verify changes that were made.

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN ADVANCED PROFICIENCY EXAMINATION®**

MAY/JUNE 2015

FOOD AND NUTRITION

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GENERAL COMMENTS

This subject consists of two units — Unit 1 and Unit 2. Each unit comprises two papers.

DETAILED COMMENTS

UNIT 1

Paper 01 – Multiple Choice

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was average.

Paper 02 – Structured Essays

Section I – Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates' understanding of the methods used to assess nutritional status; differences in nutritional requirements of an elderly and an infant; the importance of food appeal and palatability when planning meals for the elderly and planning menus for the elderly. The question also tested the effects of radiant heat on the physical and chemical properties of meat; reasons for using garnishes and examples of garnishes served with meat.

The compulsory question was attempted by all candidates. Overall performance on this question was very good.

In Part (a) (i), some candidates were able to state the different methods used for assessing nutritional status. Some candidates were not awarded maximum marks because they gave incorrect responses such as age, weight, height, basal metabolic index, gender and physical activity. Expected responses were:

- *Anthropometric methods*
- *Biochemical, Laboratory Methods*
- *Clinical Methods*
- *Dietary Evaluation Methods*

For Part (a) (ii), candidates were required to explain three differences between the nutritional requirements of an infant and that of an elderly person. In most cases, candidates demonstrated that they had a good knowledge of the nutritional requirements for both the elderly and an infant and gave responses such as *the increased demand for the macronutrients and micronutrients in infants and decreased demand for the*

macronutrients in the elderly because of their sedentary lifestyle. Additionally, the majority of candidates stated the increased need for calcium in the diet of the elderly to prevent osteoporosis and osteomalacia. Some candidates were not awarded maximum marks because they did not explain the required number of differences.

For Part (b) (i), most candidates were able to correctly explain why food appeal and palatability are important when planning meals for the elderly.

Part (b) (ii) was fairly well done by most candidates; however, some candidates were not awarded full marks because they did not adhere to the guidelines for menu planning such as correct format and nutritional balance. Dishes chosen were appropriate for the elderly.

In Part (c) (i), few candidates were able to correctly explain the effects of radiant heat on the physical and chemical properties of meat. Most candidates were not awarded maximum marks because they were not able to adequately outline the effects and gave responses such as colour change, melting of fat and shrinking of meat. Expected responses were:

Aromatic substances are formed due to the heat and this along with the addition of salt and seasoning intensifies flavour.

The loss of amino acids occurs through Maillard reactions produced by high temperatures. Lysine, one of the essential amino acids found in meat reacts with carbohydrate to form an insoluble compound which cannot be used by the body.

Polycyclic aromatic hydrocarbons (PAHs) are formed when the fat from the meat comes into contact with the coals from barbecued meats.

Gelatinization of collagen takes place rendering the protein in a more soluble form.

Part (c) (ii) was well done as candidates correctly listed the reasons for using garnishes and supplying suitable garnishes for meat.

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of the term *diabetes* and its symptoms; risk factors that may result in persons getting non-insulin dependent diabetes; and dietary guidelines that can be adopted to manage non-insulin dependent diabetes.

This question was very popular, 72.5 per cent of candidates responded to it and the overall performance was satisfactory.

In Part (a), the majority of candidates provided the correct definition and symptoms for diabetes.

For Part (b), describing risk factors that may result in persons getting non-insulin dependent (Type II) diabetes was challenging for some candidates. They gave incorrect responses such as excess use of sugar, signs and symptoms of diabetes, effects such as strokes, hypertension and heart attacks and could not be awarded maximum marks. Expected responses were:

Weight – The more fatty tissue one has, the more resistant your cells will become to insulin.

Inactivity – The less active one is, the greater the risk of developing diabetes. Physical activity helps to control weight.

High levels of triglycerides – Triglycerides are carried in the blood; if this increases above 250 mg/dl, the risk of non-insulin dependent diabetes increases.

Family history – One's risk increases if a parent or sibling has non-insulin dependent diabetes.

Age – One's risk increases as one gets older. This is as a result of decreased physical activity which leads to loss of muscle mass.

