540 FOOD AND NUTRITION

1. INTRODUCTION

Food and Nutrition is an applied science and is cuts across both arts and science disciplines. The discipline is suitable for both the needs of boys and girls for future development. The syllabus includes a study of food in relation to current dietary theories and the effects of modern technology on food preparation. It allows students to acquire knowledge, skills and competence to support a life-long living in a culturally diverse society.Ordinary Level 540 Food and Nutrition is a scientific and social discipline combining theory with practice, designed to equip the students with knowledge, comprehension and application with the basic principles of food and nutrition practices. The skills acquired will enable them to be productive in nutrition practices as well as develop their career profile.

Examination on the syllabus may only be taken at centres which have suitable equipment for practical tests and are approved for the purpose.

2. AIMS OF THE SYLLABUS

A. To foster an appreciation of Food and Nutrition as a scientific discipline relevant to:
   i. Health, physical, social, psychological and aesthetic well- being of people at different stages of life and different circumstances.
   ii. The production, processing, distribution and retailing trades.
B. Develop an understanding of inter-dependence within the family and community.
C. Enable candidates to become adaptable to rapid technological changes, the growth of scientific knowledge and the interactions of customs and values in a culturally, socially and economically diverse society.
D. Stimulate and sustain an interest in the psychological function of nutrition, understand and follow up professions which involve the study of Food and Nutrition and to educate the individual for the family.
E. Develop the ability to make informed judgment and choices about the use of food available to the family in everyday life.
F. Develop interest in creativity and skills,necessary for food preparation, storage and preservation.

3. Assessment Objectives (AO) and Weightings

The candidates will be assessed on their ability to:

AO1:(Knowledge and Understanding)

i. Recall, select and communicate their knowledge and understanding of Food and Nutritionconcepts, issues and terminology.
ii. Demonstrate knowledge, skills, attitudes and understanding of appropriate practical techniques and safety precautions.

AO2: (Application)

i. Apply knowledge and understanding of dietary goals and demonstrate understanding of the appropriate choices of foods which provide enjoyment and show efficient use of time and skills in their production.
ii. Apply skills and knowledge to provide evidence on which choices and decisions are made in a variety of contexts.
iii. Apply knowledge and understanding of the planning of balanced meals that suit different occasions

AO3:

i. Analyse and assessrelevant resources and equipment for use in a variety of circumstances.
ii. Assess and evaluate concepts of Food and Nutrition and use them to solve health and nutritional problems

AO4:

In planning and carrying out the practical component (paper 3), candidates shall be

Assess on their ability to POAE: i.e.

a. Devise and **p**lan the cooking of relevant meals. i.e. -**P**
b. **O**btain evidence, recording it methodically and presenting it in a suitable form -**O**
c. **A**nalyse this evidence and use it to carry out the task requested. to -**A**
d. **E**valuate evidence and draw conclusions –**E**

4. THE EXAMINATION

The examination comprises of three parts:

Paper 1

The paper shall consist of 50 compulsory Multiple Choice Questionsfor duration of1hour 30 minutes. Questions will be drawn from the entire syllabus.There are 50 marks available for this paper and it is weighted40 % of the total marks for the GCE examination in this subject.

Paper 2

Essay and problem solving papercomprising six questions. Candidates shall answer four of the six questions for100 marks; and for duration of 2 hours.Questions shall be drawn from the entire syllabus. Weighting: 30 %

Paper 3

The candidates shall beinternally-assessed (at school level and supervised by both internal and external supervisors). This shall be done intwo parts:

Part A: Drawn- up Test (Written Preparation):

This shall involve the drawing up and interpretation of the examination question. It shall take2 hours and must be donewith at least one day in-between the actual practical test of $2\frac{1}{2}$hours.This section shall carry 20 marks.

Part B: Cookery (*practical test*):

$2\frac{1}{2}$ hours practical preparation based on the task drawn up in part A. This paper shall carry 40 marks and weighted 30 % of the total marks of the Food and Nutrition examination.

Recipe books may be used in the practical preparation and the practical test. Textbooks shall not allow in the examination hall.

