

G12 ECZ FOOD AND NUTRITION P1 2016 SPECIMEN SOLUTIONS

Food and Nutrition Paper 1 Theory, 2016 Specimen (6065/1, revised syllabus)

Section A (Q1 compulsory, 40 marks) + Section B (Q2-7, answer any 4, 60 marks)

Preamble for Food and Nutrition (6065)

The Examinations Council of Zambia has made adjustments to the assessment of **Food and Nutrition** at Grade 12 level so as to be in line with the revised **Food and Nutrition** Senior Secondary School Syllabus of 2013 developed by Curriculum Development Centre (CDC) of the Ministry of General Education.

Purpose

The purpose of the Grade 12 Food and Nutrition assessment is to measure candidates' knowledge and understanding, application of skills and values acquired, in order to promote a self-sustained livelihood. It will also be used for certification and placement.

Assessment Objectives

Candidates will be assessed against the following objectives:

Knowledge and Understanding

1. Explain food and its nutrients.
2. Outline the functions of nutrients and diseases related to their deficiency.
3. Identify kitchen utensils and equipment and their uses.
4. Show knowledge of household budgeting, saving, entrepreneurship and consumer education.

Application of skills and Problem Solving

1. Plan, prepare, cook and serve correctly combined meals.
2. Analyse and plan meals according to occasion and individual needs.
3. Plan and budget wisely.
4. Apply principles of preservation and conservation in the management of resources.
5. Demonstrate basic skills in practising safety rules in the kitchen.
6. Apply first-aid to minor injuries.

3 Test Design

The Food and Nutrition examination will have two papers, Paper 1 and Paper 2

1. Paper 1 will be marked out of 100. It will be theory comprising Sections A and B. Section A will be compulsory carrying 40 marks. In Section B, candidates will be

required to choose four (4) questions out of six (6) at 15 marks each, totalling 60 marks.

2. Paper 2 will be marked out of 100. It will comprise ten (10) questions from which the candidate will draw one question at random. Candidates will be expected to write a time plan and carry out the practical test later. The time plan will carry 10 marks and the practical test 90 marks.

Paper Name	Paper Code	Duration	Marks Allocated	Weight
Food and Nutrition Paper 1	6065/1	2 hours	100	50%
Food and Nutrition Paper 2 (Planning)	6065/2	1 hour 30 minutes		
Food and Nutrition Paper 2 (Practical test)		3 hours	100	50%
Total			200	100%

Candidate Name _____

Centre Number		Number Candidate									

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Food and Nutrition

6065/1

Paper 1 Theory

Time: 2 hours

Instructions to Candidates

Write your name, centre number and candidate number in the spaces at the top of this page and on all separate Answer Booklets used.

There are **seven** questions in this paper.

Section A

Answer **all** parts of question 1.

Write your answers in the spaces provided on the question paper.

Section B

Answer **any four** questions.

Write your answers for each question on the separate page of the Answer booklet provided.

At the end of the examination:

- 1 fasten any separate Answer Booklets used securely to the question paper, **tie with a string in the left corner of the booklet.**
- 2 enter the numbers of the Section B questions you have answered on the left side of the grid below, under the column "For Candidate's Use".

Information for Candidates

The intended number of marks is given in brackets [] at the end of each question or part question.

You are advised to spend no longer than 45 minutes on Section A.

Cell phones are not allowed in the examination room.

For Candidate's Use	For Examiner's Use
Section A	
Section B	
Total	

SECTION A (40 marks)

Answer all parts of question 1.

Write your answers in the spaces provided on the question paper.

- 1 (a)** Vitamins are a group of chemical substances which have been identified as vital to the body.

- (i)** State the **two** groups in which vitamins are classified.

.....
..... [2]

- (ii)** Give **four** functions of vitamin A (Retinol) in the body.

.....
.....
.....
..... [4]

- (iii)** Explain why too much vitamin A in children is not recommended.

.....
..... [2]

- (b)** Mineral elements are important in the body. Give **two** reasons why the following minerals are important in the body.

- (i)** Zinc [2]

- (ii)** Potassium [2]

(c) Draw the digestive system showing the following parts:

(i) Salivary glands;

(ii) Stomach;

(iii) Pancreas;

(iv) Liver;

(v) Duodenum.

