

# 2019 HSC Food Technology Marking Guidelines

## Section I

### Multiple-choice Answer Key

Question	Answer
1	C
2	B
3	B
4	A
5	C
6	B
7	C
8	C
9	D
10	A
11	B
12	C
13	D
14	D
15	A
16	B
17	A
18	B
19	D
20	C

## Section II

### Question 21 (a)

Criteria	Marks
• Recognises and names TWO reasons for developing a new food product	2
• Recognises and names ONE reason for developing a new food product	1

**Sample answer:**

- Market concerns for health
- Technological developments.

**Answers could include:**

- Company profitability.

### Question 21 (b)

Criteria	Marks
• Correctly recognises and names a food product example for each type of food product development	3
• Correctly recognises and names a food product example for TWO types of food product development	2
• Correctly recognises and names a food product example for ONE type of food product development	1

**Sample answer:**

<i>Type of food product development</i>	<i>Food product example</i>
Me too	<b>Generic brand of cake mix</b>
Line extension	<b>New flavour of soft drink</b>
New to the world	<b>Probiotic drink</b>

### Question 22 (a)

Criteria	Marks
• Sketches in general terms TWO consumer issues related to food packaging	2
• Provides general information about ONE consumer issue	1

**Sample answer:**

Consumers are concerned about safety packaging eg tamper proof packaging ensures the product has not been opened before purchase. Resealable packaging provides convenience and enables multiple usage.

**Answers could include**

- Single serve family packs to accommodate lifestyle changes
- Reusable packaging for convenience eg food containers that act as a serving dish.

### Question 22 (b)

Criteria	Marks
• Provides characteristics and features of how the food retail sector has responded to consumer concerns about the environment	3
• Sketches in general terms how the food retail sector has responded to consumer concerns about the environment	2
• Provides relevant information	1

**Sample answer:**

Supermarkets have responded to consumer concerns for the environment by removing single use plastic bags and replacing them with reusable bags. Many food retailers provide other options such as boxes, or bring your own bags which will help reduce landfill. Some supermarkets also have the 'odd bunch' which provides non-standard, low cost fruit and vegetables thus reducing landfill and waste.

**Answers could include:**

- Organic food ranges
- Lighting and refrigeration changes
- Recycling of waste eg cardboard and food wastes
- Food miles – point of origin and local suppliers.

**Question 22 (c)**

Criteria	Marks
<ul style="list-style-type: none"> <li>Makes a relationship evident between current legislative requirements and an Australian food label</li> <li>Makes clear the links between current legislative requirements and features of food labels</li> </ul>	6
<ul style="list-style-type: none"> <li>Provides characteristics and features of current legislative requirements for an Australian food label</li> <li>Makes a link between current legislative requirement(s) and feature(s) of food labels</li> </ul>	4–5
<ul style="list-style-type: none"> <li>Sketches in general terms legislative requirement(s) of a food label</li> </ul>	2–3
<ul style="list-style-type: none"> <li>Provides relevant information</li> </ul>	1

**Sample answer:**

Current legislative requirements within the Australian food industry protect both consumers and manufacturers. An Australian food label must have a list of food ingredients in descending order of quantity to enable consumers to identify allergens. It must also have a barcode so that where it is manufactured can be identified. This is positive for the local market. There must be a nutrition information panel to inform consumers about specific food nutrients that they may require. There must be a use-by or best-before date so the consumer knows how long it can be stored for. The name and description of the food must not be misleading, such as any health claim that it will prevent heart attacks.

**Answers could include:**

- Manufacturer's address
- Weight
- Directions for use and storage
- Country of origin.

### Question 23 (a)

Criteria	Marks
• Sketches in general terms nutritional considerations for the identified group with correct terminology	3
• Provides general information about nutritional consideration(s) for the identified group	2
• Provides relevant information	1

**Sample answer:**

Pregnant women need to consider iron content of the food consumed, avoid soft cheeses because of listeria, and consider avoiding alcohol consumption to ensure a healthy pregnancy for mother and child.

Answers will differ according to the group identified.

**Answers could include:**

- The elderly – need to consider fibre intake and calcium for bones and teeth and protein for repair and building of damaged or worn out cells
- Adolescent females
- Athletes
- Aboriginal and Torres Strait Islander Peoples.