Cameroonian foods and their methods of preparation should be taken care of in the course of preparing candidates for this paper. It should also involve:

I. Local kitchen improvement and conversion to modern kitchens.
II. Equipment and appliances, local and modern, their use, scientific principles etc.
III. "Convenience"food imported and local e.g.garri, water fufu, flours from yam, corn, plantains, cassava, potatoes, dried vegetables.

Assessment Overview

Weighting of Examination and the Assessment Objectives

Paper	Description	Duration	Maximum Marks	Overall Weighting	Number of Questions and Specifications	Weighting of	Level of Difficulty
1	Written paper with 50 MCQ	$1\frac{1}{2}$ hours	50	40%	50 questions to answer all: viz.: AO1: (15 test items on knowledge &20 test items comprehension), 10 on Application- AO2 and 5 on higher level abilities- analysis, synthesis, and evaluation .i.e. AO3.	AO1 (30 % on knowledge & 40 % on comprehension) AO2 = 20 % AO3 = 10%,	30 one-star questions (*) 15 two-star questions (**) and 5 three-star questions (***)
2	Written paper: **Essay and problem solving**	2 hours	100	30 %	6 questions to answer 4	AO1 = 70 % (30 % on knowledge & 40 % on Understanding) AO2 = 20 % AO3 = 10 %	About 60 % (*), 30% (**) and 10 % (***)
3	**Practical Component:** **Part A** 'Drawn-up' Test / question interpretation (written preparation)	2 hours	20	30 %	Question will be drawn, interpreted and written preparation done in 2 hours; 24 hours before the start of part B. Candidates will be provided with instructions on how to carry out the practical test. (5 questions will be set for candidates to answer only.).	**AO4:** P = 20marks (mostly from part A) $\left.\begin{matrix}O\\A\\E\end{matrix}\right\}$ = 40 marks (see page 1 for a detail description of these four skill areas: P, O, A, E)	About 60 % (*), 30% (**) and 10 % (***)
	Part 2 Cookery	$2\frac{1}{2}$ hours	40		The selected task will be answered in $2\frac{1}{2}$ hours		

5. SYLLABUS CONTENT

It is expected that candidates will have some knowledge of relevant scientific principles taken from Chemistry, Physics and Biology.

TOPIC	TOPIC/Subtopic	Content and Notes	Objectives (attainment target)
1.	**DEFINITION OF FOOD AND NUTRITION**		
1.1.	The concept of health:	- State of well-being: Factors associated with health (Diet, Exercise, recreation). - Basic terms used in nutrition.	*Candidates shall be able to:* a. Identify the role of diet, exercise, and recreation in health. b. Define malnutrition, under- nutrition, balanced diet, food nutrients, over nutrition, metabolism, etc.
1.2.	Principles of nutrition	- Basic knowledge of nutrition, - functions of food, - Dietary guidelines.	*Candidates shall be assessed on their ability to*: a. Distinguish the different types of nutrients. b. State the main functions of food. c. Explain the dietary guide line.
1.3.	Interrelationship of food and nutrition to other subjects	- Relationship of food and nutrition to health and other disciplines. - Career associated with food and nutrition.	*Candidates should be able to:* a. Outline the relationship of food and nutrition to other subjects. b. Identify careers association with food and nutrition.
2.	**PROVISION OF NUTRIENTS**		
2.1.	Sources, functions and composition of nutrients.	Sources (good, rich, economical) • Functions • Composition of nutrients	*Candidates should be able to:* a. Name at least (10) ten good sources of carbohydrates, proteins fat etc. b. State rich sources of nutrients (at least five) (carbohydrates, proteins, fats) c. Identify some economical sources of food nutrients. d. State the main function of food sources. e. Identify the composition of nutrients (at least four.
2.2.	Macronutrients	o Carbohydrates o Starches, o Fats, o Proteins. - Uses of energy	*Candidates should be able to*: a. Identify carbohydrates, proteins fats etc. as macronutrients. b. Name sources of carbohydrate (at least 10) c. State the main functions of these macronutrients (carbohydrate, proteins fats). d. State the effects of excess of these nutrients in the body.