[6]

(d) Explain the following cookery terms:

(i) Macêdoine

[3]

(ii) Bake blind

[3]

(iii) Aeration

[3]

(iv) Bouquent garni

[3]

(v) Dextrinisation

[3]

- (e) (i) Identify **four** organizations that protect the consumer.

.....

.....

.....

.....

[4]

- (ii) Explain **three** roles advertisement plays to the consumer.

.....

.....

.....

.....

[3]

[Total: 40]

SECTION B (60 marks)**There are six questions in this Section****Answer any four questions****Write your answers on the separate Answer Booklet provided.****2** The kitchen is a working room.

- (a) Explain **two** reasons why a good surface is key to food preparation. [2]
- (b) Discuss **four** ways which would enable you use the cooker economically. [4]
- (c) Describe **five** features you would look for when buying an electric kettle. [5]
- (d) Give **four** ways of unblocking a kitchen sink. [4]

[15 marks]**3** Fruits play an important role in the diet.

- (a) List **five** ways in which fresh fruits may be included in the family meals. [5]
- (b) Give advice on the choice and purchase of fresh fruits. (Three points) [3]
- (c) Discuss the food value of fruits in the diet. [5]
- (d) Describe the change in carbohydrates as the fruit ripens. [2]

[15 marks]**4** Frying is a popular method of cooking.

- (a) State **two** advantages and **two** disadvantages of frying. [4]
- (b) Explain the importance of coating food before deep frying. [5]
- (c) Describe **three** rules to follow to ensure success when deep frying. [6]

[15 marks]**5** (a) List the basic proportions of ingredients for a melted cake mixture. [3]

(b) Give detailed instruction/method on preparing and cooking ginger bread. [8]

(c) Analyse what causes the following faults in ginger bread making.

(i) Heavy bread

(ii) Badly shaped bread

[4]

[15 marks]

6 Foods can either be preserved by natural or chemical means.

(a) Explain how the following chemicals work in preservation.

(i) Salt

(ii) Sodium benzoate

(iii) Sulphur dioxide

[6]

(b) (i) Describe osmosis

[2]

(ii) Discuss the importance of chemical preservation

[2]

(c) Explain "low dose" as a level of radiation in food preservation.

[3]

(d) State how you would preserve sweet potatoes traditionally.
Give **two** methods.

[2]

[15 marks]

7 (a) Discuss **five** advantages of forming a cooperative business venture.

[5]

(b) Give **three** points why a shopping list is important.

[3]

(c) Outline the importance of electronic scanning of the bar code placed
on packaged foods.

[3]

(d) Give **four** important points to consider when drawing up a family
business.

[4]

[15 marks]

Question Q1 (Section A, compulsory, 40 marks). Vitamins, minerals, digestion, consumer education.

Answer: (a)(i) Two groups vitamins are classified into: fat-soluble vitamins (A, D, E, K) and water-soluble vitamins (B-complex and C).

Answer: (ii) Four functions of vitamin A (Retinol): maintains healthy vision, especially in dim light; keeps skin and mucous membranes healthy; supports normal growth in children; boosts resistance to infection/supports the immune system.

Answer: (iii) Why too much vitamin A in children is not recommended: vitamin A is fat-soluble and stored in the liver, so excessive intake can accumulate to toxic levels, causing hypervitaminosis A -- symptoms include liver damage, bone/joint pain, and in severe cases can affect growth and cause birth defects if the child later becomes pregnant.

Answer: (b)(i) Two reasons zinc is important: supports wound healing and tissue repair; essential for normal growth and development, and supports immune function.

Answer: (ii) Two reasons potassium is important: helps regulate fluid balance inside body cells; supports normal nerve impulse transmission and muscle contraction, including the heartbeat.

(c) [SKETCH REQUIRED -- cannot be reproduced in text] A labelled diagram of the human digestive system showing: (i) salivary glands -- located under the tongue/jaw, producing saliva with ptyalin to begin starch digestion in the mouth; (ii) stomach -- a muscular sac below the oesophagus where protein digestion begins via pepsin and hydrochloric acid; (iii) pancreas -- a gland behind the stomach releasing digestive enzymes and insulin into the duodenum; (iv) liver -- the large gland above the stomach producing bile to emulsify fats; (v) duodenum -- the first section of the small intestine, immediately after the stomach, where bile and pancreatic juice mix with food.

