G12 ECZ FOOD AND NUTRITION P1 2017 GCE SOLUTIONS

Food and Nutrition Paper 1 Theory, 2017 GCE (6065/1)

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

Candidate Name_____

Centre Number	Candidate Number

EXAMINATIONS COUNCIL OF ZAMBIA

Examination for General Certificate of Education Ordinary Level

Food and Nutrition 6065/1

Paper 1 Theory

Thursday **10 AUGUST 2017**

Additional Material(s):
Answer Booklet

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 a 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".

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

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.

This question paper consists of 6 printed pages

For Examiner's use

SECTION A (40 marks)

Answer all parts of question 1.

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

1 Water is vital to life.

(a) **(i)** Explain **four** functions of water in the body.

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.....

.....

..... [4]

(ii) List down **four** foods that have a high content of water.

.....

.....

.....

..... [4]

(iii) Define the term dehydration.

.....

..... [1]

(iv) Identify situations when the body requires extra water.

.....

.....

..... [3]

For Examiner's use

(b) Every function and process in the body requires a source of energy.

(i) Give three examples of energy giving nutrients.

.....

.....

..... [3]

(ii) Name the complex sugar which aids egestion of solid waste.

..... [1]

(iii) Mention the carbohydrate which is stored in the liver

..... [1]

(iv) Describe how sugar can be stored in a home to maintain its quality.

.....

..... [2]

(c) **(i)** Explain the difference between anabolism and catabolism.

.....

.....

.....

..... [2]

(ii) Outline the final products of digestion when the following nutrients are digested.

Carbohydrate .....

Protein .....

Fats ..... [3]

For Examiner's use

(d) Child health is important

[Turn over

(i) Discuss the **four** important nutrients a child needs in order to grow healthy.

.....

.....

.....

..... [4]

(ii) Outline the **five** advantages of breast milk.

.....

.....

.....

..... [5]

(iii) State **two** reasons why colostrum is important for a new born baby.

.....

..... [2]

(iv) Discuss **five** ways in which you would care for the baby during weaning.

.....

.....

.....

..... [5]

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 Eggs are a very useful food stuff to have in the fridge.

(a) Describe how you would determine the freshness of eggs without breaking the shell. [4]

(b) Explain the term coagulation. [2]

(c) List down **four** different methods of incorporating air into a cake mixture. [4]

(d) State how the following ingredients assist in achieving the aeration process to produce the structure of a cake:

(i) the protein in an egg;

(ii) the glutein in the wheat flour;

(iii) the starch in the wheat flour;

(iv) the sugar. [4]

(e) Name **one** nutrient which is not present in eggs. [1]

[15 marks]

3 An increased appetite among adolescent boys and girls is common.

(a) Discuss **four** main factors that can lead to an increased appetite among adolescents. [4]

(b) Mention **five** eating habits that are more pronounced in adolescents than in adults. [5]

(c) **(i)** State the reason why boys are less likely to suffer from low iron levels than girls. [1]

(ii) Plan a **two** course meal for a teenage girl. [5]

[15 marks]

4 Marketing is an important component in the trade of food industry.

(a) State **three** different ways of advertising goods and services. [3]

(b) Identify at least four components of food labels. [4]

(c) Outline **six** advantages of buying foods in a supermarket or hypermarket. [6]

(d) Explain the effect of using charcoal as fuel for cooking, on the environment. [2]

[15 marks]

5 Write an informative paragraph on each of the following:

(a) The use and care of a refrigerator. [5]

(b) Mechanical means of raising agents. [5]

(c) The advantages and disadvantages of using a microwave oven. [5]

[15 marks]

6 **(a)** **(i)** Define convenience foods. [2]

(ii) Name **two** different types of convenience foods. [2]

(b) Explain why convenience foods have become popular in recent years. [3]

(c) Compare and contrast shopping in a supermarket from shopping at an open market. [4]

(d) Write short notes on the following:

(i) textured vegetable proteins (TVP); [2]

(ii) monosodium glutamate. [2]

[15 marks]

7 Vegetables play an important role in the diet.

(a) Mention the **four** classes of vegetables. [4]

(b) Explain why green leafy vegetables are important in family meals. [4]

(c) Outline **three** points on the choice of vegetables. [3]

(d) State **four** ways of preserving vegetables. [4]

[15 marks]

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Question Q1 (Section A, compulsory, 40 marks). Water, energy nutrients, digestion, child health.

Answer: (a)(i) Four functions of water in the body: transports nutrients and waste products around the body; regulates body temperature through sweating; acts as a solvent for digestion and chemical reactions; lubricates joints, eyes and body tissues.

Answer: (ii) Four foods with high water content: cucumber, watermelon, tomatoes, lettuce (also acceptable: oranges, milk, soups).

Answer: (iii) Dehydration: an excessive loss of water from the body, greater than the amount of water taken in.