### Question 23 (b)

Criteria	Marks
• Details a strategy and makes a relationship between the strategy and the health outcomes of the investigated group evident	5
• Provides characteristics and/or features of a strategy that improves the health outcomes for the identified group	4
• Sketches in general terms a strategy that could improve the health of an identified group	2–3
• Provides some relevant information	1

**Sample answer:**

**Aboriginal and Torres Strait Islander Peoples** – promote and conduct cooking classes with Aboriginal and Torres Strait Islander Peoples to improve knowledge and understanding of food preparation techniques that use healthy ingredients, native ingredients and healthy cooking methods. Use of the Food For Life poster by Mark Olive. Classes come with recipe booklets that include detailed images and steps for later reference. Invite a local Aboriginal and Torres Strait Islander Elder to facilitate attendance, engagement and assist with appropriate communications.

**Answers could include:**

Answers will vary according to the group identified – and may include reference to websites, production of information leaflets/pamphlets, design of mobile/smartphone apps or social media pages (blogs, Instagram, Facebook).

### Question 24 (a)

Criteria	Marks
<ul style="list-style-type: none"> <li>Recognises and names gender issues within ONE sector of the Australian food industry</li> </ul>	2
<ul style="list-style-type: none"> <li>Provides relevant information</li> </ul>	1

**Sample answer:**

**Food service and catering** – restaurants employ men and women but gender issues may arise because of the nature of the job eg pay equality/pay gaps between males and females in restaurants. Lack of female representation at the management level of food services and catering ventures.

**Answers could include:**

Part-time or casual positions may be more commonly filled by women who are involved in childcare or taking children to school.

### Question 24 (b)

Criteria	Marks
<ul style="list-style-type: none"> <li>Provides characteristics and features of how an organisation has responded to lifestyle changes within society</li> </ul>	3
<ul style="list-style-type: none"> <li>Sketches in general terms how an organisation has responded to lifestyle changes within society</li> </ul>	2
<ul style="list-style-type: none"> <li>Provides relevant information</li> </ul>	1

**Sample answer:**

Supermarkets are addressing convenience options for families with busy lifestyles by offering extended trading hours, online shopping, self-serve checkouts and home delivery to attract busy working families. They also provide value added products eg bagged potatoes to make life easier when shopping.

**Answers could include:**

Fast food stores provide home delivery and online ordering for delivery of food for the busy family and individual – other takeaway restaurants have mobile phone apps to order food. Also many stores are open 24 hours to cater for shift workers or people travelling.

### Question 24 (c)

Criteria	Marks
<ul style="list-style-type: none"> <li>• Makes a relationship between an organisation within the Australian food industry and how it affects the Australian economy</li> <li>• Provides relevant examples</li> </ul>	4
<ul style="list-style-type: none"> <li>• Provides characteristics and features of how an organisation within the Australian food industry affects the Australian economy</li> <li>• Provides relevant example(s)</li> </ul>	3
<ul style="list-style-type: none"> <li>• Sketches in general terms the impact of an organisation within the Australian food industry on the Australian economy</li> </ul>	2
<ul style="list-style-type: none"> <li>• Provides relevant information</li> </ul>	1

**Sample answer:**

Supermarkets can affect the Australian economy positively. They provide an enormous number of jobs for the working population. They support the local economy by choosing local produce where possible. As supermarkets sell foods associated with specific cultural groups (eg provision of Asian cooking products so that people do not have to individually rely on imports). They have a high standard of training eg reducing workplace accidents, thus reducing WHS claims and medical and compensation costs.

**Answers could include:**

- Providing many casual jobs increases employment opportunities for all genders and spending capabilities
- Spending is stimulated by extended opening hours and internet shopping facilities and offering home delivery, thus contributing to the economy
- Contributing to the economy of the surrounding suburb or town
- Sponsorships and community events.

### Question 25 (a) (i)

Criteria	Marks
<ul style="list-style-type: none"> <li>Recognises and names an appropriate target market for this product</li> </ul>	1

**Sample answer:**

A target market for this product would be people with specific health concerns.

**Answers could include:**

- Gluten intolerant
- Type 2 diabetes
- People with irritable bowel syndrome.