Answer: (d)(i) Macedoine: a mixture of mixed diced vegetables or fruits, usually served as a garnish or salad.

Answer: (ii) Bake blind: pre-baking a pastry case empty (lined with baking paper and baking beans/weights) before adding a filling, so the base cooks through and does not become soggy.

Answer: (iii) Aeration: the process of introducing air into a mixture (e.g. by sieving, whisking, creaming, or using a raising agent) to make it lighter.

Answer: (iv) Bouquet garni: a small bundle of herbs (e.g. thyme, bay leaf, parsley stalks) tied together or in a muslin bag, used to flavour soups and stews and removed before serving.

Answer: (v) Dextrinisation: the change that occurs when starch is subjected to dry heat, converting surface starch into dextrin, giving a golden-brown colour and toasted flavour (e.g. toasting bread).

Answer: (e)(i) Four organizations that protect the consumer: Zambia Bureau of Standards (ZABS); Competition and Consumer Protection Commission (CCPC); Consumer Unity and Trust Society (CUTS); the Ministry of Health (for food safety inspection).

Answer: (ii) Three roles advertisement plays to the consumer: informs consumers about the availability and features of products; helps consumers compare products/prices before purchase; creates awareness of new products; (can also mislead if not regulated, so it should be balanced with consumer protection bodies).

Question Q2 (Section B: The kitchen, 15 marks). The kitchen as a working room.

Answer: (a) Two reasons a good work surface is key to food preparation: it provides a clean, hygienic area free of cracks that could harbour germs; it is durable and heat/scratch resistant, allowing safe preparation of hot pans and cutting of food.

Answer: (b) Four ways to use the cooker economically: use a well-fitting lid on pots to retain heat; match the size of the pot to the size of the hotplate/flame; switch off or lower heat once food is cooking/boiling; cook several dishes together in the oven where possible; avoid opening the oven door unnecessarily.

Answer: (c) Five features to look for when buying an electric kettle: automatic shut-off/cut-out when boiled; a visible water-level gauge; a cordless base for safety and convenience; a good capacity for household needs; a stable, heat-resistant handle; energy efficiency rating.

Answer: (d) Four ways of unblocking a kitchen sink: pour boiling water down the drain; use a plunger to dislodge the blockage; use a proprietary drain-cleaning chemical; use a sink plunger/wire/plumber's snake to physically remove the obstruction; check and clean the U-bend/trap under the sink.

Question Q3 (Section B: Fruits, 15 marks). Fruits in the diet.

Answer: (a) Five ways fresh fruits may be included in family meals: eaten raw as a snack; served as a starter/appetizer; added to salads; used as a dessert; made into fruit juice; used to garnish savoury or sweet dishes.

Answer: (b) Advice on choice and purchase of fresh fruits: choose fruit that is firm and free from bruises or blemishes; buy fruit that is in season, as it is cheaper and fresher; check for ripeness suited to when it will be eaten.

Answer: (c) Food value of fruits in the diet: rich source of vitamin C and other vitamins (e.g. vitamin A in mangoes/pawpaw); good source of dietary fibre/roughage aiding digestion; provide natural sugars for energy; contain minerals such as potassium; high water content helps with hydration; contribute to a balanced, protective diet.

Answer: (d) Change in carbohydrates as fruit ripens: starch present in the unripe fruit is gradually converted into simple sugars (glucose/fructose) by enzyme action, making the ripe fruit sweeter and softer.

Question Q4 (Section B: Frying, 15 marks). Frying as a method of cooking.

Answer: (a) Two advantages of frying: it is a quick method of cooking; it gives food an appetising colour, flavour and crisp texture. Two disadvantages: it adds extra fat/calories to food, making it less suitable for low-fat diets; there is a risk of fire/burns from hot fat if not handled carefully.

Answer: (b) Importance of coating food before deep frying: the coating (e.g. batter or egg-and-breadcrumb) protects the food from absorbing too much fat; it seals in the food's natural juices and flavour; it gives an even, attractive golden colour and crisp texture; it prevents delicate foods from breaking apart in the hot fat.

