



HIGHER SCHOOL CERTIFICATE EXAMINATION

1997

DESIGN AND TECHNOLOGY

2/3 UNIT (COMMON)
(40 Marks)

*Time allowed—One hour and a half
(Plus 5 minutes reading time)*

DIRECTIONS TO CANDIDATES

Section I (10 marks)

- Attempt ALL questions.
- Mark your answers in pencil on the Answer Sheet provided.

Section II (15 marks)

- The question in this Section is COMPULSORY.
- Answer the question in the spaces provided in this paper.
- Write your Student Number and Centre Number at the top right-hand corner of page 5.

Section III (15 marks)

- Attempt ONE question.
- Answer the question in a *separate* Writing Booklet.
- You may ask for extra Writing Booklets if you need them.

SECTION I

(10 Marks)

Attempt ALL questions.

Each question is worth 1 mark.

Select the alternative A, B, C, or D that best answers the question.

Mark your answers in pencil on the Answer Sheet provided.

1. When a product is said to be designed and manufactured in an ecologically sustainable manner it means that
 - (A) the product is value for money.
 - (B) the product design considers all interrelations with the human body.
 - (C) the product design considers all environmental issues.
 - (D) the manufacturer can sustain its development.

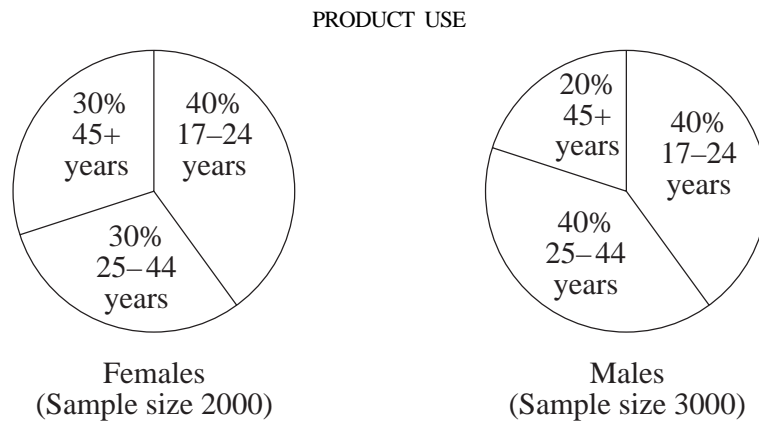
2. Technical drawings are used in the design process to
 - (A) save the designers valuable time.
 - (B) sell a concept/idea to marketing executives.
 - (C) provide appropriate communication to promote the design concept.
 - (D) resolve the details of the product, system, or environment.

3. Total Quality Management is used to ensure that
 - (A) all goods and services are of the same quality.
 - (B) organisations continually improve their goods and services.
 - (C) goods and services meet customer demands.
 - (D) factory workers have evenly distributed tasks within the factory environment.

4. The design team of a company is designing a life-jacket for boating. The most important criteria they would consider are
 - (A) ergonomics, cost, and adherence to regulations.
 - (B) safety, strength, and durability.
 - (C) colour, safety, and recyclability.
 - (D) ergonomics, colour, safety, and recyclability.

5. The role of a professional designer is to
- (A) consult with industry on matters related to marketing products.
 - (B) design fashion accessories for a target market.
 - (C) take responsibility for the design of products, systems, and environments.
 - (D) take responsibility for health and safety issues in the commercial context.
6. The step(s) that should be undertaken to ensure occupational health and safety in the workplace is/are
- (A) avoid and design away hazards; organise work practices; provide protective equipment and training.
 - (B) form a safety committee; provide protective equipment and training.
 - (C) report any dangerous situations; form a safety committee; organise work practices.
 - (D) engage a government agency to establish and monitor best practice.
7. Market research is important because it
- (A) tells the designer precisely what to design.
 - (B) identifies the need and opportunity within a target market.
 - (C) provides insight into a competitor's product development strategy.
 - (D) suggests potential areas of profit from the supply of goods and services.
8. A 'design brief'
- (A) is a summary of all constraints used in designing a product, system, or environment.
 - (B) is a list of important social and environmental considerations in designing a product, system, or environment.
 - (C) considers all aspects in the design of a product, system, or environment to meet a specific need.
 - (D) is a statement about all the important community responsibilities of a designer.
9. The total cost of a product or system is made up of
- (A) all materials and direct labour.
 - (B) a proportion of the full running costs of the enterprise, plus the materials and direct labour.
 - (C) materials, direct labour, and the cost of production set-up.
 - (D) a proportion of the full running costs of the enterprise.

