

2017 HSC Food Technology Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 21 (a)

Criteria	Marks
<ul style="list-style-type: none"> • Correctly recognises all sectors of the AFI and names the missing sector • Provides relevant food examples to complete the table 	2
<ul style="list-style-type: none"> • Recognises and names sector(s) of the AFI and/or provides relevant food example(s) 	1

Sample answer:

Agriculture and fisheries eg **apples**

Food retail eg pre-packaged salad mix

Food processing/manufacturing eg **frozen chicken nuggets**

Question 21 (b)

Criteria	Marks
<ul style="list-style-type: none"> • Sketches in general terms the role of advisory groups within the AFI and provides a relevant example 	2
<ul style="list-style-type: none"> • Provides general information on advisory groups in the AFI 	1

Sample answer:

Advisory groups provide advice to governments to assist them in developing policies and legislation. The National Heart Foundation is an advisory group that provides information on specific health issues relating to heart health.

Answers could include:

- NSW Food Authority ensures food safety across the entire food chain eg identifying the risk of listeria bacteria to pregnant women and conducting an education program
- The Australian Food and Grocery Council regulates the food retail industry ensuring safety of food products for consumers.

Question 21 (c)

Criteria	Marks
<ul style="list-style-type: none"> • Makes evident the relationship between the organisation identified and its contribution to the Australian economy • Uses appropriate terminology 	5
<ul style="list-style-type: none"> • Provides characteristics and features of the organisation identified and its contribution to the Australian economy 	3–4
<ul style="list-style-type: none"> • Sketches in general terms the impact of the organisation on the Australian economy • Provides general information on the AFI or the Australian economy 	2
<ul style="list-style-type: none"> • Provides general information on the AFI or the Australian economy 	1

Sample answer:

Woolworths is an organisation within the food retail sector of the AFI. It contributes to the Australian economy by providing employment opportunities eg shelf stackers, butchers, managers, checkout operators. It also provides income to farmers as it sells their produce and provides competition within the retail marketplace.

Answers could include:

Organisations within the AFI that provide employment, generate competition and utilise raw materials. For example, Sanitarium, Greens, Uncle Tobys

Question 22 (a)

Criteria	Marks
<ul style="list-style-type: none"> • Sketches in general terms the reasons for the development of this product 	3
<ul style="list-style-type: none"> • Sketches in general terms a reason for the development of this product 	2
<ul style="list-style-type: none"> • Provides general information on food product development 	1

Sample answer:

Reasons include market concerns for health and consumer demand for convenience. Health conscious consumers who work and have a family recognise the importance of eating freshly prepared foods and the food boxes offered by the magazine subscription would allow them to do so with their busy lives.

Question 22 (b)

Criteria	Marks
<ul style="list-style-type: none"> Provides information on quality control procedures and makes evident the relationship between these and a guarantee of freshness of the gourmet food box upon delivery 	4
<ul style="list-style-type: none"> Provides characteristics and features of quality control procedure(s) and provides information related to freshness of the gourmet food box 	2–3
<ul style="list-style-type: none"> Provides general information on the freshness of food 	1

Sample answer:

Prior to delivery to consumers, visual checks at the warehouse would indicate packaging damage eg broken seals, tamper evidence. Cold storage checks and controls at both the warehouse and during transportation ensure correct temperature control requirements are maintained to ensure freshness.

Answers could include:

HACCP.

Question 22 (c)

Criteria	Marks
<ul style="list-style-type: none"> Puts forward an appropriate and clear marketing plan to launch the gourmet food boxes Includes relevant examples 	5
<ul style="list-style-type: none"> Provides characteristics and features of a marketing plan to launch the gourmet food boxes Includes relevant example(s) 	3–4
<ul style="list-style-type: none"> Sketches in general terms a marketing plan to launch the gourmet food boxes 	2
<ul style="list-style-type: none"> Provides general information about food promotion 	1

Sample answer:

A marketing plan would involve consideration of the 4Ps. This is a new product in the introduction phase of the product life cycle. Setting the price structure is important to attract a customer base so may involve an initial lower price. Using a celebrity chef eg Jamie Oliver to help promote the gourmet food box on TV would also attract attention. Offering free home delivery with the first gourmet box could also be part of the marketing plan when people get their first order delivered.

Answers could include:

- Price structure
- Promotional program
- Product planning
- Place and distribution system.

Question 23 (a)

Criteria	Marks
<ul style="list-style-type: none"> Recognises and names a correct level of operation 	1

Sample answer:

Household.

