

B O A R D O F S T U D I E S
NEW SOUTH WALES

2009

**HIGHER SCHOOL CERTIFICATE
EXAMINATION**

Design and Technology

General Instructions

- Reading time – 5 minutes
- Working time – $1\frac{1}{2}$ 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 5–7

15 marks

- Attempt Question 11
- Allow about 35 minutes for this section

Section III Pages 9–10

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 for Questions 1–10.

- 1 What is the purpose of design experimentation?
 - (A) To inform all stages of the design process
 - (B) To determine whether the design proceeds
 - (C) To proceed to the next stage of the design process
 - (D) To evaluate the current stage of the design process

- 2 A designer has been asked to develop a new toy for children aged from 2 to 4 years.
Which of the following would the designer consider to be the most important?
 - (A) Aesthetics
 - (B) Cost
 - (C) Recyclability
 - (D) Safety

- 3 Why do designers use patents to protect their designs?
 - (A) To ensure the protection of future designs
 - (B) To ensure their design can be marketed overseas
 - (C) To ensure that the intellectual property of the design is not sold
 - (D) To ensure that the design cannot be marketed and sold by others

- 4 Which of the following factors most influence the success of an innovation?
 - (A) Timing, aesthetics, ergonomics
 - (B) Marketing, product demand, timing
 - (C) Available technologies, economy, durability
 - (D) Product demand, available technologies, aesthetics

5 A design team is preparing a new contract bid for the redevelopment of a large hotel.

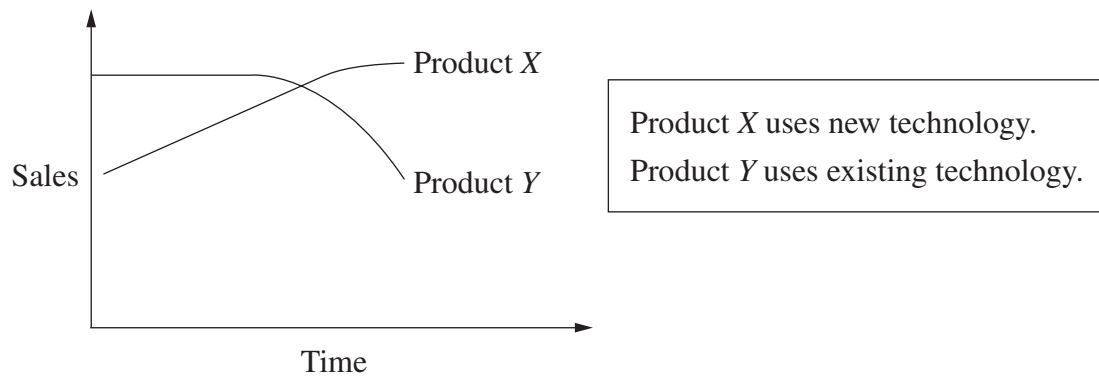
Which of the following would be the best to include in the contract bid?

- (A) Costing analysis and 3D modelling
- (B) Prototype and advertising media for the hotel
- (C) Concept drawings, market research and analysis
- (D) Technical drawings and environmental impact statement

6 What is the most significant impact that the early identification of needs or opportunities has on a successful design project?

- (A) The design process will be more focused.
- (B) The criteria to evaluate success are much easier to generate.
- (C) The project will get off to a good start because the goals are clearer.
- (D) The future marketing of the project will be easier because the design will meet the designer's needs much more closely.

7 Product X and Product Y are similar products. The graph shows the sales for Product X and Product Y.



Which of the following is the most likely reason for the trends shown in the graph?

- (A) Product X is more reliable.
- (B) Product Y is seen as out of date.
- (C) Product Y has not been advertised.
- (D) There has been an economic downturn.

- 8** When considering cultural differences, which of the following would be the main concern for a designer?
- (A) Using local resources
 - (B) Identifying separate markets
 - (C) Targeting the needs of people
 - (D) Marketing one product for all cultures
- 9** What must an industrial designer first consider when asked to generate ideas for a new product?
- (A) Existing product designs
 - (B) Ergonomics of the product
 - (C) Appropriate marketing campaign
 - (D) Presentation of the ideas to the client
- 10** When considering the social impact of new designs, the role of the designer is to
- (A) change society by developing new products.
 - (B) balance the positive and negative issues of design decisions.
 - (C) react to social change and new technology by being innovative.
 - (D) create opportunities in society for new technologies to be developed.

Design and Technology

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Centre Number

Section II

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Student Number

15 marks

Attempt Question 11

Allow about 35 minutes for this section

Answer the questions in the spaces provided.

Question 11 (15 marks)

- (a) (i) Outline a creative strategy used in a design process. **2**

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- (ii) Describe how a creative strategy, different to the one outlined in (a) (i), may be used in a design process. **3**

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Question 11 continues on page 6

Question 11 (continued)

(b) Discuss the role of teams in a creative design process.

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Question 11 continues on page 7

Question 11 (continued)

(c) How do experimentation and testing influence creativity in the design process?

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End of Question 11

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Design and Technology

Section III

15 marks

Attempt ONE question from Questions 12–14

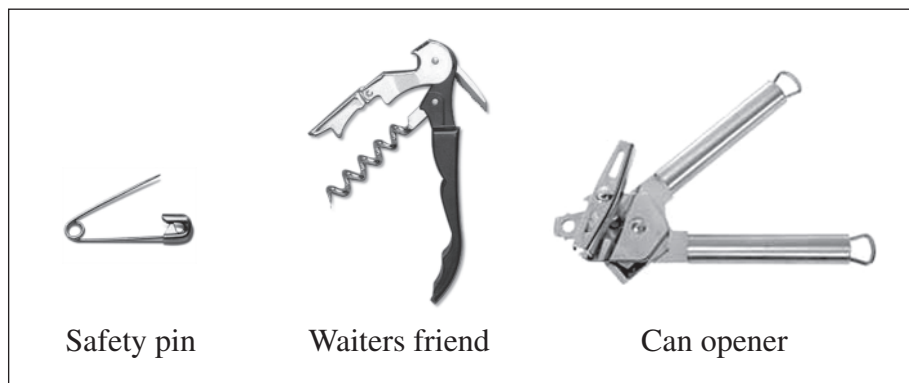
Allow about 40 minutes for this section

Answer the question in a writing booklet. Extra writing booklets are available.

Question 12 (15 marks)

- (a) The products shown can be used to complete household tasks.

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New methods are now available to perform the functions of these products.

Explain how changing social and economic trends have influenced the development of one or more of these new methods.

- (b) Analyse the impact of technological change on the environment.

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OR

Please turn over

Question 13 (15 marks)

- (a) Use the information below to answer this part.

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Price of safety – who pays?

Optional extras to improve safety are available when purchasing a new vehicle. Such an extra is Telematics, the combination of an onboard car computer and wireless internet access.

Telematics enables a vehicle to send/receive data and have its position pinpointed at any time. In an emergency, a driver can press an SOS button to speak with an operator who will locate the vehicle and send emergency services if required.

Explain the safety and ethical issues associated with the use of the Telematics system.

- (b) Analyse the relationship between the development of new technologies and the impact on society.

9

OR

Question 14 (15 marks)

Designers often converge two or more technological systems that provide new opportunities. For example a medical scanner can be linked to a digital camera and the images can be transmitted by satellite.

- (a) Explain how converged systems such as the example given meet needs within society.

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- (b) Analyse the impacts new products could have on society by considering social and ethical issues.

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End of paper