In Part (c), some candidates were able to adequately discuss dietary guidelines that can be adopted to manage non-insulin dependent diabetes. However, the other candidates were not awarded the maximum marks because the responses given were incorrect. An expected response was:

Eat a well-balanced diet with a variety of foods at each meal. There is no limit on vegetables and green salads. These foods are filling, nutritious and raise the blood glucose very little. Include moderate amounts of low-fat protein. Protein helps to control hunger between meals. Include carbohydrates in every meal and snack; where possible use more complex carbohydrates. Be sure to distribute your carbohydrate intake evenly throughout the day.

Question 3

This question tested candidates' understanding of calculating the percentage of calories obtained from the macronutrients (fat, protein and carbohydrate); comparing the actual intake of each macronutrient with the suggested caloric intake based on the recommended dietary guidelines; and dietary guidelines that will allow persons to adhere to the recommended dietary allowances (RDA).

This question was attempted by 27.2 per cent of the candidates. Performance on this question was unsatisfactory.

In Part (a), most candidates encountered challenges calculating the percentage of calories obtained from the macronutrients. Expected responses were:

Percentage of total calories

For carbohydrates $\frac{1,100}{2620} \times 100 = 41.9\% \text{ or } 42\%$

For fat $\frac{820}{2620} \times 100 = 31.2\% \text{ or } 32\%$

For protein $\frac{700}{2620} \times 100 = 26.7\% \text{ or } 27\%$

In Part (b), some candidates were unable to correctly compare the actual caloric intake of macronutrients with the suggested caloric intake based on the recommended dietary guidelines while stating the implication of each. An expected response was:

The recommended dietary guideline for carbohydrates is 55% while the actual intake is 42%. This means that participants need to increase their intake of carbohydrates by 13% in order to satisfy the recommended dietary distribution. Under-consumption of the required amount of carbohydrates will deprive the body of utilizing its primary source of energy to carry out basic functions.

For Part (c), most candidates were able to correctly state dietary guidelines that will assist participants to adhere to the RDA.

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of the Caribbean food groups and the major nutrient provided by each as well as their ability to plan a day's menu for an anaemic adolescent using different categories of convenience foods.

This question was attempted by 84.3 per cent of candidates. Overall, performance was very good.

Part (a) was well done as evidenced by candidates' ability to correctly identify the Caribbean food groups and the major nutrient provided by each.

For Part (b), a majority of candidates were able to plan a day's menu suitable for an anaemic adolescent using convenience foods. However, some candidates were not awarded the maximum marks because they wrote one menu instead of a menu for the day.

Question 5

This question tested candidates' understanding of the meal pattern used by Caribbean people, writing menus for meal patterns, and minimizing nutrient loss during the storage of food.

This question was attempted by 15.4 per cent of candidates. Overall, performance was very good.

In Part (a), a majority of candidates were able to correctly identify the meal pattern used by Caribbean people. However, few candidates were not awarded the maximum marks because they gave examples of multi-mixes. Additionally, candidates demonstrated an understanding of menu writing as they were able to write suitable menus for the different meal patterns used in the Caribbean.

In Part (b), some candidates adequately described ways in which nutrient loss can be minimized during food storage. However, some candidates were not awarded the maximum marks as the responses given were related to food preparation and cooking rather than storage. Expected responses were:

- *Store perishable items at the recommended temperature, usually in the refrigerator or freezer.*
- *Store foods in containers that allow room for air to circulate or wrap foods in moisture proof material.*
- *Plan for fast turnover of food on the shelf or in the refrigerator to avoid long storage times. Use leftovers as soon as possible.*
- *Use fresh foods as quickly after harvesting as possible. Nutrient content is high at this time.*
- *Vegetables should be stored in the crisper of the refrigerator to prevent decay, wilting and loss of nutrients or in a cool, dry place.*

Section IV – Optional Questions

Module 3

Question 6

This question tested candidates' understanding of adapting standardized recipes, developing creative recipes, and describing the principles of sensory evaluation in recipe development.

Performance on this question was satisfactory. The question was attempted by 70.6 per cent of candidates.

In Part (a), the majority of candidates was able to adapt the standardized recipe for 90 persons by correctly calculating the conversion factor and using it to multiply the ingredients.