Question 23 (b)

Criteria	Marks
<ul style="list-style-type: none"> Sketches in general terms TWO legislative requirements that need to be met by the business 	3
<ul style="list-style-type: none"> Sketches in general terms a legislative requirement that needs to be met by the business 	2
<ul style="list-style-type: none"> Provides general information for a food business 	1

Sample answer:

The NSW Food Authority ensures the Food Standards Code (revised 2016) procedures are in place and requirements met when Julie Jones’s food is prepared and distributed to the consumer in their home. She would also have to adhere to WHS (2010) procedures to ensure safety in the workplace.

Answers could include:

FSANZ.

Question 23 (c)

Criteria	Marks
<ul style="list-style-type: none"> Shows a relationship between appropriate storage and distribution systems used by this business and the maintenance of maximum quality Includes relevant examples 	4
<ul style="list-style-type: none"> Provides characteristics and/or features of appropriate storage and/or distribution systems used by this business to maintain maximum quality Includes relevant example(s) 	2–3
<ul style="list-style-type: none"> Provides general information on household food production 	1

Sample answer:

Correct storage and distribution is important to maintain maximum quality and ensure a safe product is delivered to the consumer eg *Yum to You* chicken pies would need to be maintained at a temperature during transportation to the home of the consumer similar to a pizza delivery in an insulated heat bag above 60°C. Failure to keep food in the correct temperature range may risk food poisoning eg salmonella food poisoning may lead to vomiting and diarrhoea. Packaging needs to protect the food from contamination by handlers and ensure quality is maintained.

Answers could include:

Metropolitan areas may involve deliveries by Uber drivers or bikes with insulated backpacks.

Question 24

Criteria	Marks
<ul style="list-style-type: none"> Identifies issues and provides points showing the positive and/or negative relationship between the consumption of nutritionally modified foods and the health of the individual 	5
<ul style="list-style-type: none"> Provides characteristics and/or features of the relationship between the consumption of nutritionally modified foods and the health of the individual 	3–4
<ul style="list-style-type: none"> Sketches in general terms information about the consumption of nutritionally modified foods and/or the health of the individual 	2
<ul style="list-style-type: none"> Provides general information about food consumption and/or the health of the individual 	1

Sample answer:

The foods you consume can have a positive or negative effect on your health status. As a result of high levels of dietary related disorders, nutritionally modified foods are now promoted to improve health eg high fibre white bread has a positive impact on the digestive health of individuals, particularly children who may not like wholegrain cereals. It can lead to a reduced risk of bowel cancer or constipation. Fortified breakfast cereals provide benefits eg Weet-Bix is promoted to improve the daily intake of iron and vitamins encouraging better fitness and general health and wellbeing.

Answers could include:

- Orange juice with added iron
- High calcium milk
- A2 milk
- Salt-reduced tomato sauce.

Question 25 (a)

Criteria	Marks
• Provides characteristics and features of THREE functions of packaging	3
• Provides characteristics and/or features of the function(s) of packaging	2
• Sketches in general terms	
• Provides general information on packaging of food	1

Sample answer:

Packaging contains the product eg a bag of apples. It also protects the product from physical damage, eg egg cartons, and it can make the product more convenient to use, eg self-heating cans.

Answers could include:

- Promotion
- Preservation.

Question 25 (b)

Criteria	Marks
• Makes the relationship evident between current developments in food packaging and how assist the elderly in meeting their food needs	5
• Provides characteristics and features of current development(s) in food packaging which can assist the elderly in meeting their food need(s)	3–4
• Sketches in general terms developments in packaging and/or the food needs of the elderly	2
• Provides general information on packaging and/or the food needs of the elderly	1

Sample answer:

Packaging for the elderly must consider ease of opening, clear preparation instructions, development of more single serve and re-sealable packages eg packaged pre-cooked rice that can be heated in the packet and eaten from the packet, reducing mess and making food preparation easier for the elderly. Clear labelling that is easy to read is a must because of sight issues. Pre-packed salads are a current development in modified atmosphere packaging that enables the elderly to purchase a healthy, fresh salad already chopped and mixed in a re-sealable packet.

Answers could include:

- Active packaging is a recent development that means opened packages can be kept longer and reused when needed eg soft wraps
- Intelligent Packaging
- Microwavable packaging.