### Question 25 (a) (ii)

Criteria	Marks
<ul style="list-style-type: none"> <li>Supports an argument for the choice of target market</li> </ul>	2
<ul style="list-style-type: none"> <li>Provides relevant information</li> </ul>	1

**Sample answer:**

People who have coeliac disease would choose to buy this product as it would assist them with managing their disease and reduce the symptoms associated with coeliac.

## Question 25 (b)

Criteria	Marks
<ul style="list-style-type: none"> <li>• Demonstrates a detailed understanding of the use of genetic modification in the Australian food industry</li> <li>• Provides relevant examples</li> </ul>	6
<ul style="list-style-type: none"> <li>• Provides characteristics and features of the use of genetic modification in the Australian food industry</li> <li>• Provides relevant examples</li> </ul>	4–5
<ul style="list-style-type: none"> <li>• Sketches in general terms the use of genetic modification in the Australian food industry</li> <li>• Provides relevant examples</li> </ul>	2–3
<ul style="list-style-type: none"> <li>• Provides relevant information</li> </ul>	1

### **Sample answer:**

Genetic modification is the transfer of genetic information from one organism to another in order to modify existing characteristics. GM is still very limited within the Australian food industry and is being closely monitored. The benefits of using genetic modification include increasing yield by improving resistance to disease, pests or climatic conditions (eg drought) in the agriculture and fisheries sector. Genetically modified foods may be produced to be more appealing to the consumer such as altering the colour or texture of some foods (eg seedless tomatoes). Some disadvantages may be that consumers are unsure about the long-term risks to health. Genetically modified foods may also trigger an allergic reaction.

Genetically modified foods may also be more expensive. Some consumers have ethical issues with the whole process of genetically altering organisms as they remain sceptical about the long-term effects on the environment. GM foods imported in to the AFI need to be clearly identified and labelled accordingly allowing consumers to make informed decisions.

### **Answers could include:**

- Threatens crop diversity
- Can create more weeds
- Can damage the environment
- May require new technology
- Can be dangerous to insects that are important to ecosystems
- Allows for more profit
- Less waste
- Economically efficient
- Extends shelf life.

**Question 26 (a)**

Criteria	Marks
<ul style="list-style-type: none"> <li>States the meaning of the term and identifies its essential qualifier</li> </ul>	2
<ul style="list-style-type: none"> <li>Provides relevant information</li> </ul>	1

**Sample answer:**

Malnutrition occurs when a person does not consume the right amount of nutrients, including over-nutrition or under-nutrition.

**Question 26 (b)**

Criteria	Marks
<ul style="list-style-type: none"> <li>Provides a range of points for and/or against the role of dietary supplements in an individual's diet</li> <li>Provides relevant examples</li> </ul>	6
<ul style="list-style-type: none"> <li>Provides points for and/or against the role of dietary supplements in an individual's diet</li> <li>Provides relevant examples</li> </ul>	5
<ul style="list-style-type: none"> <li>Provides characteristics and features of the role of dietary supplements in an individual's diet</li> <li>Provides example(s)</li> </ul>	4
<ul style="list-style-type: none"> <li>Sketches in general terms the role of dietary supplements in an individual's diet</li> </ul>	2–3
<ul style="list-style-type: none"> <li>Provides relevant information</li> </ul>	1

**Answers could include:**

Dietary supplements can have advantages and disadvantages in an individual's diet. Advantages may include, reducing the risk of a dietary deficiency of a specific nutrient eg a vegetarian may take iron supplements to reduce the risk of anaemia. Pregnant women are advised to take folate supplements to reduce the risk of birth defects. Disadvantages of dietary supplements are that they are expensive and may be toxic if the supplement then results in an excess of consumption of a specific nutrient eg overconsumption of vitamin A can lead to skin discolouration. Protein supplements if taken in excess can result in kidney disease.

## Section III

### Question 27 (a)

Criteria	Marks
<ul style="list-style-type: none"> <li>• Sketches in general terms TWO sectors of the Australian food industry affected by this event</li> </ul>	3
<ul style="list-style-type: none"> <li>• Sketches in general terms a sector of the Australian food industry affected by this event</li> </ul>	2
<ul style="list-style-type: none"> <li>• Provides relevant information</li> </ul>	1

**Sample answer:**

- Agriculture and fisheries were affected as there was an oversupply of strawberries that could not be sold to either the consumer or the food manufacturer.
- Food processing/manufacturing were affected as this sector needed to reduce production because they could not sell their product and guarantee consumer safety and product integrity. This resulted in monetary and job losses.

