

BOARD OF STUDIES
NEW SOUTH WALES

HIGHER SCHOOL CERTIFICATE EXAMINATION

2000
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.
- Complete your answers in either blue or black pen 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.

Instructions for answering multiple-choice questions

- Complete your answers in either blue or black pen.
- 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
 A B C D

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

A B C D

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.

A B C D
 correct →

1

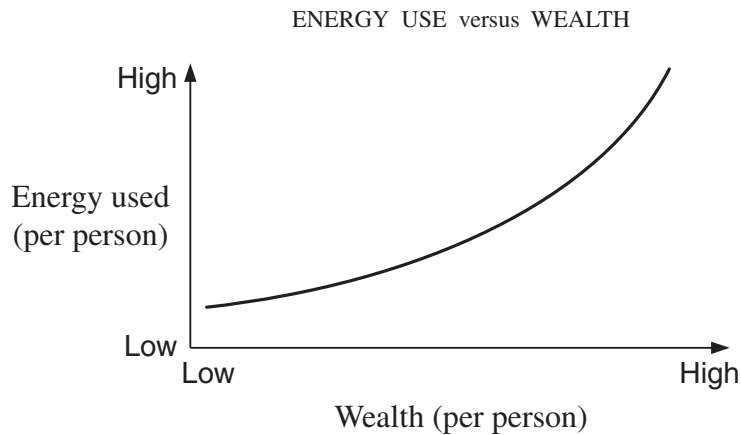


This selection of toasters demonstrates that, in design,

- (A) the form of products expresses the function they are designed to perform.
- (B) there is no one correct answer to a design task.
- (C) to be successful, products must look different from their competitors.
- (D) products that have the same function usually look similar.

- 2** What should a designer consider to be most important when selecting materials for children's nightwear?
- (A) Cost-effective resources
 - (B) Environmental impacts and durability
 - (C) Quality and appearance
 - (D) Safety and legislation
- 3** A designer seeking a visual image for a CD-ROM cookbook finds a recent photograph. What should an ethical designer do?
- (A) Trace and acknowledge the source.
 - (B) Distort the image, using computer graphics.
 - (C) Ensure that the images used in the CD-ROM have no credits.
 - (D) Acknowledge the source of the image as anonymous.
- 4** Why is qualitative research an important part of the marketing process?
- (A) It has a very controlled format.
 - (B) It explores why consumers act in a particular way.
 - (C) It gives numerical readings that are easy to interpret.
 - (D) It analyses statistics on how consumers act.
- 5** In which of the following ways can the design of a new dishwasher make the most positive contribution to the environment?
- (A) By using metal rather than plastic components
 - (B) By using recycled materials in the manufacturing process
 - (C) By reducing the need for power and water
 - (D) By reducing the size of the detergent container
- 6** In design and technological activity, which of the following best describes a system?
- (A) The conditions affecting the life and habitat of people, plants and animals
 - (B) The combinations of inputs and processes that achieve specified outcomes
 - (C) The development of an idea through to the realisation of a quality product
 - (D) The involvement of components to produce a quality product

- 7 Which of the following strategies should a small company use in deciding whether to adopt a new technology?
- (A) Continue to explore and invest in the latest technology.
 - (B) Spend more time and money on staff training and development.
 - (C) Compare the cost and efficiency of new technology with the existing technology.
 - (D) Determine the percentage return on capital investment of new technology.
- 8 The graph below relates energy use (per person) to wealth (per person) for different countries.



- Which conclusion could be drawn from this graph?
- (A) Wealthy countries use more energy per person than poor countries.
 - (B) Wealthy countries waste more energy per person than poor countries.
 - (C) Wealthy countries use less energy per person than poor countries.
 - (D) Wealthy countries use more technology per person than poor countries.
- 9 The Sydney Swans Football Club is promoting a new travel bag to its fans. Which advertising strategy is likely to maximise direct sales to its target market?
- (A) Newspaper advertisements
 - (B) Internet advertisements
 - (C) National radio advertisements
 - (D) Football ground advertisements
- 10 A television advertisement claimed that ‘university controlled tests proved that washing powder X makes clothes whiter and brighter’. Which of the following statements would you expect to be true?
- (A) The tests had been carried out by a well-known university.
 - (B) Washing powder X had been tested on a range of fabrics and colours.
 - (C) Controlled experiments compared a range of washing powders with brand X.
 - (D) Clothes would be bright and white if washing powder X was used.

MARKER'S USE ONLY

STUDENT NUMBER

**2000
HIGHER SCHOOL CERTIFICATE EXAMINATION
DESIGN AND TECHNOLOGY
2/3 UNIT (COMMON)**

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

.....