Question 26

Criteria	Marks
• Shows a detailed relationship between the benefits of producing organic foods OR genetically-modified foods for the AFI and consumers	8
• Shows a relationship between the benefits of producing organic foods OR genetically-modified foods for the AFI and/or consumers	6–7
• Provides characteristics and features of producing organic foods OR genetically-modified foods and/or benefits for the AFI and/or consumers	4–5
• Sketches in general terms a benefit of producing organic foods OR genetically-modified foods for the AFI and/or consumers	2–3
• Provides general information about organic foods OR genetically-modified foods	1

Sample answer:

Organic farming is sustainable and the benefits for the AFI focus on the fact that it does not deplete natural resources and is not harmful to the environment. It does not use artificial substances or chemicals that cumulate in the environment. Because of increasing popularity in the marketplace and its value in food production and manufacturing the demand is increasing. Organic fruits and vegetables now have a bigger section in the supermarket indicating a growing demand for the products by consumers. Cafes will often display their products as being organic or ethically sourced to promote sales.

Answers could include:

Genetically modified foods have had their genetic material altered. This can have benefits for the AFI, for example plants can be farmed to become more disease resistant. Genetically modifying foods is also an ethically controversial issue. FSANZ have only approved a small number of genetically modified crops to be farmed in Australia eg canola is genetically modified and is used to produce oil for cooking.

Section III

Question 27 (a)

Criteria	Marks
• Sketches in general terms a fruit product suitable for production for export	2
• Names a fruit product	1

Sample answer:

Pureed canned apples would be a product suitable for export because it can utilise discarded fruit pieces, such as bruised or damaged apples.

Answers could include:

- Bottled apples
- Dried apples
- Apple leather

Question 27 (b)

Criteria	Marks
• Provides characteristics and features of TWO internal and TWO external factors affecting the development and production of the fruit product • Includes relevant examples	5
• Provides characteristics and features of the internal and/or external factor(s) affecting the development and production of the fruit product • Includes relevant example(s)	3–4
• Sketches in general terms external and/or internal factor(s) affecting the development and/or production of the fruit product	2
• Provides general information on internal and/or external factors and/or food products	1

Sample answer:

Internal factors may involve considering the production facilities already in place and the company image. A benefit of producing this product is that it would possibly improve the company image because it is promoting reuse of waste that is a growing environmental concern for consumers. However, the company may need to purchase new machinery to enable production of the product.

The company has considered the external factor involving the environmental impact of food wastage by deciding to produce a new fruit product using damaged fruit that would otherwise be discarded. Economic issues are an external factor to consider because although it is a not-for-profit company, costs of export tariffs may be an added financial burden. This new product may or may not appeal in an already fluctuating market.

As the economy is currently slowing down, the value of the Australian dollar has fallen. If the not-for-profit company needs to purchase new processing equipment from overseas to manufacture the fruit product, it may be too costly and not financially feasible for the company to manufacture the product for export.

Answers could include:

- Internal factors – personnel expertise, production facilities, financial position, company image
- External factors – economic environment, political environment, ecological environment, technological environment.

Question 27 (c)

Criteria	Marks
<ul style="list-style-type: none"> • Shows a detailed relationship between an appropriate manufacturing process and the transformation of raw materials in the production of the fruit product for export • Uses appropriate terminology 	8
<ul style="list-style-type: none"> • Provides characteristics and features of an appropriate manufacturing process that would transform the raw materials into the fruit product for export • Uses appropriate terminology 	6–7
<ul style="list-style-type: none"> • Provides characteristics and/or features of a manufacturing process that would transform the raw materials into a fruit product 	4–5
<ul style="list-style-type: none"> • Sketches in general terms a manufacturing process that would transform the raw materials into a fruit product 	2–3
<ul style="list-style-type: none"> • Provides general information on food manufacturing 	1

Sample answer:

The damaged fruit would be purchased from the farmer and transported to the processing plant. Sorting would include visual checks to determine whether the fruit is safe for production eg no chemical contamination or bug infestation. Canning is the manufacturing process for production of this fruit product. The steps involve a heat treatment process in a retort to achieve sterility and preserve the product through the destruction of food spoilage microorganisms, while keeping the food edible. It involves sealing into sterile containers to achieve a vacuum seal to maintain the integrity of the canning process. It is then cooled and labelled and packed ready for distribution and export.

Answers could include:

Other forms of food manufacturing involving preservation techniques, depending on the chosen apple product, could include dehydration, bottling, freezing, freeze drying.