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		- Energy value.	e. Name the deficiencies of protein (at least four). f. Distinguish between oils and fats. g. Differentiate the types of fats. h. State the effect of excess fats in the body. i. Define energy. j. Explain how energy can be used by the body. k. Identified types of energy. l. Calculate the energy value of a given food.
2.3.	Micronutrients	o Trace elements o Water	*Candidates should be able to:* a. Identify the micronutrients e.g. vitamins, minerals, water etc. b. State the functions and sources of trace elements (at least five). c. Describe the composition of water d. State at least six functions and sources of water. e. Name at least three diseases associated with water.
2.4.	Deficiency diseases of all nutrients	Deficiency disease of all nutrients e.g. o Kwashiorkor o Marasmus o Night blindness o Rickets o Obesity etc.	*Candidates should be able to:* a. Define kwashiorkor and describe its symptoms. b. State the courses of kwashiorkor. c. Describe marasmus and state its symptoms. d. Identify the deficiency diseases of all nutrients including kwashiorkor, marasmus, night blindness, rickets, obesity, etc.
3.	**STUDY OF FOODS**		
3.1.	Historical background of foods	- Historical background of foods, - Cultural, regional and international dishes. - Notions on the food composition table.	*Candidates should be able to:* a. Outline historical background of foods. b. Identify and give examples of some cultural, regional and international dishes. c. Explain notions on the food composition table.
3.2.	Composition of foods	- nutrients content of foods - Nutritive value of	*Candidates should be able to:* a. Describe the composition of foods. b. States the different nutrients in a

TOPIC	TOPIC/Subtopic	Content and Notes	Objectives (attainment target)
		foods. - Structure of foods.	particular food c. Outline the nutritive value of foods. d. Present, annotate and explain the diagrammatic structure of foods.
3.3.	Production and processing of foods	Production and processing of food e.g. Cereals, Nuts, Convenience foods, Meat, Poultry, Eggs, Fish, Fruits, Milk and milk products: Butter, Cheese, Vegetable, Spices, herbs. Legumes	*Candidates should be able to:* a. Explain the production and processing of food. b. State their functions in the body and list at least six. c. Classify food e.g. vegetable, fruits etc. d. List the factors to be considered when choosing particular foods e.g. meat, poultry, fish, fruits, vegetable etc.
3.4.	Food additives.	Food additives	*Candidates should be able to:* a. List and classify the different types food additives and their uses. b. Classify the different types food additives c. State the importance and requirements of additives in the diet.
3.5.	Food labelling.	Food labelling	*Candidates should be able to:* a. Describe the process of labelling, b. State the different types of food labelling. c. Give the advantages of food labelling. d. State at least six requirements for food labelling.
4.	**FOOD CHOICES**		
4.1.	Matching food provision to needs.	Matching food provision to needs	Candidates should be able to: a. Match food provision to the different needs. b. State the importance of food provision to needs.
4.2.	Planning and construction of meals and diets.	- planning and construction of meals and diets for invalids: - Meals taken in courses o Three course meal o two course meals plan with Specific consideration of life-style: babies, children adolescents, pregnant and lactating mother, active	*Candidates should be able to:* a. Prepare cook and serve different types of meals. b. State the terminology associated with meal planning. c. Give examples of a three-course and a two-course meal. d. Plan meal and diet for the different group of persons e.g. babies, children, vegetarian etc. e. Describe and differentiate between the

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		and inactive; Vegetarian, elderly invalids etc. - Notion on food habits	different notions of food habits.
4.3.	Meals for special occasions	Meal for special occasions: ordinary and packed meal.	Candidates should be able to: a. Identify meals for special occasions. b. Compose meals for different occasions. c. Define packed meals. d. List the different types of packed meals.
4.4.	Food portions,	- Notion of food portions - quantities requires by different individuals	*Candidates should be able to:* a. Explain the notion of food portions. b. State at least four required food portions. c. State five quantities required by different individuals. d. List at least 3 individual that needs special required.
4.5.	Food availability and costing (budgeting).	- food availability - cost - budgeting	*Candidates should be able to:* a. Outline food availability i.e. explain the notion of food security. b. Outline at least 3 methods of budgeting.
4.6.	Dietary Goals, balanced diet.	- Dietary goals. - balanced diet	*Candidates should be able to:* a. Outline the different goals of dieting. b. Define fibre. c. Describe the role of fibre in a diet. d. Distinguish between balanced diet and unbalanced diet.
5.	**DIGESTION AND ABSORPTION OF FOOD**		
5.1.	Digestion and Absorption of food	- The digestive system. - Digestion in various parts of digestive system: o The mouth. o The Esophagus (or oesophagus). o The Stomach. o The Small Intestine. o The Large Intestine.	*Candidates should be able to:* a. Draw and annotate the diagram of a digestive system. b. Explain digestion in the various parts of digestive system: i. Outlining the enzymes involved in the breakdown of food at the different levels. ii. State various kinds of enzymes which breakdown food and describe their actions. iii. Identify and Outline the physical and chemical changes resulting from the action of enzymes.

