FOOD AND TECHNOLOGY
Written examination

Tuesday 20 November 2007
Reading time: 9.00 am to 9.15 am (15 minutes)
Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

<table>
<thead>
<tr>
<th>Number of questions</th>
<th>Number of questions to be answered</th>
<th>Number of marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>9</td>
<td>100</td>
</tr>
</tbody>
</table>

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied

Instructions
- Write your student number in the space provided above on this page.
- All written responses must be in English.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

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Question 1

The Weet-Bix packet shown above displays the manufacturer’s name.

a. Apart from the manufacturer’s name, identify two labelling requirements that must be shown on this packet and outline one reason for including each of these labelling requirements on the packet.

Labelling requirement 1 ________________________________
Reason

_____________________________________________________________________

Labelling requirement 2 ________________________________
Reason

_____________________________________________________________________

2 + 2 = 4 marks
b. i. Identify two factors that Sanitarium needs to consider when developing the Weet-Bix packaging to reduce its impact on the environment.

Factor 1 ________________________________

Factor 2 ________________________________

ii. Briefly explain how each of the factors identified will help to reduce the environmental impact of the packaging.

Explanation of Factor 1

________________________________________

________________________________________

Explanation of Factor 2

________________________________________

________________________________________

2 + 2 = 4 marks

The Weet-Bix packet states it contains folate, which is a nutrient. A diet rich in folate, before and in early pregnancy, may help to prevent birth defects like spina bifida. This message about folate is part of a national trial of health claims in both Australia and New Zealand.

c. i. Explain the meaning of the term ‘health claim’.

________________________________________

________________________________________

________________________________________

ii. Outline one reason why health claims are monitored in Australia and New Zealand.

________________________________________

________________________________________

________________________________________

________________________________________

2 + 1 = 3 marks

Total 11 marks
The Riverside Pecans packaging clearly states that the product is 'not genetically modified'.

a. Describe the process of genetic modification.

b. Outline two reasons why the producers of Riverside Pecans would want to promote to consumers that their product is not genetically modified.
   Reason 1
   Reason 2
Some foods such as canola and soy are being developed using genetic modification.

c. Outline two benefits for farmers of genetic modification in the production of food.

Benefit 1

Benefit 2

2 marks
Total 6 marks
**Question 3**

The safety of Australia’s food supply is governed by one national authority.

**a.** What is the name of this authority?

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Benefit to consumers</th>
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</thead>
<tbody>
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</tbody>
</table>

1 mark

**b.** List **two** responsibilities of this authority and briefly explain how consumers benefit from each of these responsibilities.

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Benefit to consumers</th>
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</thead>
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</tbody>
</table>

2 + 2 = 4 marks

Authorities at national, state and local levels all have a role in ensuring Australian consumers have high quality food.

**c.**

i. Provide **one** example where different levels of authority (national, state or local) work together to ensure the high quality of Australia’s food supply.

ii. Select **two** levels of authority (national, state or local) and explain the role of each of these in the example above.

<table>
<thead>
<tr>
<th>Level of authority 1</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
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</table>

1 + 4 = 5 marks

Total 10 marks
Question 4
Cupcakes are small cakes which are often decorated and are a popular treat for people of all ages. Below is a photograph of decorated cupcakes and a recipe for the cakes.

Cupcakes
110 grams plain flour
1/2 teaspoon baking powder
65 grams butter
65 grams caster sugar
1/2 teaspoon vanilla essence
1 egg
60 ml milk

1. Preheat the oven to 200°C.
2. Place paper cases into the cupcake tin.
3. Sift the flour and baking powder.
4. Cream the butter and sugar.
5. Mix in the vanilla essence.
6. Add the egg gradually; mix well.
7. Fold in the flour and milk alternately, about 1/3 at a time.
8. Spoon the mixture into the paper cases.
9. Bake in the preheated oven for 12 to 15 minutes.
10. Turn onto a wire rack to cool.
Butter, egg and plain flour are all key ingredients in the preparation of the cupcakes.

a. Complete the following table for each of these ingredients.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Identify the natural food component in the ingredient.</th>
<th>Explain one main function of each natural food component in the preparation of the cupcakes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plain flour</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6 marks

The creaming of the butter and sugar and the baking of the cakes are two of the complex processes involved in making the cupcakes.

b. Select one of these complex processes or another complex process you have used in your production work during the year to answer the following questions.