**Answers could include:**

- *Food retail* – supermarkets had an oversupply of their fresh produce resulting in food waste, loss of money.
- *Food service and catering* – affected because fresh strawberries could not be purchased or used in their catering ventures because they had been removed from shelves.

### Question 27 (b)

Criteria	Marks
<ul style="list-style-type: none"> <li>• Provides characteristics and features of quality management considerations associated with this food safety incident</li> </ul>	4
<ul style="list-style-type: none"> <li>• Sketches in general terms quality management consideration(s) associated with this food safety incident</li> </ul>	2–3
<ul style="list-style-type: none"> <li>• Provides relevant information</li> </ul>	1

**Sample answer:**

Quality assurance is the responsibility of everyone in producing and manufacturing food products. Quality management considerations include HACCP, WHS, and hygiene. The aim of HACCP is to detect potential safety hazards and associated risks during the food manufacturing processes. Food safety systems ensure the delivery of safe food to consumers. WHS procedures would be important for ensuring worker safety eg workers handling the raw product during sorting before manufacturing and processing.

Food retailers have responsibility for food recall. FSANZ has the task of issuing a food recall and informing the public through the media once notified of a food being compromised and safety risks. Retail outlets play a role in removing the potentially compromised strawberries to ensure consumer safety.

**Question 27 (c)**

Criteria	Marks
<ul style="list-style-type: none"> <li>Provides why and/or how TWO preservation processes could assist in waste minimisation of the excess supply of strawberries</li> <li>Provides relevant examples</li> </ul>	7–8
<ul style="list-style-type: none"> <li>Provides characteristics and features of TWO preservation processes in assisting waste minimisation of the excess supply of strawberries</li> <li>Provides relevant examples</li> </ul>	5–6
<ul style="list-style-type: none"> <li>Sketches in general terms preservation process(es) that may assist waste minimisation of the excess supply of strawberries</li> <li>Provides example(s)</li> </ul>	3–4
<ul style="list-style-type: none"> <li>Provides relevant information and/or examples of food preservation</li> </ul>	1–2

**Sample answer:**

Preservation processes assist waste minimisation as the fruit can be made into a value added product to ensure safe consumption for later use. The excess strawberries could be made into jam so that the strawberries are processed to ensure there are no foreign bodies that may be harmful when consumed. Jam making involves heat sterilisation and canning or bottling for safe storage and extended shelf life. Strawberries for jam making would be inspected for quality through slicing and cleaning, then heated with sugar to above 60 degrees to ensure any bacteria is destroyed and enzymes denatured therefore ensuring extended shelf life. The jam is placed into sterilised bottles and sealed while hot to eliminate air and form a vacuum seal.

Freezing may also be used for excess strawberries so that they can be safely stored for later use. The strawberries would be inspected, washed, sliced and frozen at minus 18 degrees Celsius. This will prevent microbial growth and extend shelf life because bacteria is made dormant while at this temperature.

**Answers could include:**

- Dried – freeze dried
- Cooked in a product
- Refrigeration
- Fermenting
- Ice-cream
- Cryovac storage (compressed strawberries).

## Section IV

### Question 28

Criteria	Marks
<ul style="list-style-type: none"> <li>• Demonstrates extensive and detailed knowledge of the relationships between the response of food manufacturers to consumer concerns for health and diet related disorders</li> <li>• Presents a logical and cohesive response using appropriate terminology</li> <li>• Provides a range of relevant examples</li> </ul>	13–15
<ul style="list-style-type: none"> <li>• Demonstrates a thorough understanding of the relationships between the response of food manufacturers to consumer concerns for health and diet related disorders</li> <li>• Presents a well-developed response using appropriate terminology</li> <li>• Provides relevant examples</li> </ul>	10–12
<ul style="list-style-type: none"> <li>• Provides characteristics and features of the response of food manufacturers to consumer concerns about health and/or diet related disorders</li> <li>• Uses appropriate terminology and/or provides relevant examples</li> </ul>	7–9
<ul style="list-style-type: none"> <li>• Sketches in general terms the response of food manufacturers to consumer concerns about health and/or diet related disorders</li> <li>• Provides example(s)</li> </ul>	4–6
<ul style="list-style-type: none"> <li>• Provides relevant information on food manufacturing and/or consumer concerns about health and/or diet related disorders</li> </ul>	1–3

