
2022 HSC Design and Technology Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 11

Criteria	Marks
<ul style="list-style-type: none"> • Outlines relevant information regarding testing and experimenting and how it can improve a design 	2
<ul style="list-style-type: none"> • Provides relevant information 	1

Sample answer:

Testing and experimenting can improve a design project by allowing you to explore the successes and failures of a number of materials tools and techniques associated with the project. It can assist in saving time, money and material wastage.

Question 12

Criteria	Marks
<ul style="list-style-type: none"> • Clearly describes how technology assists designers in overcoming communication barriers 	3
<ul style="list-style-type: none"> • Demonstrates an understanding of how technology can be used in overcoming communication barriers 	2
<ul style="list-style-type: none"> • Provides relevant information 	1

Sample answer:

Effective communication allows designers to get clear and definite instructions. Designers use technology to assist and enhance their work. In a developing world increasingly advanced technological options such as online platforms, robotics and automation are all accessible and available to help improve efficiency, quality and communication.

Question 13

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates a comprehensive understanding of long-term environmental impacts • Provides points for and/or against 	4
<ul style="list-style-type: none"> • Demonstrates a sound understanding of long-term environmental impacts • Points for and/or against 	3
<ul style="list-style-type: none"> • Outlines an environmental impact 	2
<ul style="list-style-type: none"> • Provides relevant information 	1

Sample answer:

When considering the long-term consequences of both designs, the reusable water bottle is the most appropriate design solution of the two. The reusable bottle can be used more than one time and considers thoughtful action towards the environment. It promotes greater recycling and is a more responsible design for its consumers, society and the environment. This design solution is appropriate for its intended users and is appropriate for right now. This product will have great value and worth for society.

Answers could include:

- Less waste
- Less landfill
- More responsible marketing and consumer choice
- Consumer refunds, eg return and earn
- Use of biodegradable materials in manufacturing.

Question 14

Criteria	Marks
• Provides a comprehensive explanation of the effects of the mass production trend on workplace practices	6
• Provides an explanation of the effects the mass production trend has on workplace practices	5
• Provides a description of the effects the mass production trend has on workplace practices	4
• Demonstrates some understanding of the effects the mass production trend has on workplace practices	2–3
• Provides relevant information	1

Sample answer:

There are several factors that influence the direction of design and production. Benefits can include increased speed and accuracy of production for a range of items from injection moulded plastics through to small-batch limited edition items. The manufacturing of products can be achieved through a variety of processes such as robotics, CNC machinery etc. This trend can affect work practices both positively and negatively requiring upskilling of employees resulting in potential loss of jobs, leading to higher unemployment rates, affecting individuals' wellbeing and society at large.

Answers could include:

- Job transition, upskilling employees
- Ease of duplication
- Extended hours of operation
- Total quality management
- Historical and cultural influences
- Changing social trends
- Changing nature of work, technological advancements
- Automation.

Section III

Question 15

Criteria	Marks
<ul style="list-style-type: none"> Provides an extensive analysis of the effect alternative energy systems have on society and the environment Provides a logical and cohesive response Makes detailed reference to TWO alternative energy systems 	13–15
<ul style="list-style-type: none"> Provides some analysis of the effect alternative energy systems have on society and the environment Provides a mostly logical and cohesive response Makes reference to two alternative energy systems 	10–12
<ul style="list-style-type: none"> Describes how alternative energy systems have an impact on society and the environment Refers to alternative energy systems 	7–9
<ul style="list-style-type: none"> Outlines how alternative energy systems can have an impact on society and the environment 	4–6
<ul style="list-style-type: none"> Provides some relevant information about how alternative energy systems can have an impact on society and the environment 	1–3

Answers could include:

Social/environmental effects:

- Something needs to be done to address climate change
- Infrastructure needs to be installed. Who is required to pay?
- Socioeconomic brackets, higher bracket = more money to purchase equipment. Lower bracket = needs to spend money on basic needs
- Job lost, lower coal exports
- Nuclear, shift in society's views on nuclear impact, nuclear waste, meltdown fear
- Hydrogen, society fear of explosion
- Manufacturing of solar panels, damaging the environment.
- People may need to be prepared for additional costs associated with alternative energy sources
- Disposable income, eg the cost of purchasing new equipment
- Government taxes made from fuel tax. Tax gone if EV cars purchased
- Provide increased jobs, and upskilling labour market
- Overseas production = lower costs, cheaper labour, leads to poor work conditions, jobs being done by women and children, leads to boycott products/services
- Opportunity for Australia to capitalise on green hydrogen export.

2022 HSC Design and Technology Mapping Grid

Section I

Question	Marks	Content	Syllabus outcomes
1	1	Design factors	H1.1
2	1	Intellectual property	H1.2
3	1	Success of innovation	H3.1
4	1	Market research	H5.2
5	1	Influence of social trends	H2.1
6	1	Research methods	H5.2
7	1	Work of designers	H1.2
8	1	Trends on society, design factors	H2.2, H1.1
9	1	Innovative design practice, design factors	H1.1, H3.1
10	1	Emergence of new technologies	H6.2

Section II

Question	Marks	Content	Syllabus outcomes
11	2	Research and methods of experimentation to generate ideas	H1.1
12	3	Social trends, communication	H2.1, H5.2
13	4	Factors affecting designing, appropriateness of design solution, long-term environmental consequences	H1.1
14	6	Influence of trends on society	H2.1

Section III

Question	Marks	Content	Syllabus outcomes
15	15	Impact of design and innovation on society and the environment Factors that impact the success of innovation Creative and innovation design practice Critically assesses the emergence and impact of new technologies	H2.2, H3.1, H6.2