Answer: (iv) Situations when the body requires extra water: during hot weather/high environmental temperature; during strenuous exercise; during fever/illness; during vomiting or diarrhoea; during pregnancy and breastfeeding.

Answer: (b)(i) Three examples of energy-giving nutrients: carbohydrates, fats/oils, and protein (used for energy when carbohydrate/fat intake is insufficient).

Answer: (ii) Complex sugar which aids egestion of solid waste: cellulose (fibre/roughage).

Answer: (iii) Carbohydrate stored in the liver: glycogen.

Answer: (iv) Storing sugar at home to maintain its quality: keep sugar in a dry, airtight container in a cool place, away from moisture, to prevent it absorbing damp and becoming lumpy or attracting pests.

Answer: (c)(i) Anabolism is the building-up process in the body, where simple substances are combined to form more complex ones (e.g. building new tissue); catabolism is the breaking-down process, where complex substances are broken into simpler ones, releasing energy (e.g. digestion of food).

Answer: (ii) Final products of digestion: Carbohydrate -- glucose (simple sugars); Protein -- amino acids; Fats -- fatty acids and glycerol.

Answer: (d)(i) Four important nutrients a child needs to grow healthy: protein -- for growth and repair of body tissue; calcium -- for strong bones and teeth; vitamin A -- for healthy eyes, skin and immunity; iron -- for healthy blood/prevention of anaemia (also acceptable: vitamin D, energy-giving carbohydrates).

Answer: (ii) Five advantages of breast milk: it is always available at the right temperature and is hygienic/germ-free; it contains antibodies that protect the baby from infection; it is easily digested and nutritionally complete for the baby's needs; it strengthens the emotional bond between mother and baby; it is free/cost-effective compared to formula; it helps the uterus contract back to size after birth.

Answer: (iii) Two reasons colostrum is important for a newborn baby: it is rich in antibodies that give the baby immunity against infections; it acts as a natural laxative that helps clear the baby's first stool (meconium).

Answer: (iv) Five ways to care for the baby during weaning: introduce new foods gradually, one at a time, to check for allergies; start with soft, mashed or pureed foods that are easy to swallow and digest; maintain good hygiene when preparing and feeding weaning foods; continue breastfeeding alongside solid foods; be patient and feed at the baby's own pace without forcing.

Question Q2 (Section B: Eggs and cake aeration, 15 marks). Eggs and their role in cake-making.

Answer: (a) Determining freshness of eggs without breaking the shell: hold the egg up to a light (candling) -- a fresh egg shows a small air space; place the egg in a bowl of water -- a fresh egg sinks and lies flat, a stale egg stands on end or floats; shake the egg gently near the ear -- a fresh egg makes little/no sound, a stale egg sloshes; check the shell is clean, unbroken and not shiny (a fresh egg has a slightly matte/rough shell).

Answer: (b) Coagulation: the process by which a protein (e.g. egg white/yolk) changes from a liquid to a solid or semi-solid state when heated, and this change is irreversible.

Answer: (c) Four methods of incorporating air into a cake mixture: creaming (beating fat and sugar together); whisking (whisking eggs and sugar together, as in a whisked sponge); rubbing-in combined with a raising agent; folding in whisked egg whites or flour with a metal spoon.

Answer: (d) How ingredients assist aeration: (i) protein in egg -- coagulates on heating, setting and trapping the air bubbles beaten into it, giving structure; (ii) gluten in wheat flour -- forms an elastic network when mixed with liquid, stretching to hold the gas/air produced and giving the cake its structure as it sets; (iii) starch in wheat flour -- gelatinizes on heating, absorbing moisture and helping to set the structure of the cake; (iv) sugar -- helps to trap air during creaming/whisking and weakens the gluten structure slightly, giving a softer crumb, while also caramelising to give colour.

Answer: (e) One nutrient not present in eggs: Vitamin C.

Question Q3 (Section B: Adolescent nutrition, 15 marks). Increased appetite among adolescents.

Answer: (a) Four main factors leading to increased appetite among adolescents: the growth spurt/rapid physical growth during puberty; increased physical activity and energy expenditure; hormonal changes associated with puberty; increased muscle and bone development requiring more nutrients.

Answer: (b) Five eating habits more pronounced in adolescents than adults: eating larger portions/second helpings; frequent snacking between meals; skipping breakfast; eating fast foods/convenience foods more often; irregular meal times due to busy schedules; strong food preferences/fussiness.

Answer: (c)(i) Boys are less likely to suffer from low iron levels than girls because girls lose iron-rich blood monthly through menstruation, while boys do not have this additional loss.

Answer: (ii) Two-course meal for a teenage girl: Course 1 -- Chicken stew with nshima and green vegetables (rich in protein, iron, and vitamins to meet growth and menstrual iron needs); Course 2 -- Fresh fruit salad with a glass of milk (providing vitamin C to aid iron absorption, plus calcium for bone development).

