

Design and Technology

General Instructions

- Reading time – 5 minutes
- Working time – $1\frac{1}{2}$ hours
- Write using black 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 Questions 11–13
- Allow about 35 minutes for this section

Section III Page 9

15 marks

- Attempt Question 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 Which factor is most important when designing a product to be used by a child aged under 12 months?

- (A) Safety
- (B) Quality
- (C) Economics
- (D) Obsolescence

2 A newly designed can opener was trialled in 200 households.

Which of the following is the most effective strategy for collecting the findings from the households?

- (A) Interview each household
- (B) Ask each household to complete a questionnaire
- (C) Visit each household and observe how they use the can opener
- (D) Collect reviews on can openers from major consumer websites

3 Designers are still using hand-drawn sketches when developing ideas.

What is an advantage of using a hand-drawn sketch in comparison to using a computer-generated sketch?

- (A) It offers higher accuracy.
- (B) It offers more colour options.
- (C) It is more convenient in expressing initial concepts.
- (D) It is more efficient for producing large scale drawings.

4 A new mobile phone cover is to be designed.

To meet the functional requirements of the product, which of the following lists of criteria should be considered?

- (A) Colour, weight and size
- (B) Weight, size and ease of use
- (C) Material, attractiveness and cost
- (D) Cost, ease of use and being fashionable

5 A coffee table has been designed with a touch screen computer built into it.

Which factor is most likely to have influenced this design?

- (A) Social
- (B) Aesthetic
- (C) Safety
- (D) Environmental

6 To develop a product, it is most important to first

- (A) make a prototype.
- (B) develop an action plan.
- (C) conduct ongoing evaluation.
- (D) establish a safety committee.

7 For an innovation to be successful, it must

- (A) be advertised effectively.
- (B) address the needs of users.
- (C) have a registered trademark.
- (D) be launched at an appropriate time.

- 8** The prototype of a product has been delivered on time and on budget but the client finds the prototype lacking in several expected functions.

What should the designer have done initially to prevent this from happening?

- (A) Conducted more market research
 - (B) Produced a more comprehensive financial plan
 - (C) Produced additional sketches with the prototype
 - (D) Conducted a detailed analysis of the design requirements
- 9** One benefit of making a prototype prior to construction is that it could
- (A) reduce manufacturing risks.
 - (B) allow more effective teamwork.
 - (C) make the market more competitive.
 - (D) encourage more funding for testing.
- 10** Using a variety of research methods in the process of design is important because it
- (A) helps develop marketing strategies.
 - (B) improves understanding of customer needs.
 - (C) promotes the use of emerging technologies.
 - (D) protects the intellectual property of the designer.

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Centre Number

Section II

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Student Number

15 marks

Attempt Questions 11–13

Allow about 35 minutes for this section

Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Question 11 (4 marks)

A designer has been asked to produce a working prototype of a desk lamp that uses a variety of materials.

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Outline safe work practices that should be implemented by the designer during the development of the prototype.

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Question 12 (5 marks)

A team of designers is working together on a design project.

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Describe how information storage devices could be used to support the teamwork and collaboration of these designers.

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Question 13 (6 marks)

Explain the legal issues that should be considered by a designer when developing a new technology. Include examples in your answer.

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Design and Technology

Section III

15 marks

Attempt Question 14

Allow about 40 minutes for this section

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

Your answer will be assessed on how well you:

- demonstrate knowledge and understanding relevant to the question
 - communicate ideas and information using relevant examples
 - present a sustained, logical and cohesive response
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Question 14 (15 marks)

Analyse the opportunities and challenges faced by designers when attempting to design and produce sustainable products.

End of paper

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