For Part (b), the majority of candidates did not receive maximum marks because they did not use the same ingredients to create a recipe for a new dish.

For Part (c), the majority of candidates did not receive maximum marks because they did not indicate how the principles of sensory evaluation could be used in the development of a new dish. Expected responses were:

- *Select persons who will have an interest in tasting and evaluating the product.*
- *Choose a time of the day such as mid-morning when persons are neither hungry nor have just completed a meal.*
- *Ensure that the samples of the product are at the correct temperature when testing.*
- *Ensure that adequate portion sizes are given to persons evaluating the product. This ensures that the product is adequately assessed.*
- *Provide a glass of room temperature water for persons to rinse their mouths after testing.*
- *Provide forms so that persons can write their comments.*
- *Evaluation forms should address flavour, texture, aroma, taste, mouth-feel and colour.*
- *Examine results/comments so that the adjustments can be made.*
- *Conduct another sensory evaluation and repeat the process until the desired result is obtained.*

Question 7

This question tested candidates' understanding of the procedure for making white stock, first-aid procedures to treat burns, shock and choking.

Performance on this question was unsatisfactory. The question was attempted by 29.3 per cent of the candidates.

For Part (a), a majority of candidates were able to outline the steps for white stock; however, they were not awarded the maximum marks because they did not provide an explanation for each step outlined. An expected response was:

Step – Rinse the bones in cold water.

Reason – This removes some impurities that cloud the stock, or if bones are old, give an off taste.

Step – Bring water to a boil and then reduce to a simmer. Skim the scum that comes to the surface.

Reason – Skimming is important for a clear stock because the scum will cloud the stock if it is broken up and mixed back into the liquid.

Part (b) was fairly well done as evidenced by the ability of candidates to adequately outline first-aid procedures used for treating burns and choking. However, some candidates were not awarded maximum marks because they provided first-aid treatment for electrocution instead of shock. Expected responses were:

- *Lie patient down with feet raised and head on one side.*
- *Verify if patient is conscious.*
- *Try to minimize or stop any loss of blood or fluid.*
- *Loosen tight fitting clothing.*
- *Do not move the patient unnecessarily.*
- *Cover the patient with a blanket.*
- *Seek medical help.*
- *Do not give the patient anything to drink.*

UNIT 2

Paper 01 – Multiple Choice

Paper 01 consisted of 45 multiple-choice items with 15 items from each module. Candidates' performance on this paper was good.

Paper 02 – Structured Essays

Section I – Compulsory Question

Modules 1, 2 and 3

Question 1

This question tested candidates' knowledge and understanding of food security; preparation and cooking practices; maximum nutrient benefits derived from preparation and cooking practices; preparing indigenous homemade sweet preserves; sketching of labels to include nutritional information; quality assurance

measures to ensure food safety in buffet service; and appropriate HACCAP measures to be taken at critical control points in purchasing, prepreparation and cooking

This question was attempted by all candidates. Overall, performance on this question was satisfactory.

For Part (a) (i), a majority of candidates were able to correctly define food security and describe appropriate measures that may be used to increase household food security.

In Part (a) (ii), most candidates were unable to correctly outline and explain preparation and cooking practices that ensured maximum benefits are derived from nutrients. In most cases, candidates provided examples of cooking methods, and as such they were not awarded the maximum marks. Expected responses are given in the following table.

<i>Preparation and Cooking Practices</i>	<i>Rationale</i>
<i>Cook pasta by the conservative method.</i>	<i>Reduce the possibility of some nutrients being leached in cooking water.</i>
<i>Steam/microwave, bake or stir fry fruits/vegetables.</i>	<i>Retain vitamin and mineral content as these methods cook with little or no water.</i>
<i>Cut vegetables with a sharp knife.</i>	<i>Reduce the possibility of bruising which can cause leaching.</i>
<i>Do not prepare or cook vegetables with vinegar or baking soda.</i>	<i>Vitamins are sensitive to the pH of these items.</i>
<i>Minimize holding, storing and reheating foods.</i>	<i>Increases the loss of essential nutrients.</i>

Performance on Part (b) (i) was good as a majority of candidates were able to correctly outline the stages in the preparation of an indigenous popular homemade sweet preserve.