Section IV

Question 28

Criteria	Marks
<ul style="list-style-type: none"> • Makes a judgement about the role organisations play in the promotion of nutritional health in relation to both food consumption and diet-related conditions • Presents a logical and cohesive response using appropriate terminology • Includes relevant examples 	13–15
<ul style="list-style-type: none"> • Makes evident the relationship between the role organisations play in the promotion of nutritional health in relation to both food consumption and diet-related conditions • Present logical response using some appropriate terminology • Includes some relevant examples 	10–12
<ul style="list-style-type: none"> • Provides characteristics and features about the role organisation(s) play in the promotion of nutritional health in relation to food consumption and/or diet-related condition(s) • Includes example(s) 	7–9
<ul style="list-style-type: none"> • Sketches in general terms the role of an organisation and/or diet-related condition(s) and/or food consumption 	4–6
<ul style="list-style-type: none"> • Provides general information on an organisation OR food consumption OR health 	1–3

Answers could include:

- The promotion of nutritional health and improved dietary practices by a range of organisations is a positive approach in providing education and knowledge as to the causes and effects of these diet-related disease eg the National Heart Foundation, local medical professionals, Diabetes Australia, The NSW Department of Education and Communities curriculum includes education in a formal setting in all schools, supermarket promotions and food manufacturing and processing companies, private agencies eg Weight Watchers encourage meal planning for low fat foods, applications on phones, government organisations provide tools that inform choices eg Target for Healthy Living, Australian Dietary Guidelines for Adolescents, vegetarians and Pregnant and Lactating Women, websites exist for better health which provides information related to nutrition and diet, healthy canteen programs in schools improves food choices of children while at school.
- Food consumption directly influences nutritional health. It can be positive eg adequate daily dietary fibre encourages healthy gut flora and can prevent bowel cancer, or it can be negative eg a diet high in salt can lead to hypertension.
- Dental caries can be prevented by reducing sugar intake.
- Bone density can be improved if the diet is inclusive of calcium preventing the onset of osteoporosis.
- Cardiovascular disease can be prevented if the diet reduces consumption of foods high in LDL and saturated fats.
- Type 2 Diabetes can be at an increased risk of occurrence if the diet is high in fats and processed foods.

2017 HSC Food Technology Mapping Grid

Section I

Question	Marks	Content	Syllabus outcomes
1	1	Mechanisation (FM)	H1.1
2	1	Sectors (AFI)	H1.2
3	1	Nutritional requirements (NUT)	H2.1
4	1	Storage trials (FPD)	H1.3
5	1	Additives (FM)	H1.1
6	1	SWOT (FPD)	H1.3
7	1	Types of food product development (FPD)	H1.3
8	1	Research development (FPD)	H1.3
9	1	Policy and legislation (AFI)	H1.2
10	1	Food spoilage (FM)	H4.2
11	1	Promotion (FPD)	H1.3
12	1	Quality control (AFI)	H1.1, H1.2
13	1	Nutrition disorder (NUT)	H2.1
14	1	Active non-nutrients (NUT)	H2.1
15	1	Value-adding (AFI)	H1.2
16	1	Allergies (NUT)	H2.1
17	1	Manufacturing equipment (FM)	H1.1
18	1	Legislation (AFI)	H1.2
19	1	Fermentation (FM)	H1.1
20	1	Dietary-related disorder (NUT)	H2.1

Section II

Question	Marks	Content	Syllabus outcomes
21 (a)	2	Sectors of the AFI	H1.2
21 (b)	2	Role of advisory groups	H1.2
21 (c)	5	Organisation within the AFI	H1.4, H3.1
22 (a)	3	Food product development drivers	H1.3
22 (b)	4	Quality control	H1.1
22 (c)	5	Marketing plan	H1.3
23 (a)	1	Levels of operation within the AFI	H1.2
23 (b)	3	Legislative requirements	H1.2
23 (c)	4	Storage and distribution systems	H1.1
24	5	Nutritionally modified foods	H2.1
25 (a)	3	Functions of packaging	H1.1
25 (b)	5	Developments in packaging	H1.1
26	8	Emerging technologies in the AFI	H1.1

Section III

Question	Marks	Content	Syllabus outcomes
27 (a)	2	Product specifications	H1.3, H4.1
27 (b)	5	External and internal factors	H1.3
27 (c)	8	Manufacturing processes	H1.1, H4.2

Section IV

Question	Marks	Content	Syllabus outcomes
28	15	Diet-related conditions, food consumption and nutritional health promotion	H2.1, H3.2, H5.1