**Answers could include:**

- Production of nutritionally modified foods eg functional food products (eg cholesterol free margarine, probiotic yoghurt) to address health concerns related to heart disease
- Use of active non-nutrients to improve nutritional value of processed foods and target diet related disorders (eg heart active milk, plant sterols in margarine for cardiovascular disease)
- Fortification of a range of commonly consumed products (eg breads, milk, breakfast cereals) to address mineral and vitamin deficiencies in consumers
- Increased range of ‘free-from’ options (eg gluten free, low GI, lactose free cheese, sugar free) to address consumers with allergies and intolerances
- Increase of low fat products, low salt, high calcium products to address health concerns related to heart disease, obesity, type 2 diabetes
- Increased range of vegan products
- Increased range of organic products to address consumer concerns for the environment and the production of greener/cleaner foods in the food chain
- Improved food labelling practices eg Health Star Rating to assist in selection of a product that is healthier and may prevent conditions such as obesity
- Country of Origin labelling which not only encourages the purchase of Australian made products but may address concerns consumers have when purchasing foods produced overseas which come with concerns and risks
- Tamper proof packaging to ensure safe products therefore maintaining health
- Use of smart packaging to monitor product quality and maximise health.

# 2019 HSC Food Technology Mapping Grid

## Section I

Question	Marks	Content	Syllabus outcomes
1	1	(AFI) – Levels of operation	H1.2
2	1	(AFI) – Drought – sectors of AFI	H1.2
3	1	(FPD) – 4Ps	H4.1
4	1	(FM) – Pasteurisation	H1.1
5	1	(NUT) – Community group	H2.1
6	1	(AFI) – Organic farming system	H1.2
7	1	(AFI) – Food labelling	H1.2
8	1	(NUT) – Ethical issues	H2.1
9	1	(FPD) – SWOT analysis	H1.3
10	1	(FM) – Food spoilage	H4.2
11	1	(AFI) – Emerging technology	H1.2
12	1	(FPD) – Sensory evaluation	H1.3
13	1	(NUT) – Functional foods	H2.1
14	1	(NUT) – Cultural practices	H2.1
15	1	(FPD) – Product specifications	H4.1
16	1	(FPD) – Target markets	H1.3
17	1	(NUT) – Diet related disorders	H2.1
18	1	(FM) – Tertiary packaging	H1.1
19	1	(FM) – Food additives	H4.2
20	1	(FM) – Processing equipment	H1.1

## Section II

Question	Marks	Content	Syllabus outcomes
21 (a)	2	Reasons for developing a new food product	H1.3
21 (b)	3	Types of FPD	H1.3
22 (a)	2	Food Packaging	H1.4
22 (b)	3	Aspects of AFI	H1.2
22 (c)	6	Policy and legislation	H1.2
23 (a)	3	Nutritional considerations for a specific group	H3.2
23 (b)	5	Strategies to promote health	H5.1
24 (a)	2	Gender issues in the AFI	H1.2
24 (b)	3	Aspects of AFI – lifestyle changes	H1.2, H3.1
24 (c)	4	Aspects of AFI – economy	H1.2, H3.1
25 (a) (i)	1	Target market	H1.3
25 (a) (ii)	2	Target market	H2.1

Question	Marks	Content	Syllabus outcomes
25 (b)	6	Emerging technologies – GM foods	H1.2
26 (a)	2	Malnutrition	H2.1
26 (b)	6	Dietary supplements	H2.1

**Section III**

Question	Marks	Content	Syllabus outcomes
27 (a)	3	Sectors of the AFI	H1.2
27 (b)	4	Quality management	H1.1, H1.2
27 (c)	8	Preservation	H4.2

**Section IV**

Question	Marks	Content	Syllabus outcomes
28	15	Food manufacturers' response to health and diet related disorders	H2.1, H1.3, H1.4, H1.2, H1.1