Name of the complex process ___________________________________________

Outline two important steps in the complex process identified above which are necessary to maximise the quality of the food item.
Step 1
____________________________________________________________________
____________________________________________________________________

Step 2
____________________________________________________________________
____________________________________________________________________

2 marks
During the baking of the cupcakes, the mixture changes colour and the cakes brown.

c. i. Name one process which can cause the cakes to brown.

ii. Outline how this process browns the cakes.

Decorated cupcakes have become a popular product sold at community and farmers’ markets.

d. i. Identify the food manufacturing system which would be used by a cake stall owner to produce the cakes for sale at a community or farmers’ market.

ii. Outline two features of this food manufacturing system which makes it a suitable system to produce the cupcakes for a community or farmers’ market.

Feature 1

Feature 2

1 + 2 = 3 marks

Total 13 marks
Question 5

Design brief
Park View Café is a new café opening in early December. The café will focus on serving delicious lunches and dinners for casual and more traditional dining. The menu will be based on healthy dishes with an emphasis on fresh, high quality, well-presented food. Vegetarian choices will be available. The café also wants to make a feature of preserved foods so that there is variation in texture and flavours.

a. From the design brief above, develop four criteria that the owners of the café could use to evaluate whether they have met the requirements of the design brief.

<table>
<thead>
<tr>
<th>Criterion 1</th>
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<th>Criterion 2</th>
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<th>Criterion 3</th>
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<table>
<thead>
<tr>
<th>Criterion 4</th>
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4 marks

There are many ways of preserving food including dehydration, use of sugar, use of acids, freezing and heat processing.

b. Identify two preserved food items that can be prepared in the café using two of the preservation techniques listed above. Outline how each food item could be used in a meal for customers.

<table>
<thead>
<tr>
<th>Preserved food items</th>
<th>Outline of how the food items could be used in a meal at the café</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
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</tbody>
</table>

2 + 2 = 4 marks
c. Select **one** preserved food item identified in **part b.** and explain how the preservation technique used prevents the spoilage of the food.

Preserved food item ____________________________________________________________

Explanation

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

2 marks

Fruit is a key food that can be prepared by dry and wet methods of cooking.

d. Name one fruit which could be used in the café **and** identify a dry **and** a wet method suitable for cooking this fruit. Explain the impact of each of these cooking methods on the properties of this fruit.

Fruit ________________________________________________________________

Dry method ________________________________________________________________

Explanation

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Wet method ________________________________________________________________

Explanation

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

2 + 2 = 4 marks
The café will need to develop a Hazard Analysis and Critical Control Points (HACCP) system before it opens for business.

e. i. Outline the purpose of the HACCP system.

There are seven key HACCP steps.
1. Analyse the hazards and assess risks.
2. Identify the critical control points.
3. Set the critical limits for each critical control point.
4. Monitor the critical control points.
5. Establish corrective actions.
6. Set up records.
7. Verify that the HACCP system is working correctly.

ii. Select two of the HACCP steps and explain why each is important for the café.

Step ____________________________
Explanation ____________________________

Step ____________________________
Explanation ____________________________

1 + 2 = 3 marks
Total 17 marks
Question 6

The development of the new Four’n Twenty Lite meat pies would have involved a number of stages including market research, the development of the design brief and criteria for evaluation, development of a prototype, production, marketing and evaluation.

a. Select two of these stages and explain their importance in the development of the new Lite pies.