Part (b) (ii) was well done as evidenced by candidates' ability to creatively design a label for a homemade sweet preserve and correctly include appropriate information.

In Part (c), candidates were required to suggest quality assurance measures that should be practised on a buffet line to ensure food safety. Most candidates provided responses related to personal hygiene and as such they were not awarded maximum marks. Expected responses were:

- *Food to be served hot should be stored in hot food display cabinets or over burners. It is important that hot foods are served hot (140 °F) since bacteria multiply rapidly when the correct conditions are present.*
- *Cold foods should be displayed on ice or in special refrigerated cabinets. Ensure that they are stored at 41 °F which is the safe zone.*
- *Each dish must have its own serving utensil for use exclusively with that dish. Spoons and tongs should be used. This prevents cross-contamination since human hands do not touch the food preventing the spread of bacteria.*
- *Fresh food should be replenished regularly. Buffet type meals have the potential of providing ideal temperatures for rapid growth and multiplication of pathogens. Therefore, it is essential that potentially hazardous foods not be held for more than four hours between 41 and 140 °F including the time required for preparation and holding time before, during and after serving.*

Part (c) (ii) was poorly done as a majority of candidates were unable to correctly outline appropriate actions that must be taken at the HACCAP critical control points for protein dishes: purchasing, prepreparation and cooking. Most of the responses given were in relation to personal hygiene and candidates were not awarded maximum marks. Expected responses were:

Purchasing

- *Purchase meat, poultry and fish last when shopping.*
- *Keep packages of raw meat, poultry and fish from other foods, especially foods that will be eaten without further cooking.*
- *Use plastic bags to enclose individual packages of raw meat, poultry and fish*
- *Plan to drive directly home from the grocery store. If travel time will exceed one hour, pack perishable foods in a cooler with ice to keep them cool.*

Prepreparation

- *Wash hands with soap and water for 20 seconds, before preparation, after handling raw products, eggs, after using the bathroom or blowing nose or scratching skin or hair to prevent contamination or cross-contamination.*
- *Don't let juices from raw meat, poultry or seafood come in contact with cooked foods or foods that will be eaten raw, such as fruits or salad ingredients.*
- *Thaw in the refrigerator, never on the counter or in cold water in an airtight plastic bag changing the water every three minutes until thawed or thaw in the microwave and cook product immediately.*
- *Marinate foods in the refrigerator, never on the counter.*

Cooking

- *Always cook thoroughly. If harmful bacteria are present, only thorough cooking will destroy them.*
- *Use a meat thermometer to determine if meat, poultry or casserole has reached a safe internal temperature. Check the product in several spots to assure that a safe temperature has been reached.*

- *Avoid interrupted cooking. Never refrigerate partially cooked products to later finish cooking on the grill or in the oven. Meat and poultry products must be cooked thoroughly at the first time and then they may be refrigerated and safely reheated later.*

Section II – Optional Questions

Module 1

Question 2

This question tested candidates' understanding of factors that influence food choices during adolescence; guidelines for parents to help teenagers develop effective eating habits; and the impact of education and income on food choices.

Overall, performance on this question was very good. The question was attempted by 93.8 per cent of the candidates.

Part (a) was done well as most candidates were able to describe factors that influence food choices during adolescence. In Part (b), candidates were required to discuss guidelines for parents to use in developing effective eating habits in teenagers. Some candidates were able to adequately discuss the guidelines while the remaining candidates were not awarded maximum marks because they provided general guidelines as opposed to those specifically for teenagers. Expected responses were:

- *Provide teenagers with the knowledge and information they need to make healthy choices; without nutrition information, suitable choices cannot be made.*
- *Encourage teenagers to limit the amount of 'junk' foods they eat. Foods that are deep-fried in oils, covered in salt, infused with sugar, dripping in fat and having a high caffeine content should be avoided as much as possible. These foods are considered 'junk' because they add calories to a diet without much nutritive value.*
- *Influence teens' food choices by making healthy foods convenient and readily available in their homes; when teenagers have food readily available they are most likely to choose these foods.*

Part (c) was well answered as a majority of candidates were able to correctly explain how education and income impact on food choices in the Caribbean.