10. The charts below represent data from a limited sample of end users of a product.



Which statement is correct about the people in this sample group?

- (A) The same proportion of females and males aged forty-five years or older use this product.
- (B) More females than males aged forty-five years or older use this product.
- (C) The same number of females and males between seventeen and twenty-four years of age use this product.
- (D) The same proportion of females and males between seventeen and twenty-four years of age use this product.

EXAMINER'S USE ONLY

STUDENT NUMBER

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CENTRE NUMBER

SECTION II

(15 Marks)

The question in this Section is **COMPULSORY**.
Answer the question in the spaces provided in this paper.

QUESTION 11. (15 marks)

Name **TWO** organisations with contrasting structures. State the products and/or services that each organisation provides.

Organisation 1

Name

Products and/or services

Organisation 2

Name

Products and/or services

- (a) (i) For each organisation, describe a design issue or problem that you or the organisation identified. Use a different example for *each* organisation.

Organisation 1

.....

.....

Organisation 2

.....

.....

QUESTION 11. (Continued)

- (b) (i) For each organisation, state and describe ONE technology utilised. Select a different technology for each organisation.

Organisation 1

Technology 1.....
.....

Organisation 2

Technology 2.....
.....

- (ii) Evaluate the effectiveness of *each* technology described in part (i).

Technology 1.....
.....
.....

Technology 2.....
.....
.....

- (c) For ONE of the organisations you have studied:

Name of organisation:

- (i) Comment on the social impact this organisation has on the local community.

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QUESTION 11. (Continued)

- (ii) Describe how local environmental issues, related to this organisation, have been managed.

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- (iii) Critically analyse the way in which a major resource has been used by this organisation.

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SECTION III

(15 Marks)

Attempt ONE question.

Answer the question in a *separate* Writing Booklet.

EITHER

QUESTION 12

You are a product developer and you have been given the following design brief:

Design and produce an item of protective headgear suitable for a child between the ages of five and twelve years.

- (a) List and discuss the main design issues and constraints you need to consider before you start designing.
- (b) Sketch your initial design idea and clearly label the design features.
- (c) Explain FIVE features that address the issues and constraints you listed in part (a).
- (d) Compare the effects your major design project and your headgear design could have on the individual, society, and the environment.

OR

QUESTION 13

Consider the 'Quit-For-Life' illustration below and answer the following questions.



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The Quit Logo is a registered trademark of the Anti-Cancer Council of Victoria.

- (a) Identify and analyse the characteristics of the target market.
- (b) Describe your major design project and your target market.
- (c) Design an advertisement to promote your major design project.
- (d) The above advertisement and the advertisement you designed in part (c) are both means of communication.

Analyse and discuss the criteria that could be used to evaluate the success of both of these advertisements in communicating to their target markets.

OR

QUESTION 14

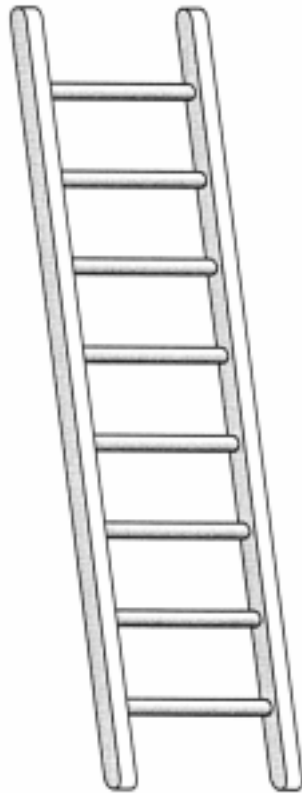
A ladder manufacturer wishes to extend its product range. The ladder currently available is shown below.

You are to design TWO new ladders:

- a ladder to be used by a tradesperson to reach a series of greater heights;

AND

- a ladder for use in a domestic kitchen.



Respond to the following in relation to your designs.

- (a) Sketch your design solutions.
- (b) Describe how your designs will differ from the ladder shown in the above sketch.
- (c) Indicate the key benefits and/or features of *each* of your design solutions.
- (d) Describe the research techniques you used when developing your major design project.
- (e) Show how the research techniques described in part (d) could be used to develop your new ladders.

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