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			c. Outline the physical and chemical changes required for the ultimate absorption, and/or use by the body d. Enumerate the functions of absorption
6.	**HYGIENE AND FOOD SAFETY**		
6.1.	Personal hygiene.	Hygiene for food safety	*Candidates should be able to:* a. State the general rules for personal hygiene. b. Outline personal hygiene rules that contribute to food safety
6.2.	Kitchen hygiene.	Kitchen hygiene	*Candidates should be able to:* State with reasons, the points to consider when caring for a kitchen.
6.3.	Preventive measures geared towards food safety	Preventive measures: - Safe and hygienic storage in the store/larder o store o larder - Purchase and preparation of food.	*Candidates should be able to:* a. Describe at least five points on how to care for the following; (i) food store, (ii) food larder b. Outline measures needed for food safety in the kitchen? c. State food safety measures to consider when purchasing and preparing food (at least five).
6.4.	Disposal of kitchen waste, cleaning of floors, sinks and larders.	- disposal of kitchen waste - cleaning of the floor - cleaning of kitchen sinks and larders	*Candidates should be able to:* a. State the different methods of disposing waste. b. List at least four guidelines in cleaning: (i) floors, (ii) sinks, (iii) larders
7.	**FOOD SPOILAGE**		
7.1.	Natural decay.	- Natural decay: - Action of enzyme, e.g. oxidation, browning, ripening. o Effects of Moisture loss.	*Candidates should be able to:* a. Describe the symptoms of spoilt food b. Describe food spoilage as a result of natural decay. c. Describe the action of enzyme in food that result in food spoilage e.g. oxidation, browning, ripening etc. d. Describe food spoilage resulting from the loss of moisture in food.
7.2.	Food contamination	Food contamination by microorganisms: bacteria, moulds and yeast	*Candidates should be able to:* - Identify the different microorganisms involved in food contamination (e.g. Bacteria, Moulds, yeast etc.) and - describe how they contribution towards food contamination.

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7.3.	Escherichia coli, clostridia bacillus, clostridia cerus.	- Escherichia coli, clostridumbotilinum, clostridia cerus.	*Candidates should be able to:* a. State main causes and effects of: (i) Escherichia coli (ii) Clostridia bacillus and (iii) Clostridia cerus and b. State their symptoms and sources.
7.4.	Staphylococci, clostridium botilinum, listeria; contamination from other sources.	- staphylococci, listeria, clostridium botilinum, - Contamination from other sources e.g. wrong usage of food additives.	*Candidates should be able to:* e. Tabulate the different types of bacteria, f. State their symptoms illness incubation duration and sources.
7.5.	Agents of food contamination.	Agents of food Contamination	*Candidates should be able to:* a. State at least six agents of food contamination. b. List the effects of food contamination c. State how bacteria can be transferred to food. d. List at least six condition of bacteria growth on food.
7.6.	Effects of food contamination.	Effects of food contamination.	
7.7.	Food poisoning.	Food poisoning	
8.	**PRESERVATION OF FOOD IN THE HOME**		
8.1.	Aims and Principles.	- Meaning of food preservation. - Aims of preserving food. - Principle involved in the preservation of food.	*Candidates should be able to:* a. Describe in detail the concept of food preservation. b. State the aims of preserving food.
8.2.	Food preservation methods:	Methods of food preservation - Heat preservation - Removal of moisture - Removal of air - Reduction of temperature. - Addition of chemicals.	c. Explain the principles involved in food preservations. d. Describe the methods of preserving food: ○ Local, chemical and foreign methods.
8.3.	Use of left-over foods (reshuffle cookery).	- Use of left-over foods. - Rules for preparing left-over foods. - Methods for cooking used for left-over dishes.	e. Explain the notion of left-over cooking.
9.	**KITCHEN PLANNING AND MANAGEMENT**		
	Kitchen Planning and Management	- Definition - Types of kitchens - Shapes of kitchen - Kitchen	*Candidates shall be assessed on their ability to*: a. Define and describe a kitchen. b. Identify the different types of kitchens.