Question 3

This question tested candidates' ability to assess the nutritional accuracy of traditional beliefs; their knowledge of nutrients found in indigenous desserts; health implications of nutrients; and their ability to modify desserts to make them suitable for persons adopting a healthy lifestyle.

This question was attempted by six per cent of the candidates. Performance on this question was very good.

In Part (a), the majority of candidates demonstrated an inability to assess the nutritional accuracy of traditional beliefs and to state whether or not there is existing evidence to support the belief. Expected responses are given in the following table.

Examples of Beliefs/Misconceptions	Nutritional Accuracy
<i>Green pawpaw is believed to soften the flesh and produce a youthful appearance.</i>	<p><i>Green pawpaw is a good source of carbohydrates and potassium.</i></p> <p><i>The enzyme papain which is found in pawpaw aids in digestion and is a meat tenderizer.</i></p> <p><i>When papain is exposed to heat, it loses its tenderizing effect.</i></p> <p><i>No evidence has been found to support the belief.</i></p>
<i>Skimmed milk powder results in diarrhoea.</i>	<p><i>Skimmed milk powder is rich in calcium and potassium.</i></p> <p><i>It contains no fat making it low in calories.</i></p> <p><i>Some persons may be lactose intolerant which may lead to diarrhoea.</i></p> <p><i>No evidence has been found to support the belief.</i></p>

In Part (b), some candidates were able to correctly identify indigenous desserts, identify nutrients found in them and outline the health implication of the nutrients. However, some candidates did not achieve maximum marks because they did not include accurate information on the health implication of the nutrients. Expected responses included:

- *Carbohydrates – Excessive intake results in obesity.*
- *Protein – Large amounts of protein may negatively affect the kidneys, since excess nitrogen must be cleared by the kidneys.*
- *Fat – Excessive intake can lead to overweight.*
- *Vitamin A – Excessive amounts can be toxic to the body.*
- *Vitamin D – Maintains optimum calcification of bones.*

Section III – Optional Questions

Module 2

Question 4

This question tested candidates' understanding of the stages in processing frozen beans from farm to table; the difference between genetically engineered foods and nutraceuticals; food sources and health benefits of nutraceuticals.

This question was attempted by 42.5 per cent of the candidates. Overall, performance on this question was satisfactory.

Performance on Part (a) was good as a majority of candidates were able to describe the stages in the processing of frozen beans from the farm to the table.

Part (b) was fairly well answered as some candidates were able to explain the difference between genetically engineered foods and nutraceuticals. However, few candidates demonstrated inadequate knowledge of nutraceuticals and were not able to explain the difference. Expected responses included:

Genetically engineered foods are manipulated or modified by transferring genes from one food to another. Nutraceuticals are foods intended to provide medical or health benefits.

In Part (c), a majority of candidates were not awarded the maximum marks because they were unable to provide correct examples of nutraceuticals and their potential benefits. However, most candidates were able to correctly state food sources such as betacarotene but they had a challenge stating the potential benefit. In some instances candidates provided general benefits such as 'more energy', 'weight loss' and 'regulates the body'. An expected response is provided in the following table:

<i>Nutraceutical</i>	<i>Food Source</i>	<i>Potential Benefit</i>
<i>Flavonoids</i>	<i>Onions, apples, tea, broccoli</i>	<i>Neutralize free radicals which may damage cells, bolster antioxidant defences.</i>

Question 5

This question tested candidates' understanding of changes which affect the colour and appearance of food in relation to enzymatic or oxidative browning, caramelization and dextrinization; types and suitability of packaging materials for milk; and their ability to calculate the selling price of homemade milk drink.

This question was attempted by 57 per cent of the candidates. Overall, performance on this question was good.

Part (a) required candidates to use suitable examples to explain how enzymatic or oxidative browning, caramelization and dextrinization affect the colour and appearance of food during food preparation. This part was fairly well done.

Performance on Part (b) was good. Candidates were required to name suitable packaging for milk and suggest criteria used for their selection.

