



B O A R D O F S T U D I E S
NEW SOUTH WALES

2010 HSC Food Technology Sample Answers

This document contains ‘sample answers’, or, in the case of some questions, ‘answers could include’. These are developed by the examination committee for two purposes. The committee does this:

- (a) as part of the development of the examination paper to ensure the questions will effectively assess students’ knowledge and skills, and
- (b) in order to provide some advice to the Supervisor of Marking about the nature and scope of the responses expected of students.

The ‘sample answers’ or similar advice are not intended to be exemplary or even complete answers or responses. As they are part of the examination committee’s ‘working document’, they may contain typographical errors, omissions, or only some of the possible correct answers.

Section II

Question 21 (a)

Sample answer/Answers could include:

<i>Organisation</i>	<i>Sector</i>
Piggery	Agriculture and fisheries
Canning factory	Food manufacture
School canteen	Food service and catering
Online grocery network	Food retail

Question 21 (b)

Answers could include:

Quality assurance is a system of ensuring that standards are set. Activities will vary according to organisations but may include the following:

- Random sampling in food manufacture
- Customer feedback procedures
- Use of HACCP
- Secret shoppers in food service and catering

Question 22

Answers could include:

- Traditionally women have been the primary caregiver and more likely to seek part-time or casual work; the retail sector is dominated by females.
- Physically males have a higher percentage of muscle tissue and may be better suited to heavy manual work such as that required in the agriculture and fisheries sector.
- Automation and mechanisation have reduced the level of physical strength required to complete these roles and thereby possibly reduced the impact of gender.
- Whilst traditionally cooking has been seen as a female role, the majority of chefs are male. This may be linked to shift work.
- Anti-discrimination legislation has minimised these issues.

Question 23

Answers could include:

Deliveries and dispatch will increase traffic to local area
Construction of plant and staff parking may take up parkland/green space
Plant could generate noise and/or visual and/or chemical pollution
Disposal of water and waste will need to be considered
Storage of food stuffs may attract vermin
Disturbance to residents/noise/parking.

Question 24***Answers could include:***

There are a number of influences on food product development that are industry or market based. These are the micro environment or internal factors – personnel expertise, production facilities, financial position and company image.

For example – company image such as reputation, quality, marketing strategies and packaging can impact on the success or failure of a new product in the marketplace. Some companies may align themselves with politically correct philosophies that improve their image, such as clean green, to potentially enhance sales.

Question 25 (a)***Sample answer:***

Line extensions involve minor changes to extend the range of company's existing products by incorporating new features eg double choc Tim Tams.

Me-too products are direct copies or minor modifications of existing products in the marketplace eg generic products.

Question 25 (b)***Answers could include:***

Line extensions are cheaper to develop than new to world food products because existing equipment, technologies and personnel can be used. There is already brand recognition and target market acceptance of a line extension, unlike a new to world product which may not be accepted by the market and then development costs will be wasted.

Some manufacturers may be aiming to reach a new market, explore a new technology or there may be an economic or political incentive to develop new to world food products.

Question 26 (a)***Sample answer:***

Marketing plans aim to increase sales. Includes four issues – product, place, price and promotion.

Question 26 (b)***Sample answer:***

- Taste testing at supermarket would allow mothers and children to try before buying
- Free samples issued to pre-schools may encourage children to use ‘pester power’ to encourage their parents to buy the juice
- Flyers at doctor surgery may help to promote the juice as a health-enhancing food
- TV advertising with a focus on nutritional benefits may tap into parental desire to provide the very best for their children
- Discount pricing or inclusion of a voucher to an amusement park may increase sales
- Promotion of the organic nature of the juice may tap into the desire for clean and green
- Consumer attitudes to packaging design.

Question 27 (a)***Sample answer: based on, for example, jam:***

Fruit is boiled until soft, and sugar is added. The mixture is boiled until the temperature reaches (a set point) or until the jam gels.

Question 27 (b)***Sample answer:***

- Cooking vessel: while both are made typically of stainless steel, home production would use a saucepan, while commercial production would use a large vessel able to hold large quantities and easy to clean
- At the domestic level, fruit preparation would involve chopping by hand, using knives and chopping boards. At the industrial level, fruit preparation would include automated washing, peeling and deseeding machinery.

Question 27 (c)***Sample answer:***

The main difference in storage is that of scale, with large quantities of product requiring warehouse space, and allowing for rotation of stock. In both cases, the jam should be stored under cool dry conditions, away from direct sunlight. In the home, this would be achieved by placing the product in jars in a dark place. In an industrial setting, the product would be packaged in jars or cans and then in shipping cartons to exclude light and facilitate distribution of large quantities of product. Further, the cartons of products will be palletised for large-scale, long-distance distribution.