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		elements/types of kitchen unit - Storage space - Cleaning the kitchen. - cleaning plans of the kitchen - Time management in the kitchen	c. Outline the various kitchen elements and units. d. Present the different arrangements in kitchen in relation to a modern kitchen. e. Outline at least four points to consider when planning for a modern kitchen. f. Enumerate the difference weekly and monthly Kitchen cleaning plans. g. State the advantages of time management in the kitchen. h. Outline factors that contribute to time gain in the kitchen.
10.	**EQUIPMENT IN THE KITCHEN**		
10.1.	Labour saving equipment.	- Types of labour saving equipment - Examples of labour saving equipment (small and large) - Parts of some labour saving equipment. - Points to consider when buying equipment - feature of labour saving equipment	*Candidates shall be assessed on their ability to:* a. Differentiate between small, large and labour saving equipment and give examples of each. b. Draw diagrams of some labour saving equipment. c. Explain the rules to follow in using and storing food in the i. Refrigerator. ii. Freezer iii. vacuum flasks d. Explain how to take care of some equipment. i. Cleaning and defrosting a refrigerator ii. Cleaning of a cooker iii. General care of mixers and blenders e. State factors that influence consumers' choice. f. Outline the uses of some equipment g. Identify accidents in the kitchen. h. Describe the principles involved in the working of some large equipment. o Freezers, refrigerators, Mixers, blenders, Pressure cookers, vacuum flasks Microwave ovens i. State the principles of a vacuum flask in keeping food hot.
10.2.	Principles involved in the working of some large equipment.	- How food is cooked in microwave - How a refrigerator works. - How a pressure pot works - State the principles of a vacuum flask	
10.3.	Choice, care and use of equipment.	- Factors that influence the consumer's choice. - Managing kitchen equipment: Freezers, refrigerators, Mixers, blenders, Pressure cookers, vacuum flasks Microwave ovens, - Timing and cooking the food.	

TOPIC	TOPIC/Subtopic	Content and Notes	Objectives (attainment target)
		- Guidelines for using a microwave oven. - Advantages and disadvantages of the various equipment.	j. Explain why a pressure pot cooks faster than an ordinary pot k. List points to consider when choosing equipment. l. Explain the functioning of the following: Refrigerator, freezer, pressure cooker, microwave cooker, vacuum flask. m. Outline the Guidelines for using a microwave oven. n. Explain the timing of foods with respect to the cooking appliance. o. Outline the advantages and disadvantages of using the different equipment and apply these in purchasing the right kitchen equipment.
10.4.	Kitchen safety – accidents etc.	- Danger and precaution o involving food preparation. o in using the kitchen floor. o using electrical equipment. - Types of kitchen accidents. - Causes. - First aid given. - Items in the first aid kit.	*Candidates shall be assessed on their* a. Understanding and presentation of the safety precautions i. During food preparation. ii. When using electrical equipment. iii. In using the kitchen floor. b. Ability to identify the different causes of kitchen accidents. c. Understanding of the type of first aid to be administered in the event of any accident. d. Ability to list the items in a first aid kit.
11.	**FOOD PREPARATION AND PRESENTATION**		
11.1.	Methods of cooking food.	- Various method s of cooking. - Advantages and disadvantages of various methods of cooking. - Suggest suitable foods for each method of cooking. - Classification of methods and choice of food.	*Candidates should be able to*: a. list the various methods of cooking food. b. Identify the factors which influence the choice of cooking method. c. classification of methods and choice of food d. State the advantages and disadvantages of various cooking methods. e. Outline or suggest suitable foods for each method of cooking

