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**FOOD STUDIES**

**9336/01**

Paper 1

**October/November 2018**

**3 hours**

Additional Materials: Answer Booklet/Paper

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**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.



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

**Section A**

Answer **two** questions.

- 1 (a) Give an account of the role of enzymes in:
- (i) the digestion of proteins, including where in the body this takes place [6]
  - (ii) the browning of fruits and vegetables [3]
  - (iii) the manufacture of cheese [1]
  - (iv) rancidity in fats and oils. [3]
- (b) Define the term *water balance*. Explain how the body maintains water balance. [3]
- (c) (i) Identify **four** different good sources of calcium in foods other than dairy products. [2]
- (ii) Outline the factors that prevent the absorption of calcium in the body. [3]
- (iii) Identify **two** different groups of people who are likely to be deficient in vitamin D. Describe the symptoms of vitamin D deficiency. [4]
- 2 (a) Oily fish plays an important part in a healthy diet by providing saturated and unsaturated fats. Identify and give the functions of **six** other nutrients found in oily fish. [6]
- (b) (i) Hypervitaminosis occurs when toxic levels of some vitamins are stored in the body. Identify **two** vitamins that can lead to hypervitaminosis, and explain how hypervitaminosis can occur. [3]
- (ii) Identify **two** different groups of people who are most at risk of hypervitaminosis. Explain the expected symptoms of hypervitaminosis for each of these groups of people. [3]
- (c) The RDI of iron is lower for women older than 50. Explain the reason for this. [2]
- (d) Discuss why foods containing iron should be eaten together with foods containing vitamin C. [2]
- (e) Discuss the effect of storage, preparation and cooking on vitamin C. [5]
- (f) Describe **four** features of a healthy diet. Give a reason for each feature. [4]

- 3 (a) Energy needs are affected by a person's age, gender and occupation. Describe **six** other factors that can affect a person's energy needs. [6]
- (b) Discuss reasons for the increasing incidence of obesity in children in some countries. [4]
- (c) Explain how and why lipogenesis occurs in the body. [3]
- (d) With the aid of diagrams, describe the structures of amylose and amylopectin. [4]
- (e) Name **one** disaccharide. State the name of an enzyme which hydrolyses the disaccharide and give the hydrolysis products. [3]
- (f) Name **one** oligosaccharide. Outline the benefits to the body of consuming oligosaccharides. [3]
- (g) Describe the basic structure of non-starch polysaccharide (NSP). [2]
- 4 (a) Use a diagram to show the arrangement around a carbon-carbon double bond in a *cis*-fatty acid and a *trans*-fatty acid. [2]
- (b) (i) Explain how the body digests lipids. [6]
- (ii) Explain how the body absorbs lipids. [3]
- (c) Fat is used as insulation to keep the body warm. Describe **five** other ways that fat is used by the body. [5]
- (d) Identify **two** fatty foods that are often sold in modified atmosphere packaging and explain the benefits of packaging these foods in a modified atmosphere. [4]
- (e) Explain how sugar affects dental health. [5]

## Section B

Answer **two** questions.

- 5 (a) There are many ways of classifying the edible parts of a plant. State **eight** ways and give an example of each. [4]
- (b) (i) Define the term *functional foods*. [1]
- (ii) Vegetables contain stanols and sterols. Outline the benefits of stanols and sterols to the body. [2]
- (iii) Explain how probiotics promote intestinal health. [2]
- (c) Discuss the benefits of purchasing fair trade products. [3]
- (d) Define the term *autolysis* and describe the changes that you would expect to see in a raw tomato that has undergone autolysis. [3]
- (e) Explain why freezing would **not** be a suitable preservation technique for a whole raw apple. [2]
- (f) *The genetic modification of crops could help to end food poverty.* Discuss this statement. [8]
- 6 (a) Air can be incorporated into a mixture by whisking. Identify **four** other mechanical methods of incorporating air into a mixture. [2]
- (b) Describe the changes that take place when a whisked sponge mixture is heated in an oven. [3]
- (c) Identify **two** different types of hand-held whisk. Describe the safe use of a hand-held whisk to incorporate air into a sponge mixture. [4]
- (d) Identify **two** different food products that use steam as a raising agent. Explain why these products must be cooked in a very hot oven. [3]
- (e) Explain why a microwave oven could be a safer choice of oven for a child to use than a conventional gas or electric oven. [5]
- (f) (i) State the method of heat transfer involved when grilling food. [1]
- (ii) Compare and contrast both the sensory qualities and the nutritional value of a beef steak that is grilled and a beef steak that is braised. [7]

- 7 (a) Choose **three** additives from the list and describe their functions.

<b>anti-foaming agent</b>	<b>bulking agent</b>	<b>desiccant</b>	<b>flour improver</b>
<b>humectant</b>	<b>propellant</b>	<b>stabiliser</b>	<b>thickener</b>

[6]

- (b) Define the terms *food allergy* and *food intolerance*, and describe the symptoms of both. [4]
- (c) Outline the information on food labels which may be of particular use to consumers of different religious faiths. [3]
- (d) Storage instructions on packaging help to promote food hygiene. Compare and contrast *food hygiene*, *kitchen hygiene* and *personal hygiene*. [7]
- (e) Read the following information.

A chicken salad is prepared for sale by a chef who has a sore throat and an open uncovered wound.

The chicken is roasted above 75 °C so that any bacteria present are destroyed. The chicken is then cooled quickly to below 5 °C. The salad vegetables are thoroughly washed.

The chicken salad is displayed for sale in an **unrefrigerated** counter. It is eaten four hours later by an elderly man. Shortly afterwards he experiences severe abdominal cramps, diarrhoea and nausea.

- (i) Identify the food-poisoning bacteria most likely to have caused the man's symptoms. Explain your choice. [2]
- (ii) Explain how the bacteria were able to cause illness, despite being destroyed in the cooking process. [2]
- (iii) Explain whether the expected outcome for the man would have been different if the chicken salad had been displayed in a refrigerated counter. [1]
- 8 (a) (i) Choose **two** of the following sauces. Identify the ingredients used to make the sauces you have chosen. Explain the functions of these ingredients in the sauces.
- |                 |                    |                   |     |
|-----------------|--------------------|-------------------|-----|
| <b>bechamel</b> | <b>egg custard</b> | <b>mayonnaise</b> | [6] |
|-----------------|--------------------|-------------------|-----|
- (ii) Explain the difference between a velouté sauce and an espagnole sauce. [2]
- (b) Describe the sensory changes that occur when potatoes are boiled. [3]
- (c) Suggest, with reasons, suitable ways to store potatoes and rice. [4]
- (d) Describe, using examples, how starch can be modified for use in convenience foods. [5]
- (e) Give advice, with reasons, on how to extinguish a fire in a deep-fat-fryer safely. [2]
- (f) Suggest, with examples, **three** different ways of garnishing savoury buffet foods. [3]





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