Question 28 (a)**Answers could include:**

Packaging is designed to:

- contain the product
- protect the product from physical/mechanical damage and the elements
- provide convenience to the consumer by the ability to be used in food preparation, ease of recycling and the ease of storage
- preserve the food such as by preventing entry of microorganisms, protecting food from elements
- inform the consumer about the product and promote the product by identifying the product and features, providing directions for the use and information required by law.

Question 28 (b) (i)**Sample answer:**

Eggs packaged in pulped fibreboard or expanded polystyrene.

Question 28 (b) (ii)**Sample answer:**

- *Experiment 1:* Testing the suitability of packaging in protecting against impact. This would involve packaging eggs in a variety of packaging materials such as plastic container, foam, pulped fibreboard and paper. The eggs would then be dropped from the same height. The egg which best sustains the impact would be the one that uses the most suitable packaging material.
- *Experiment 2:* Storage tests could be undertaken by containing eggs in a variety of packaging materials under identical storage conditions. Eggs could then be tested and those which maintain the highest level of freshness represent the most suitable packaging material.

Section III**Question 29 (a)****Answers could include:**

Cultural beliefs – Religion often through festivals and tradition influences the nutritional status of some individuals. Depending on the beliefs involved, the type of food consumed or preparation techniques used will have a bearing on the diet. For example, Seventh Day Adventists are vegetarians.

Social practices – The Australian environment dictates to a certain extent the social lives we lead eg 'All you can eat' buffet. Many social gatherings such as barbeques and picnics are centred around the use of the outdoors. Fish and poultry are being promoted as healthy alternatives to steak for barbeques.

Question 29 (b)***Answers could include:***

Community groups such as Nutrition Australia, Australian Consumers Association and the National Heart Foundation have the ability to guide consumer food choices. The Healthy Heart tick by the National Heart Foundation encourages manufacturers to provide products that can be endorsed so that consumers know they are making healthier choices. Government organisations such as the Australian Bureau of Statistics provide data on consumption of food and issues relating to health. The Department of Health and Ageing promotes health, through strategies such as The Australian Dietary guidelines. National Public Health Partnership's Nutrition strategy and action plan – Eat Well Australia 2000 – 2010 encourages positive health behaviours.

Question 30***Answers could include:***

Nutritionally modified foods are foods that have been altered in some way to improve their nutritional characteristics. Foods with additional dietary fibre and antioxidants might have health benefits such as prevention of diseases such as cancer, constipation and diverticulitis. Foods which have been modified to have lower levels of saturated fat, may provide direct benefits in terms of reduction of cardiovascular disease and overweight/obesity.

Active non-nutrients are substances that are not necessarily essential in the diet but can enhance the functioning of the body or contribute to the promotion of good health. The addition of antioxidants such as carotenoids and flavonoids to foods are thought to have benefits in the prevention of particular types of cancer. Phytoestrogens may benefit women by reducing the symptoms of menopause.

Dietary supplements include products such as vitamin and mineral supplements in the form of tablets and capsules, protein powders and products for added fibre.

The health benefits of using these products are debatable and there have been limited long-term studies that prove/disprove their effectiveness.

Nutrients are generally best absorbed from a food source and the impact on the absorption of other nutrients is unclear.

These foods/nutrients/supplements are generally expensive and the cost of buying them may displace the purchase of fresh foods.

The consumption of supplements for vitamins and minerals may displace fresh fruit and vegetables and the fibre that comes with these foods.

Question 31 (a)

Answers could include:

<i>Marketplace Trend</i>	<i>Ethical Issues</i>
<ul style="list-style-type: none">• Genetic modification of foods	<ul style="list-style-type: none">• Tampering with nature• Potential to produce foods which may harm health
<ul style="list-style-type: none">• Organic farming	<ul style="list-style-type: none">• No exposure to chemical fertilisers• Cost may prohibit access by general population• Animal welfare (freedom versus exposure to disease)

Question 31 (b)

Answers could include:

Marketplace trend

Value-added convenience foods

Social implications may include the loss of food preparation skills of many of the population because foods are already prepared and only need re-heating, also the loss of social networking when meal times are fractured and family members eat on their own and convenience foods provide an easy solution to a number/variety of foods/meals needed for one family group.

Environmental implications may include the increased need for user-friendly packaging (single serves, microwavable containers, etc) which leads to pollution of waterways, extra landfill, increased waste to be disposed of. This may also increase prices of food products to cover packaging costs.

Question 32

Answers could include:

Social justice issues related to inequitable access to food in developed countries is determined by:

- stable governments, higher levels of education, clean water supply
- availability of technology, higher standards of living, larger middle class
- more equal society, excess of food produced, over-nutrition
- maybe some pockets of relative poverty.

Social justice related to inequitable access to food in developing countries is determined by:

- corrupt, unstable governments, low levels of education
- inadequate technology, areas of absolute poverty, over-population
- unclean, contaminated water supply, unequal societies
- inequity within the country, under-nutrition, cash cropping.