Answer: (c) Three rules to ensure success when deep frying: heat the fat/oil to the correct temperature before adding food (test with a cube of bread); do not overcrowd the pan, as this lowers the fat temperature and causes greasy results; ensure food is dry/well-coated before frying to prevent spitting; drain fried food on absorbent paper after cooking.

Question Q5 (Section B: Cake making, 15 marks). Melted method cake mixtures.

Answer: (a) Basic proportions of ingredients for a melted cake mixture: fat and sugar in roughly equal or lesser proportion to flour, with syrup/treacle, egg and a raising agent (e.g. bicarbonate of soda) added, and a higher proportion of liquid than other cake-making methods (typical ratio: flour, fat, sugar and liquid such as milk/syrup combined, e.g. gingerbread proportions).

Answer: (b) Method for preparing and cooking gingerbread: grease and line a baking tin and preheat the oven to a moderate/low temperature; melt the fat, sugar and syrup/treacle together gently in a saucepan without boiling; sieve the flour with the spices (ginger, mixed spice) and bicarbonate of soda into a bowl; pour the melted mixture into the dry ingredients and mix well; warm the milk slightly and beat in the egg, then stir into the mixture to form a smooth, fairly thin batter; pour into the prepared tin and bake at a low-to-moderate temperature for about 45-60 minutes until well risen and firm to touch; cool in the tin before turning out, and store in an airtight tin for a day or two before eating to allow it to become moist and sticky.

Answer: (c)(i) Cause of heavy bread: too much liquid in the mixture, insufficient raising agent, oven temperature too low, or opening the oven door too early causing the mixture to sink.

Answer: (ii) Cause of badly shaped bread: uneven distribution of the mixture in the tin, an uneven oven temperature, or using a tin that is the wrong size/shape for the amount of mixture.

Question Q6 (Section B: Food preservation, 15 marks). Natural and chemical methods of preservation.

Answer: (a)(i) Salt works in preservation by drawing out moisture from food through osmosis, creating a high-salt environment that dehydrates and inhibits the growth of micro-organisms.

Answer: (ii) Sodium benzoate works by inhibiting the growth and activity of moulds, yeasts and bacteria in acidic foods (e.g. fruit juices, pickles).

Answer: (iii) Sulphur dioxide works by killing/inhibiting the growth of micro-organisms and preventing enzymic browning/oxidation in foods such as dried fruits and wines.

Answer: (b)(i) Osmosis: the movement of water from a weaker (more dilute) solution to a stronger (more concentrated) solution through a semi-permeable membrane, until the concentrations equalise.

Answer: (ii) Importance of chemical preservation: it allows food to be kept safely for a longer period by inhibiting micro-organism growth, reducing wastage and making food available out of season.

Answer: (c) 'Low dose' as a level of radiation in food preservation: a small, controlled dose of ionising radiation applied to food, sufficient to kill or inhibit bacteria, moulds and pests, and to delay sprouting/ripening, without significantly altering the food's nutritional value, taste or safety.

Answer: (d) Two traditional methods of preserving sweet potatoes: sun-drying/dehydrating slices of sweet potato; storing them in a cool, dark pit/underground store (also acceptable: burying in sand/soil clamps).

Question Q7 (Section B: Entrepreneurship, 15 marks). Family business and consumer awareness.

Answer: (a) Five advantages of forming a cooperative business venture: pooled capital/resources allow a bigger business than one person could start alone; shared risk among members; combined skills and knowledge benefit the venture; better bargaining power when buying supplies or selling produce in bulk; shared workload and responsibilities among members.

Answer: (b) Three reasons a shopping list is important: it helps avoid impulse buying and overspending; ensures nothing needed is forgotten; saves time when shopping by planning the route/items in advance; helps stick to a budget.

Answer: (c) Importance of electronic scanning of the bar code on packaged foods: gives quick and accurate pricing at the till, reducing errors; helps track stock levels for re-ordering; provides sales data for business planning; speeds up the checkout process for customers.

Answer: (d) Four important points to consider when drawing up a family business: the amount of capital available; the skills and interests of family members; the demand for the product/service in the community; the location of the business; how profits and responsibilities will be shared.

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