General Instructions
• Reading time – 5 minutes
• Working time – 1 1/2 hours
• Write using black or blue pen
• Write your Centre Number and Student Number at the top of page 5

Total marks – 40

Section I Pages 2–4
10 marks
• Attempt Questions 1–10
• Allow about 15 minutes for this section

Section II Pages 5–8
15 marks
• Attempt Question 11
• Allow about 35 minutes for this section

Section III Pages 9–11
15 marks
• Attempt ONE question from Questions 12–14
• Allow about 40 minutes for this section
Section I

10 marks
Attempt Questions 1–10
Allow about 15 minutes for this section

Use the multiple-choice answer sheet.

Select the alternative A, B, C or D that best answers the question. Fill in the response oval completely.

**Sample:** \[2 + 4 = \] (A) 2 (B) 6 (C) 8 (D) 9

If you think you have made a mistake, put a cross through the incorrect answer and fill in the new answer.

If you change your mind and have crossed out what you consider to be the correct answer, then indicate the correct answer by writing the word **correct** and drawing an arrow as follows.
1 When is a design solution most appropriate?
   (A) When it is recyclable
   (B) When it meets the budget
   (C) When it is multifunctional
   (D) When it meets the needs of the client

2 Which of the following lists of functional criteria is the most appropriate when developing a new diary for HSC students?
   (A) Colour, weight and size
   (B) Weight, size and ease of use
   (C) Content, attractiveness and cost
   (D) Cost, references and ease of use

3 A design team is developing a new cinema complex.
   For the complex to be finished on time and within budget, which of the following is the most effective strategy for the design team?
   (A) Employ a financial controller and project manager.
   (B) Develop a management plan and evaluate it regularly.
   (C) Ensure every team member has an email address and project management software.
   (D) Appoint a project manager and give all team members a copy of the management plans.

4 When designers are involved in the development of new communication products, which of the following should be their most ethical consideration?
   (A) Can it be recycled?
   (B) Does it meet Australian standards?
   (C) Will the device become fashionable?
   (D) Can it be used to copy other people’s information?

5 Designers have been asked to submit proposals for the redevelopment of a local park. Which of the following is the successful proposal most likely to include?
   (A) A needs analysis and a model
   (B) An advertising campaign for the new park
   (C) A costing of the plants, seating and play equipment required
   (D) A safety analysis of the workshop in which the equipment will be constructed
6 Which of the following can result in innovation?
(A) Energy, cost, creativity and differentiation
(B) Research, ergonomics, durability and reliability
(C) Research, creativity, ergonomics and recyclability
(D) Creativity, combination, differentiation and adaptation

7 This chart shows a project development process.

<table>
<thead>
<tr>
<th>Project definition</th>
<th>Concept design and selection</th>
<th>Development and production</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

What type of test would be used to evaluate actual functionality of the project?
(A) Assessment
(B) Comparison
(C) Exploratory
(D) Validation

8 What has been the effect of new communication techniques on the process of designing?
(A) Increased speed in production of prototypes
(B) Increased costs due to installation of new technology
(C) Increased collaboration on design product development
(D) Increased flexibility in the creation of design solutions

9 A designer has been commissioned by Pencil Smart Pty Ltd to design a new solar-powered pencil sharpener.
What is an ethical way to ensure the integrity of the intellectual property for the new design?
(A) The designer applies for copyright.
(B) Pencil Smart applies for a patent.
(C) The designer researches existing designs.
(D) The designer applies for a patent.

10 Which of the following economic issues influence trends in design and production?
(A) Skill of the workforce, salaries and inflation
(B) Income, employment patterns and market size
(C) Subsidies, company image and the environment
(D) Employment patterns, income and working conditions
Question 11 (15 marks)

(a) During the development of design projects, designers conduct or draw upon research, and communicate the results to a range of audiences.

Outline ONE research method you used when developing your major design project. Describe how the results of this research impacted on the decisions you made.

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Marks

2

Question 11 continues on page 6
Question 11 (continued)

The following images represent the design development of a new art gallery. Use this stimulus material to answer parts (b)–(c).

(b) Select FOUR of the communication techniques shown below. In the spaces provided identify a different, appropriate audience for each technique.
Question 11 (continued)

(c) (i) Explain why communication techniques vary throughout the design development of the art gallery.  
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(ii) Explain how design teams may respond to, and communicate, the results of research in a project such as the art gallery.  
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Question 11 continues on page 8
(d) Justify the communication processes that you used to develop your major design project from initial ideas to concept stage. Explain how these are similar or different to those used by designers in a commercial setting.

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Little miracles in daily life

Changing tiny particles to improve a material’s properties is known as nanotechnology.

(a) Using examples from either the stimulus material, or your own studies, identify TWO applications of nanotechnology, and describe their impact on society.

(b) ‘Emerging technologies often lead to innovations that improve our quality of life.’

   Explain how TWO different factors influence the successful development of such innovations. Use examples to show how and when this might occur.

(c) Critically analyse the ethical and legal implications of new and emerging technologies.

OR
Question 13 (15 marks)

**Aussie excellence**

<table>
<thead>
<tr>
<th>Aussie Excellence at My Thuan Bridge, Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>With its gracefully tapered towers and fine blue-sheathed multistrand cables supporting a slender bridge deck, the elegance of Vietnam's new My Thuan Bridge disguises its strength and significance.</td>
</tr>
<tr>
<td>The high-level river crossing of four traffic lanes and two pedestrian footways has transformed the lives of the 16 million people living in the fertile Mekong Delta.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Akubra Hats</th>
</tr>
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<tbody>
<tr>
<td>Akubra hats have been Australia's quality hats since the early 1900s, ever since Arthur P. Steward set up to make a hat to meet the needs of this bustling new colony. Australians in the earlier days, much like the Americans in the West, needed better hats than usual, and, like the Americans, they had to make them for themselves. Akubra hats stood the test of life on the cattle stations and droving routes. Akubra hats still stand the test, not only in Australia, but throughout the world. You will see them wherever you travel.</td>
</tr>
</tbody>
</table>

Living in an industrial culture, we have learned to expect and even demand solutions to new and newly perceived problems, innovative ideas and changes to the products we use. Whether our desire is for more novelty, fashion, comfort, efficiency, economy, safety or environmental friendliness, a complex process of innovation has to be initiated and managed by an organisation (or collaborative group) to introduce this change.

Australian designers have achieved global success and gained a reputation for quality design.

(a) Clarify, using examples from either the stimulus material above or your own studies, how the consideration of design factors can lead to design quality. 3

(b) Explain how safety and environmental issues influence the selection of resources for quality design. Use examples to support your answer. 4

(c) Critically analyse success and failure in design, using examples to support your answer. 8

OR
Question 14 (15 marks)

Living greener

(a) Using examples from either the stimulus material, or your own studies, identify TWO design products that have been developed as a response to environmental issues, and clarify their environmental impact.

(b) For successful implementation of environmental solutions, social and cultural change is necessary. Discuss this statement, using examples.

(c) Critically analyse ethical and environmental issues for designers responding to ‘living greener’.

End of paper