For Part (c), most candidates were able to calculate the selling price for a homemade milk drink; however, some candidates were not awarded full marks because they did not include all the components that must be included in the costing of products such as percentage mark-up, list of ingredients with quantities, cost per portion and production cost.

Section IV – Optional Questions

Module 2

Question 6

This question tested candidates' ability to explain the nutritional suitability of a menu for persons with non-communicable/chronic diseases, and the principles of menu planning that should be considered when planning meals for persons with non-communicable/chronic diseases.

This question was attempted by 30.7 per cent of the candidates. The overall performance on this question was unsatisfactory.

In Part (a), candidates were required to explain the nutritional suitability of a menu for persons with non-communicable diseases. The majority of candidates had challenges explaining the nutritional suitability of the menu. In most instances emphasis was placed on nutritive value, aesthetics and flavour rather than on explaining the nutritional suitability, therefore, candidates were not awarded maximum marks. Expected responses included:

- *Persons with non-communicable diseases should consume a well-balanced diet; this type of diet ensures that all the required nutrients are consumed in the correct amounts and therefore helps with the treatment of non-communicable diseases. If persons select samples of most of the items on the menu they will not consume a balanced diet.*
- *Protein dishes are low in fat except the seafood selection. This will help persons to consume the recommended 12–15% protein intake.*
- *Adequate vegetables are not provided. A diet rich in vegetables are advocated for persons with chronic diseases since they are nutrient dense.*
- *The desserts are all high in fat and sugar; no healthy choices were given. This will lead to obesity, high cholesterol and heart diseases.*

For Part (b), candidates were required to outline the principles of menu planning that should be considered when planning meals for persons with non-communicable diseases. A majority of candidates were not

awarded maximum marks because they gave responses that reflected the factors affecting menu planning such as age and gender rather than menu planning principles. Expected responses included:

- *Nutritionally balanced*
- *Type of occasion for which the menus are designed*
- *Special needs of guest – non-communicable diseases*
- *Aesthetics, suitable colour and texture*
- *Caloric content of the meals*
- *Good variety*
- *Type of service to be offered*

Question 7

This question tested candidates' ability to plan a five-course menu for an international night using four different cooking methods, and their knowledge of the guidelines to ensure a safe environment is maintained while preparing and cooking dishes to be served.

This question was attempted by 69 per cent of the candidates. Overall, performance on this question was very good.

Part (a) (i) was well done as the majority of candidates was able to plan a five-course menu to be served at an international night using different methods of cooking. However, some candidates were not awarded the maximum marks because they did not use the correct format for writing a five-course menu. Expected responses were:

Format for a five course menu

- *Appetizer*
- *Soup*
- *Fish or Salad*
- *Main course*
- *Dessert*

Part (b) was satisfactorily done; candidates were required to outline guidelines to be followed to ensure that a safe environment is maintained while preparing and cooking food. A majority of candidates were able to correctly outline the guidelines but did not substantiate them with a reason, as such, they were not awarded the maximum marks. Expected responses are given in the following table:

Guideline	Reason
<i>Use separate cutting boards for cooked and raw foods and sanitize after using.</i>	<i>Prevent cross-contamination.</i>
<i>Guards on machines should be in place.</i>	<i>Prevents accidents especially cuts.</i>
<i>Clean up grease and other spills as they occur. Use salt or cornmeal to absorb grease, then clean the area.</i>	<i>Prevents accidents especially falls.</i>

Paper 03 – School-Based Assessment (SBA)

This paper consisted of a portfolio comprising two pieces of work which tested objectives across all modules. Students, in consultation with the teacher and the guidelines provided by the Caribbean Examinations Council, selected the activities.

The first assignment was marked out of 30, while the second was marked out of 60. Overall, candidates' performance was average in comparison to previous years. The majority of portfolios was very well presented. Most of the illustrations were clear and creative. In most cases, the portfolios were neatly presented and well-organized.

This year there was a decrease in the number of exemplary portfolios students submitted. Teachers are encouraged to pay keen attention to the recommendations outlined in the feedback reports.

