



MINISTRY OF EDUCATION, SINGAPORE
 in collaboration with
 CAMBRIDGE ASSESSMENT INTERNATIONAL EDUCATION
 General Certificate of Education Ordinary Level

CANDIDATE
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NUTRITION AND FOOD SCIENCE

6097/01

Paper 1

For examination from 2022

SPECIMEN PAPER

2 hours

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your centre number, index number and name in the spaces at the top of this page.

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 ON ANY BARCODES.

Section A

Answer **all** questions.

For each question there are four possible answers **A, B, C** and **D**. Tick the **one** you consider correct.

Each correct answer will score one mark.

Section B and Section C

Answer **all** questions.

Write your answers in the spaces provided on the Question Paper.

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

The use of a calculator is permitted.

This document consists of **18** printed pages and **2** blank pages.



Singapore Examinations and Assessment Board



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Section A

Answer **all** questions. For each question, tick the answer (**A**, **B**, **C** or **D**) which you consider correct.

1 Which is a digestion product of proteins?

A amino acids

B fatty acids

C glucose

D glycerol

[1]

2 Two incomplete statements about amino acids are shown.

Statement 1: Amino acids produced by our body are called

Statement 2: An example of this type of amino acid is

Which row correctly completes statement 1 and statement 2?

| | statement 1 | statement 2 |
|----------|---------------------------|-------------|
| A | essential amino acids | lysine |
| B | non-essential amino acids | lysine |
| C | essential amino acids | glycine |
| D | non-essential amino acids | glycine |

A

B

C

D

[1]

3 Which chemical element is **not** found in a fat molecule?

- A carbon
- B hydrogen
- C nitrogen
- D oxygen

[1]

4 Which vitamin is lost in the cooking water when cabbage is boiled?

- A vitamin A
- B vitamin C
- C vitamin D
- D vitamin E

[1]

5 A café sells the following white bread sandwiches:

cheese and tomato
tuna and sweetcorn
chicken and bacon
egg and cucumber

Which row identifies the sandwich with the **least** fibre and the sandwich with the **most** calcium?

| | sandwich with least fibre | sandwich with most calcium |
|----------|----------------------------------|-----------------------------------|
| A | chicken and bacon | egg and cucumber |
| B | tuna and sweetcorn | cheese and tomato |
| C | chicken and bacon | cheese and tomato |
| D | tuna and sweetcorn | egg and cucumber |

- A
- B
- C
- D

[1]

6 Iron is an essential mineral in the body.

Which statements about iron are correct?

- 1 Cheese is a good source of iron.
- 2 Iron helps prevent anaemia in the body.
- 3 Iron is essential for the formation of myoglobin.
- 4 Vitamin D helps the body absorb iron.

A 1, 2, 3 and 4

B 2 and 3 only

C 3 and 4 only

D 2 only

[1]

7 Water intake can be affected by many factors.

Which row identifies the factors that can increase a person's need for water?

| | living in a hot climate | working in an office | suffering from food poisoning |
|----------|-------------------------|----------------------|-------------------------------|
| A | ✓ | x | ✓ |
| B | x | ✓ | ✓ |
| C | ✓ | ✓ | ✓ |
| D | ✓ | x | x |

A

B

C

D

[1]

8 Water is essential to the human body.

Which statements about the function of water in the body are correct?

- 1 Water helps prevent anaemia **and** provides potassium.
- 2 Water helps prevent constipation **and** develops bone strength.
- 3 Water helps regulate body temperature **and** lubricates joints.

A 1, 2 and 3

B 1 and 2 only

C 2 and 3 only

D 3 only

[1]

9 Which is **not** a function of dietary fibre in the body?

A To help prevent osteoporosis.

B To help reduce the amount of blood cholesterol in the body.

C To help reduce the risk of colorectal cancer.

D To help stimulate peristalsis in the colon.

[1]

10 Consumers can live more sustainably by making suitable food choices.

Which row correctly identifies ways a consumer can make sustainable food choices?

| | buy less meat | consume ready-to-eat products | consume misshapen fruit and vegetables | buy food imported from nearby countries |
|----------|---------------|-------------------------------|----------------------------------------|-----------------------------------------|
| A | ✓ | ✗ | ✓ | ✓ |
| B | ✓ | ✓ | ✓ | ✗ |
| C | ✓ | ✗ | ✓ | ✗ |
| D | ✗ | ✓ | ✗ | ✓ |

A

B

C

D

[1]

11 Sustainable food consumption guidelines promote the reduction of food waste.

Which statements would help a consumer be more sustainable by aiming to be waste-free?

- 1 Buy as much food in bulk as possible and hope to use it before the expiry date.
- 2 Buy food with a Fairtrade label.
- 3 Store groceries correctly to prevent food spoilage.
- 4 Use a reusable bag to carry your groceries home.

A 1, 2, 3 and 4

B 1 and 3 only

C 3 and 4 only

D 4 only

[1]

12 There are health concerns over the excessive consumption of some additives.

Which statements about additives are correct?