Stage 1

Explanation

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

Stage 2

Explanation

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

2 + 2 = 4 marks
Consumer demand, social issues and industry economics all have an influence on the development of new food products.

b. Select one of the factors listed above and describe the way in which the factor selected would have influenced the development of the Lite pies.

Factor

Description


1 mark

During the development of the Four’n Twenty Lite meat pies, the company would have evaluated the physical, sensory and chemical properties of the product.

c. Identify and describe one test the company may have used to evaluate the pies.

Test

Description


1 + 2 = 3 marks

Product, price, place and promotion are all important considerations in the marketing of a new food product.

d. i. Select two of these marketing considerations and describe how each may be used by Four’n Twenty in marketing their new Lite pies.

Marketing consideration 1

Marketing consideration 2


2 + 2 = 4 marks

Total 12 marks
Question 7

A new variety of wheat known as waxy wheat is being grown in Australia and is an example of an innovation in food product development. This new waxy wheat can be used in a range of bakery products, novel foods and health foods. The waxy wheat has different starch properties from normal wheat. Products made from waxy wheat do not lose water when frozen or thawed, which lengthens their shelf life and improves mouth feel. This improved variety has been developed without the use of genetic modification.

a. i. Identify and explain the **process** that would have been used to develop this new wheat variety.

b. ii. Describe **two** advantages that this process could have for the farmers who grow the new waxy wheat.

Advantage 1

Advantage 2

The waxy wheat can be used in manufacturing novel foods.

b. Explain the meaning of the term ‘novel foods’.

2 + 2 = 4 marks

2 marks
The waxy wheat is an example of how technology has been used to develop a new and emerging food. Ultrafiltration and microencapsulation are two examples of technology used in the production of other new and emerging foods.

c. Select one of these examples or another example of technology used in innovative food product development.

Name of the technology ____________________________________________

i. Describe the process used in this technology.

ii. Identify a food developed using this technology.

2 + 1 = 3 marks

The future of the sustainable environment depends on farming practices that have minimal impact.

d. Describe one farming practice that will maintain an economic advantage for primary producers and have a minimal impact on the environment.

2 marks

Question 7 – continued
After harvesting, all cereals such as wheat go through primary and secondary processing.

e. Explain the difference between primary processing and secondary processing of cereals such as wheat. Use one example of each type of processing to support your answer.

f. Outline two reasons for secondary processing of food.
   Reason 1

   Reason 2

Total 17 marks
Question 8
To celebrate his 18th birthday, Steven’s parents invited a large number of his friends and family to a party that was held at their home. Steven’s mother prepared all of the food for the party at home. The day after the party, the family was very concerned to hear that several of the guests had suffered from food poisoning.

a. Explain the meaning of the term ‘food poisoning’.

The presence of bacteria is one of the major causes of food poisoning.

b. Identify and describe two conditions that are required for the growth of bacteria in food.

<table>
<thead>
<tr>
<th>Condition 1</th>
<th>Description</th>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Condition 2</td>
<td>Description</td>
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<td></td>
</tr>
</tbody>
</table>

2 + 2 = 4 marks

c. Outline two safety or hygiene practices in the storage and preparation of the food for a party to prevent food poisoning.

1. 

2. 

2 marks
When Steven’s mother was preparing the salads for the party she noticed that some of the vegetables showed signs of food spoilage. She did not use these vegetables.

d. Explain the meaning of the term ‘food spoilage’.

1 mark

Total 8 marks
Question 9

Fresh egg lasagne sheets as shown above are an example of a food product that is packaged using Modified Atmosphere Packaging (MAP).

a. Outline the MAP system of packaging.


1 mark

b. Outline two reasons why MAP packaging can be of benefit to consumers.

Reason 1


Reason 2


2 marks

Question 9 – continued
When products such as fresh egg lasagne sheets are successful in the market place, competitors quickly produce similar products.

c.  

i. Identify the type of product development used by the competing manufacturer.

ii. Outline two reasons why this type of product development is of benefit to the competing manufacturer.

Reason 1

Reason 2

1 + 2 = 3 marks

Total 6 marks