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11.2.	Reasons for cooking food,	- Reasons for cooking food. - Choice of food	a. State the reasons for cooking foods. b. Explain the effects of cooking on the nutrient content of food.
11.3.	Practical task in relation to the theory.		a. Explain the practical task in relation to theory. b. Apply the practical task in relation to theory.
11.4.	Drawing up test	Drawing up test to include menu planning, quantities, reasons for choice; time management, shopping list and summary of quantities used.	Candidates should be able to: a. Plan meals. b. Suggest quantities c. State reasons for the choice of choice. d. Outline the time management. e. Make shopping lists. f. Implement what has been planned.
12.	**FOOD SCIENCE**		
12.2.	Physical and chemical changes which takes place in the storage, preparation and cooking of food,	Physical and chemical changes which take place during storage preparation and cooking of food. - Browning, maillard, caramelisation, coagulation, thickening gelatinisation, - destruction of nutrients - Denaturation of fat and oil, oxidation, tenderization (e.g. meat).	Candidates should be able to: a. Define the terms: Browning , caramelisation, maillard reaction, coagulation, gelatinisation, thickening b. Explain the physical and chemical changes which take place during storage, preparation and cooking of food .i c. Explain the destruction of nutrients d. Explain: the denaturation of fat and oil, rancidity, oxidation, and tenderization (e.g. of meat).
12.3.	Heat transfer.	- conduction, - convection and - radiation in the preparation of food.	Candidates should be able to: Explain the following processes that occur during the preparation of food: o conduction, o convection and o radiation
12.4.	Raising agents (gases, steam, chemicals).	Raising agents (gases, steam and chemicals)	a) Identify the various raising agents. b) To describe how raising agents work.
13.	**ENTERTAINING**		*Candidates should be able to*:
13.1.		The art of entertaining.	Explain the art of entertaining.
13.2.		Qualities of a good host/hostess.	Outline the qualities of a good host/hostess.
13.3.		Table manners.	List accepted table manners
13.4.		Table setting.	a. Outline points to consider when setting a table.

TOPIC	TOPIC/Subtopic	Content and Notes	Objectives (attainment target)
			b. List the various types of table setting. c. Outline the requirements for table setting. d. State the rules for table setting.
13.5.	Food Service:	- formal and - informal.	*Candidates should be able to:* Explain the differences between formal service and informal service. a. Describe the various types of formal and informal food service. *b.* Understand the importance of food service
13.6.	Waiter/waitress	Waiter/waitress - functions of a waiter/waitress. - qualities of waiter/waitress. - Rule of serving food. - Importance of food service	*Candidates should be able to:* • Outline the functions of a waiter/waitress. • State the qualities of waiter/waitress. • Know points to observe when serving food. • Explain the importance of food service.
13.7.	Invitations and response.	Invitations and response.	*Candidates should be able to:* a. Draft invitations for particular entertainment functions. b. Describe the advantages of issuing invitations c. Explainthe use of responses to invitation

6. RECOMMENDED TEXT BOOKS

1. Cookery for Schools by Melita M. Neal.
2. Food and Nutrition by Anita Tull (New edition).
3. Ordinary Level Cookery by P.M. Abbey and G.M. McDonald.
4. Cooking Explained by Jill Davies 4th ed. Longman Publishing Company.

7. CROSS CURRICULA DEMANDS

Mathematics – knowledge and understanding of the following basic concepts is required:

- Calculations involving simple proportions, weight,
- Recommended dietary needs, use of money,
- Purchasing portions, etc.

Sciences:

- **Chemistry**: chemical position of food and nutrients.
  - Scientific methods of food production and food preparation,
  - Chemical changes in foods under certain conditions, e.g. Apple, yellow yams go brown, etc.
- **Physical** – heat exchange – metals etc.
- **Human Biology** – Digestion of food
- **Biology** – Food – plants – animal sources
- **Health Education** – Food related diseases, food and man, special needs.
- **Language-** Communicate information, (all four aspects) –
  - reading, writing, listening,

History and Geography

- **Food history and man,; migration.**
  - English and French Food production and thier availability in specific geographic regions.
  - Entertaining – catering, hotel etc.
  - Food Industry – Chococam, Brasseries etc.

Economics - Buying and retailing; socio-economic factors and nutrition etc;