
FOOD STUDIES

9336/01

Paper 1 Theory

October/November 2019

3 hours

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.

Write your centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **four** questions, **two** from Section A and **two** from Section B.

Write your answers on the separate Answer Booklet/Paper provided.

At the end of the examination, fasten all your work securely together.

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

This document consists of **5** printed pages and **3** blank pages.

Section A

Answer **two** questions.

- 1 (a) (i) Give **four** examples of essential amino acids. [2]
- (ii) State which **two** essential amino acids are required in the diet of infants but **not** in the diet of adults. Explain why these **two** amino acids are **not** essential for adults. [3]
- (iii) Give the name of an amino acid that contains sulfur. [1]
- (b) Define the term *protein quality*. [2]
- (c) Suggest **two** different pairs of foods that can be eaten by a vegan to provide all the essential amino acids. [2]
- (d) Give the names and functions in the body of **four** micronutrients found in eggs. [4]
- (e) Give **one** example of a conjugated protein. Describe the general structure of conjugated proteins. [4]
- (f) Describe the process of endocytosis. [3]
- (g) Name **two** diseases caused by protein-energy malnutrition. Identify the symptoms of each disease. [4]

[Total: 25]

- 2 (a) Explain what is meant by the term *essential fatty acid*. Give the name of **one** essential fatty acid. [3]
- (b) State **one** example of each of:
- a saturated fatty acid
 - a monounsaturated fatty acid
 - a polyunsaturated fatty acid.
- [3]
- (c) With the aid of diagrams, describe the appearance of the carbon chain in a saturated fatty acid, a monounsaturated fatty acid and a polyunsaturated fatty acid. [6]
- (d) (i) Define the terms *triglyceride* and *serum cholesterol*. [2]
- (ii) Describe the appearance of cholesterol. Explain its functions in the body. [4]
- (e) Describe the role of low-density lipoprotein (LDL) in the body. [4]
- (f) (i) Explain the link between vitamin E and coronary heart disease (CHD). [2]
- (ii) State **one** good food source of vitamin E. [1]

[Total: 25]

- 3 (a) Define the terms *passive absorption* and *osmosis*. [4]
- (b) Simple sugars are hydrolysed in the mouth by the action of the enzyme salivary amylase.
State the sites of hydrolysis and the enzymes needed to hydrolyse the following nutrients:
- (i) fat [2]
- (ii) protein [2]
- (iii) complex carbohydrate. [2]
- (c) Describe the structure and role of the lacteal capillaries. [4]
- (d) Explain why people with coeliac disease may become undernourished. Give **four** symptoms of coeliac disease. [4]
- (e) State **four** foods that should be avoided during pregnancy. Give reasons for your choices. [4]
- (f) Explain how Dietary Reference Values (DRV) can be useful for consumers. [3]

[Total: 25]

- 4 (a) (i) Name the deficiency disease caused by a lack of vitamin C in the diet. [1]
- (ii) Discuss how a lack of vitamin C could lead to jaundice and fatal heart problems. [4]
- (b) State the function of vitamin K in the body. [1]
- (c) Some vitamins are antioxidants. Explain the protective role of antioxidants in the body. [4]
- (d) (i) Vitamin B₅ is known as biotin. State the names of each of the following B vitamins:
- B₁
 - B₂
 - B₃
 - B₉.
- [2]
- (ii) One of the B vitamins contains cobalt. Describe the main roles of this B vitamin. [2]
- (e) (i) State **two** symptoms in the body of a deficiency in chloride. [2]
- (ii) Give **two** reasons why a person might be deficient in chloride. [2]
- (f) Discuss why, after a race, an athlete would benefit from drinking water with added salt, rather than pure water. [3]
- (g) Explain the term *ketosis*. Give details of when ketosis may occur in the body. [4]

[Total: 25]

Section B

Answer **two** questions.

- 5 (a) Explain why raw beef changes colour from red to brown during storage. [5]
- (b) Describe in detail the production of Textured Vegetable Protein (TVP). [7]
- (c) Give **two** examples of additives that are flavour enhancers. [2]
- (d) Explain the value of legislation to regulate the use of additives in food. [3]
- (e) Discuss ways in which a person may make environmentally sustainable food choices. [4]
- (f) State **one** good food source of beta-glucans. Explain the nutritional value of beta-glucans. [4]
- [Total: 25]

- 6 (a) Describe the chemical and physical changes which occur to the texture and appearance of an egg when it is boiled. [5]
- (b) Identify and describe the method of heat transfer that takes place when an egg is boiled. [4]
- (c) Give reasons, **other** than nutritional reasons, for the popularity of eggs as a savoury ingredient. [6]
- (d) Explain the functions of eggs in a scone mixture. [3]
- (e) Explain the term *factory farming*. Give **one** example of a food that is factory farmed. [4]
- (f) (i) Name the food-poisoning bacterium that is commonly found in eggs. [1]
- (ii) State the symptoms of infection by this type of bacterium. [2]
- [Total: 25]

- 7 (a) Give an example of a biological raising agent. Suggest a food product that uses this raising agent. [2]
- (b) Explain the function of the butter in a rubbed-in mixture. [2]
- (c) Some cakes are made using the rubbed-in method. Name **four** other examples of baked products made using the rubbed-in method. [2]
- (d) Explain **two** ways that a vegetable soup can be thickened **without** the addition of flour, cream or cheese. [4]
- (e) Name and describe the process of non-enzymic browning. [5]
- (f) (i) Describe the characteristics of *Clostridium perfringens*. Explain how this type of bacterium causes food poisoning. [6]
- (ii) Identify **four** different groups of people who are at high risk of food poisoning. Explain why they are at high risk of food poisoning. [4]

[Total: 25]

- 8 (a) Describe in detail the production of a simple curd cheese. [6]
- (b) Explain why homemade mayonnaise containing egg yolk, oil, vinegar and salt may fail to emulsify. [3]
- (c) (i) Describe the method of making a raspberry purée. [3]
- (ii) Describe the process of making raspberry jam. [4]
- (d) Explain how sugar acts as a preservative in jam. [2]
- (e) Suggest **three** ways of saving energy when cooking on the hob (top of the stove). [3]
- (f) Explain how to use an electric blender safely. [4]

[Total: 25]

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