- 1 Monosodium glutamate (MSG) is an antioxidant however excessive consumption may cause some people to experience adverse effects.
- 2 Sodium nitrite is used as a preservative but has been linked to cases of colorectal cancer.
- 3 Stevia is a sweetener which may cause low blood pressure if eaten in excessive amounts.

A 1, 2 and 3

B 1 and 2 only

C 2 and 3 only

D 3 only

[1]

13 Which term describes the effect of moist heat on starch?

A coagulation

B dextrinisation

C emulsification

D gelatinisation

[1]

14 Which method is used for making a Swiss roll?

A creaming

B melting

C rubbing-in

D whisking

[1]

15 Which statements give reasons for a close texture in a finished Chiffon cake?

- 1 Excessive whisking caused too much aeration.
- 2 The oven temperature was too low.
- 3 Too much flour was used in the mixture.

A 1, 2 and 3

B 1 and 2 only

C 2 and 3 only

D 3 only

[1]

[Total: 15]

Section B

Answer **all** questions.

16 B-group vitamins are important as part of a balanced diet.

(a) Name **three** different good sources of vitamin B₁.

1

2

3

[3]

(b) (i) State **two** functions of vitamin B₂.

1

2

[2]

(ii) State the effect of moist-heat cooking methods on vitamin B₂.

..... [1]

17 (a) Give **one** symptom of osteoporosis.

..... [1]

(b) Name **two** minerals needed to prevent osteoporosis.

1

2

[2]

18 Sugars and starches are carbohydrates.

(a) Name **two** monosaccharides.

- 1
- 2 [2]

(b) Energy balance is taking in the right amount of energy from food to meet the needs of the body.

Describe the long term effects when there is an imbalance of energy being taken into the body.

-
-
-
- [3]

19 (a) Name **one** cut of beef which is suitable for grilling.

- [1]

(b) (i) Name **one** cut of beef which may be tough and therefore suitable for simmering.

- [1]

(ii) Describe **two** changes that take place when beef is simmered.

-
-
- [2]

(c) Tough meat can be tenderised before cooking by using a commercial chemical tenderiser.

Suggest **two** other methods of tenderising tough meat before it is cooked.

- 1
- 2 [2]

20 (a) Fats provide energy. State **three** other functions of fats in the body.

1

2

3

[3]

(b) State **three** differences between saturated and unsaturated fats.

1

.....

2

.....

3

.....

[3]

(c) Name **three** foods that are high in saturated fat.

1

2

3

[3]

21 The following ingredients can be used to make a butter cake:

- 100g self-raising flour
- 100g butter
- 100g caster sugar
- 2 eggs

(a) State how Maillard browning and caramelisation occur during the baking of the cake.

(i) Maillard browning

..... [1]

(ii) caramelisation

..... [1]

(b) State **two** other different functions of each ingredient used in the cake mixture.

| ingredient | function |
|--------------------|----------|
| self-raising flour | 1 |
| | 2 |
| butter | 1 |
| | 2 |
| caster sugar | 1 |
| | 2 |
| eggs | 1 |
| | 2 |

[8]



(c) The cake is heated by convection and conduction when it is baked.

Explain how convection transfers heat to the cake.

.....

 [4]

22 Study the list of ingredients and nutritional information from a packet of scones.

| | | |
|--------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ingredients: wheat flour, raisins, butter, sugar, water, whole milk powder, bicarbonate of soda, egg, salt. | |  <p>Contains wheat, milk and egg.</p> <p>Suitable for home freezing. Freeze on the day of purchase.</p> <p>Store in a cool, dry place. Once opened, keep in an airtight container.</p>  |
| Nutritional Information | per scone | |
| energy | 886 kJ 211 kcal | |
| protein | 4.4 g | |
| carbohydrates | 32.4 g | |
| sugars | 12.2 g | |
| total fat | 6.8 g | |
| saturated fat | 3.9 g | |
| fibre | 0.9 g | |
| sodium | 920 mg | |

(a) Name the ingredient used in the greatest quantity.

..... [1]

(b) State the purpose of bicarbonate of soda.

..... [1]

(c) State how much energy would be provided by eating **two** scones.

..... [1]

(d) The label on the packet of scones shows further information.


State **one** advantage to the consumer of each of the following pieces of information.

(i) freeze on the day of purchase

..... [1]

(ii) contains wheat, milk and egg

..... [1]

(iii) the symbol .

..... [1]

(e) A food manufacturer carries out sensory evaluation of the scones from the packet and some home-made scones.

(i) State reasons why sensory evaluation is conducted by food manufacturers.

.....
.....
.....
..... [3]

(ii) Describe **three** sensory properties that could be tested during the sensory evaluation of the scones.

1
2
3 [3]

[Total: 55]

Section C

Answer **all** questions.

23 Compare and contrast steaming and frying as methods of cooking.

[15]

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