Question Q4 (Section B: Marketing, 15 marks). Marketing in the food industry.

Answer: (a) Three ways of advertising goods and services: television/radio adverts; newspaper and magazine adverts; billboards/posters (also: social media, word of mouth).

Answer: (b) Four components of food labels: name/description of the product; list of ingredients; net weight/quantity; date of manufacture and expiry date (also acceptable: nutritional information, storage instructions, manufacturer's name and address, batch number, price).

Answer: (c) Six advantages of buying foods in a supermarket/hypermarket: wide variety of products under one roof; fixed, clearly displayed prices; often better hygiene and food safety standards; goods are pre-packaged and labelled with information; self-service allows shoppers to browse at their own pace; often open for longer hours; frequently offers discounts/promotions.

Answer: (d) Effect of using charcoal as fuel for cooking on the environment: charcoal production requires cutting down trees, contributing to deforestation and loss of biodiversity; burning charcoal releases smoke and carbon emissions that contribute to air pollution and climate change.

Question Q5 (Section B: Kitchen equipment, 15 marks). Refrigerators, raising agents, and microwave ovens.

Answer: (a) Use and care of a refrigerator: A refrigerator is used to store perishable foods at a low temperature to slow down bacterial growth and extend shelf life. It should be kept clean by wiping spills promptly and defrosting/cleaning regularly; food should be covered and not overloaded to allow air to circulate; the door seal should be checked and kept clean to maintain an efficient, energy-saving cold seal; raw and cooked foods should be stored separately to avoid cross-contamination.

Answer: (b) Mechanical means of raising agents: air can be incorporated mechanically by whisking (e.g. whisking egg whites or whole eggs with sugar) or by creaming (beating fat and sugar together with a mixer), and by sieving flour to incorporate air, and by folding in air using a spoon -- these methods physically trap air bubbles in the mixture which expand on heating to give a light texture, without relying on a chemical raising agent.

Answer: (c) Advantages and disadvantages of using a microwave oven: Advantages -- cooks food very quickly, saving time and energy; does not heat up the kitchen; good for reheating and defrosting food; easy to clean since spills don't bake on. Disadvantages -- does not brown or crisp food as well as conventional cooking; metal containers cannot be used; food can cook unevenly if not stirred/rotated; not suitable for some cooking methods (e.g. baking bread).

Question Q6 (Section B: Convenience foods, 15 marks). Convenience foods and shopping.

Answer: (a)(i) Convenience foods: foods that have been partly or wholly prepared/processed by the manufacturer to save the consumer time and effort in preparation.

Answer: (ii) Two types of convenience foods: frozen foods (e.g. frozen chips/vegetables) and canned/tinned foods (also acceptable: instant/dehydrated foods, ready meals).

Answer: (b) Why convenience foods have become popular: busier lifestyles with less time for cooking from scratch; more women in formal employment with less time at home; wider availability and affordability due to improved food technology; longer shelf life allows for easier storage and planning.

Answer: (c) Comparing supermarket and open market shopping: a supermarket offers fixed, clearly labelled prices, pre-packaged hygienic goods, and a wide variety under one roof with self-service, but may be more expensive and less flexible on price; an open market often allows bargaining/lower prices and very fresh local produce, but hygiene standards may be lower, prices are not fixed/labelled, and choice may be more limited to seasonal local goods.

Answer: (d)(i) Textured vegetable proteins (TVP): a meat substitute made from processed soya beans, textured to resemble meat in appearance and texture; it is a cheaper source of protein used to extend or replace meat in dishes.

Answer: (ii) Monosodium glutamate: a flavour-enhancing additive commonly used in manufactured and restaurant foods to intensify the savoury (umami) taste of dishes.

Question Q7 (Section B: Vegetables, 15 marks). Vegetables in the diet.

Answer: (a) Four classes of vegetables: root vegetables (e.g. carrots, sweet potatoes); leafy vegetables (e.g. rape, spinach); fruit vegetables (e.g. tomatoes, pumpkin); legume/pulse vegetables (e.g. beans, peas) (also acceptable: tuber, bulb, and flower/stem vegetables).

Answer: (b) Why green leafy vegetables are important in family meals: they are a rich source of vitamins (especially vitamin A and C) and minerals such as iron and calcium; they provide dietary fibre which aids digestion; they are low in calories/fat, supporting a healthy balanced diet; they add colour, flavour and variety to meals.

Answer: (c) Three points on the choice of vegetables: choose vegetables that are fresh, firm and free from blemishes or wilting; choose vegetables that are in season, as they are cheaper and of better quality; select vegetables appropriate to the dish/cooking method and the number of people to be served.

Answer: (d) Four ways of preserving vegetables: drying/dehydrating; freezing; canning/bottling; pickling (also acceptable: salting).

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