One major area of concern continues to be the communication of information. While some students were able to communicate information in a logical manner with few grammatical errors, several students continue to present information with numerous grammatical errors. This reduced the overall quality of the portfolios.

Module 1 – Research

Most candidates selected appropriate topics and demonstrated knowledge of relevant facts. The topics chosen were related to the nutritional problems facing the Caribbean region. The reviews of literature were adequate in length; however, there is still need for students to use credible sources from books, journals, newspaper and webpages. Data were well presented using a variety of attractive charts and graphs. Although some analysis of data was done many students did not provide a thorough analysis of data collected. The discussions of findings were minimal and they did not highlight causal factors related to the community. Additionally, few inferences and predictions were drawn from the research. Some conclusions were too brief and did not give an accurate summary of the findings of the research.

Recommendations given were related to dietary guidelines as opposed to the inclusion of government policies and community-based interventions. Students must be reminded of the importance of conducting

field observations which include personal experiences and monitoring of the community with regard to the topic under study.

Although the communication of information was satisfactory in some cases, the standard of communication for this level is extremely poor. Spelling and grammatical errors that can be easily corrected using the spell check on a computer were often overlooked.

Module 2 – Experimental and Recipe Modification

Many creative products and modifications were attempted and most students utilized sensory evaluation to determine the quality of the product. Students selected appropriate experiments and demonstrated knowledge of relevant facts. However, in some cases students translated the requirements of Unit 1 and did a product development instead of a product modification and vice versa.

Most students formulated hypotheses but they were not always realistic. The procedures for experiments were in most cases not clearly documented. Students who modified products more than three times must be commended. Some students did not modify the product until a good quality was maintained or the requirements of the hypothesis were met. For a large majority of candidates, there was very little evidence to prove that they modified the product after critical or unexpected outcomes.

Recommendations to Teachers

Students should be encouraged to:

- Read questions carefully, paying attention to key words.
- Place emphasis on comprehending the reasons for certain principles and procedures, rather than just learning by rote.
- Develop responses fully, paying attention to the marks allocated for each part of the question.
- Practise answering questions with a variety of key words, namely: *discuss, explain, list, describe, and define*. Ignoring these command words and simply listing responses when required to explain, for example, resulted in students' inability to gain as many marks as possible.
- Participate in mock examinations using past examination papers. These should be administered under examination conditions in order to develop good examination techniques.
- Utilize different media to become familiar with current nutrition issues.
- Place emphasis on research techniques, case studies and problem solving.

- Engage in field trips and work attachments to help them fully understand many nutrition concepts such as methods for assessing the nutrition status of children, complementary feeding and breast feeding, nutrition-related disorders, and practices and procedures for ensuring safety of food.
- Develop ideas and demonstrate clarity of expression. In many cases, students showed some knowledge of the concept being tested but could not adequately respond to questions to the standard required for the CAPE level.
- Seek guidance in choosing topics for projects as well as throughout the entire exercise.
- Select topics that are of interest to them and that relate to a problem in the region or community. This should ensure that there is ownership and motivation for the project.
- Note that literature reviews for each assignment do not have to be extensive but should be thorough enough to outline the problem and guide relevant research. This cannot be adequately done in two or three pages; literature reviews must be no less than 2000 words.
- Utilize a variety of sources: there was a heavy reliance on the internet and in many cases, this was the only source cited.
- Use the correct method of citing references. It is suggested that students be taught the APA referencing style for citing sources and developing a reference list. At this level of examination, this is critical.
- Develop rationales and explain the significance of the topic.
- Present and discuss the data for the research project. Students are not expected to present data on all of the questions but a discussion of all the questions asked on the questionnaire or interview is necessary. Field observations must be adequately highlighted and discussed.
- Provide a summary or conclusion at the end of the project.
- Write a detailed report which accurately records and reports all observations for the experimental and recipe modification.
- Repeat and modify experimental methods after critical or unexpected outcomes.

- Explain each modification in detail, giving reasons why the particular modification was done. After an unexpected outcome, changes should be noted by making a statement concerning the specific modification. For example, *when making a jam, the product did not set; therefore more lime juice was added to the next modification*. Examiners are not expected to compare the recipes to verify changes that were made.