
2024 HSC Design and Technology Marking Guidelines

Section I

Multiple-choice Answer Key

Question	Answer
1	A
2	C
3	A
4	D
5	D
6	B
7	B
8	C
9	D
10	C

Section II

Question 11

Criteria	Marks
<ul style="list-style-type: none"> • Outlines ONE factor that is important for the development of an e-scooter 	2
<ul style="list-style-type: none"> • Provides some relevant information 	1

Sample answer:

Safety – the batteries used to store energy have been known to catch fire, thus the designer needs to ensure that all possible safety precautions have been taken.

Answers could include:

- Function – needs to be able to be ridden
- Ergonomics – suitable to the size and shape of the user
- Durability – able to last and fulfil its intended function
- Obsolescence – the safe disposal of the product when not functional or desired
- Finance – cost effective for the consumer.

Question 12

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates a thorough understanding of a disadvantage of designing a product with a limited lifespan 	3
<ul style="list-style-type: none"> • Demonstrates some understanding of a disadvantage of designing a product with a limited lifespan 	2
<ul style="list-style-type: none"> • Provides some relevant information 	1

Sample answer:

Plastic disposable bottle containing water have a limited lifespan. There is an ethical concern of deliberately designing a product for the purpose of becoming obsolete and requiring replacement.

Answers could include:

- Long-term environmental effects
- Use of natural resources
- Landfill/waste
- Financial costs to consumers to buy and replace products.

Question 13

Criteria	Marks
• Discusses the effect of a social trend on the design of a new product	4
• Demonstrates an understanding of a social trend that can affect the design of a new product	3
• Demonstrates an understanding of a social trend	2
• Provides some relevant information	1

Sample answer:

One social trend is the use of artificial intelligence. For example, artificial intelligence can develop images and concepts for projects based on written descriptions. While this is a good method of stimulating design ideas, the negative aspect is that the concept is not the designer's own work and can lead to issues.

Answers could include:

Positive trends:

- Fashion – responding to consumer needs/season/colour/cultural
- Green – use of environmentally friendly products
- Material – new innovations (carbon fibre vs steel).

Negative trends:

- Fast fashion – creation of wastage
- Cost – desiring 'the best' requiring additional financial expense
- Technology upgrades – the latest mobile phones
- Throw-away society – purchasing new items rather than repairing existing items.

Question 14

Criteria	Marks
<ul style="list-style-type: none"> Provides a thorough explanation of ONE risk involved in developing new designs Makes detailed reference to an innovation Provides a detailed example to support answer 	6
<ul style="list-style-type: none"> Provides a sound explanation of ONE risk involved in developing new designs Makes reference to an innovation Provides an example to support answer 	5
<ul style="list-style-type: none"> Provides a description of ONE risk that a designer may experience in developing innovative ideas Includes an example 	4
<ul style="list-style-type: none"> Demonstrates some understanding of a risk that a designer may experience in developing ideas 	2–3
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

Designers have taken risks to profit from design solutions. This risk can be seen when a product fails to meet a consumer need. For example, while electric motor vehicles are experiencing a level of success, electric recreational vehicles and utes have been found to fail due to the functional applications. EV's have trouble towing a boat. That makes them impractical and prone to failure as a product. Recreational vehicles as an electric vehicle option are being discontinued by designers due to the loss of money and negative brand identity.

Answers could include:

Success:

- New and different products capturing market share
- Higher economic returns
- Improve brand recognition – eg models of cars
- Additions – accessories.

Failure:

- Untested products – batteries catching fire in 'e' products (cars/bikes/scooters)
- Unacceptable products – VHS vs Betamax ... DVD vs streaming services
- Marketing – attracting the wrong niche markets
- WHS – injury to user.

Section III

Question 15

Criteria	Marks
<ul style="list-style-type: none"> Provides comprehensive assessment of the role that a designer has made in bridging the gap between new discoveries and the consumer market Provides a logical and cohesive response Communicates ideas and information using relevant examples Makes detailed reference to ONE discovery from the stimulus material 	13–15
<ul style="list-style-type: none"> Provides a thorough assessment of the role that designers can have in bridging the gap between new discoveries and the consumer market Provides a logical and cohesive response Communicates ideas and information using relevant examples Makes reference to ONE discovery from the stimulus material 	10–12
<ul style="list-style-type: none"> Provides a sound assessment of the role of a designer in bridging the gap between new discoveries and the consumer market Makes reference to relevant example 	7–9
<ul style="list-style-type: none"> Demonstrates some understanding of the role of a designer in bridging the gap between a discovery and the consumer market 	4–6
<ul style="list-style-type: none"> Provides some relevant information 	1–3

Answers could include:

Once a new discovery has been made, different designs and packaging have been used to bring the product to the consumer market to gain market share. This can be seen in the example of toothpaste. Over the years new applications that help keep our teeth clean have been developed, while designers create packaging that makes the product accessible and easy to use by consumers. Without the intervention of the designer working out how to bring these discoveries to market, some advances in society may never have occurred.

Discovery – different toothpaste formula

Designer input – accessing product and improving application process

- Developing aesthetic flavours to gain market share – flavours suitable for individuals' preference (flavour acceptable to children; 'mint' as a symbol of freshness)
- Innovation of application – manual hand brushing processes being innovated through the electric toothbrush; ease of use
- Material application – plastic handles to bamboo to improve sustainable practices.

Discovery – generation and storage of electrical power to power cars

Designer input – developing concept to be cost-effective and accessible

- Sustainability – seeking solutions to lower the carbon footprint in the development of motoring concepts changing from petrochemical engine to electric power

- Appropriateness of design solution – charging stations to ensure the viability of cars being produced and remain functional. For example, in the creation of new service stations to suit new vehicles, or designer of homebased leads and accessories required for charging vehicles
- Safety – development of safety systems to limit the risk of fire and explosions.

Discovery – greater understanding of outer space

Designer input – space travel and systems for tourism purposes

- Travel and leisure experiences – developing feasibility studies to ensure human safety and profit generation in space exploration activities
- Functionality – devices to allow further exploration of the solar system like the Mars Rover and Hubble Space Telescope.

Other:

- Recycling methods
- Artificial intelligence
- Communication methods
- Carbon capture
- Waste disposal
- Sustainable housing
- Animal husbandry
- Health care.

2024 HSC Design and Technology Mapping Grid

Section I

Question	Marks	Content	Syllabus outcomes
1	1	Project management	H5.1
2	1	Impact of design and innovation on society and the environment	H2.2
3	1	Research methods	H5.2
4	1	Selection and use of resources	H4.2
5	1	Collaborative design and design teams	H6.1
6	1	Trends in society on design and production	H2.1
7	1	Intellectual property	H2.2
8	1	Lifecycle analysis	H1.1
9	1	Communication techniques	H5.2
10	1	Factors affecting design – WHS and ergonomics	H1.1

Section II

Question	Marks	Content	Syllabus outcomes
11	2	Factors affecting design	H1.1
12	3	Obsolescence	H1.1
13	4	Trends in designing	H2.1
14	6	Factors that impact the success of innovation	H3.1

Section III

Question	Marks	Content	Syllabus outcomes
15	15	Factors of design Work of the designer Factors that influence innovation and the success of innovation Emerging technology	H1.1, H2.1, H3.1, H6.2