Question 11 continues on page 6

QUESTION 11 (Continued)

- (a) For EACH organisation, draw a flow diagram to show the sequence of processes and technologies used in that organisation, from the input of materials and/or information through to the final product or service.

(i) **Organisation 1**

(ii) **Organisation 2**

QUESTION 11 (Continued)

(b) Analyse the two flow diagrams you have drawn. Compare how the two organisations manage:

(i) quality outcomes of the product and/or services:

Organisation 1

.....

.....

.....

.....

.....

Organisation 2

.....

.....

.....

.....

.....

(ii) approaches to marketing and customer service:

Organisation 1

.....

.....

.....

.....

.....

Organisation 2

.....

.....

.....

.....

.....

QUESTION 11 (Continued)

- (c) For ONE organisation, identify TWO different regulations, and explain their impact on the organisation.

Organisation

(i) **Regulation 1**

.....

Impact

.....

.....

.....

(ii) **Regulation 2**

.....

Impact

.....

.....

.....

- (d) For ONE organisation, assess how it uses *or could use* alternative energy sources.

Organisation

.....

.....

.....

.....

.....

.....

.....

.....

QUESTION 11 (Continued)

- (e) For ONE organisation, identify and describe how a design-based innovation has changed the nature of the product and/or service it provides.

Organisation

.....

.....

.....

.....

- (f) For ONE organisation, evaluate its impacts.

Organisation

- (i) Its economic impact on the local community

.....

.....

.....

- (ii) Its social impact on the local community

.....

.....

.....

- (iii) Its environmental impact on the local area

.....

.....

.....

BLANK PAGE

BLANK PAGE

BLANK PAGE

**2000
HIGHER SCHOOL CERTIFICATE EXAMINATION
DESIGN AND TECHNOLOGY
2/3 UNIT (COMMON)**

SECTION III

(15 Marks)

Attempt ONE question.

Answer the question in a SEPARATE Writing Booklet.

EITHER

QUESTION 12

It is the year 2020, and Galactic Pty Ltd has purchased an old service station. It proposes to redesign the service station to meet consumer demands and modes of transport.



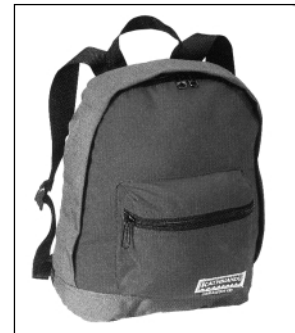
- Predict FOUR changes in consumer activity that could be reflected in the redesign of the service station.
- What market research could you undertake to test your predictions?
- Design and draw a logo that reflects your concept of the Galactic Pty Ltd service station.
- Where and how would you use the logo to communicate the company image in the Galactic Pty Ltd service station?
- Describe the criteria used to evaluate the impact of your Major Design Project on society and the environment. How could these criteria be applied to the Galactic Pty Ltd service station?

QUESTION 13

You have been commissioned to modify the design of one of the products below to enhance its function OR to develop it as an improved product for a new target market.



PRODUCT 1



PRODUCT 2



PRODUCT 3

QUESTION 13 (Continued)

- (a) Name the product you have been commissioned to modify. Identify whether its modification is to enhance its function OR to develop it as an improved product for a new target market.
- (b) Identify and justify FOUR criteria to be considered in the modification identified in part (a).
- (c) Develop, sketch and label TWO alternative design modifications for the product selected in part (a).
- (d) How would you determine which alternative design modification should be developed?
- (e) Select ONE alternative design modification you have developed in part (c), and suggest materials that could be used in its production.
- (f) Name and briefly describe your Major Design Project, and determine the aspects that could be modified to enhance its function or purpose OR that could be developed for a new target market.

OR

Please turn over

QUESTION 14

A local council has decided to rejuvenate the main street by creating a more people friendly area to encourage shopping and provide a more relaxing environment.

A plan of the area is shown on the answer sheet provided on page 17.

The new scheme will require a range of new street items, including furniture, litter bins, drinking fountains, planter boxes, trees and lighting.

- (a) Identify FOUR criteria that you consider important when designing for this environment.
- (b) Using the key provided on the answer sheet, identify on the plan where the proposed items should be placed. Justify the placement of the items, using the criteria you identified in part (a), by annotating your plan.

The answer sheet is provided on page 17. If you attempt this question you must hand in the answer sheet, clearly labelled with your Student Number and Centre Number.

- (c) Select ONE of the five manufactured items from the key and sketch a proposed design in your Writing Booklet. Label the main features of the design, indicating why they are appropriate for this area.
- (d) Which stakeholders would you consult to obtain feedback on the design of your manufactured item?
- (e) When designing and developing your Major Design Project, which people/stakeholders did you consult, and how did the consultation influence its design?

End of paper

MARKER'S USE ONLY

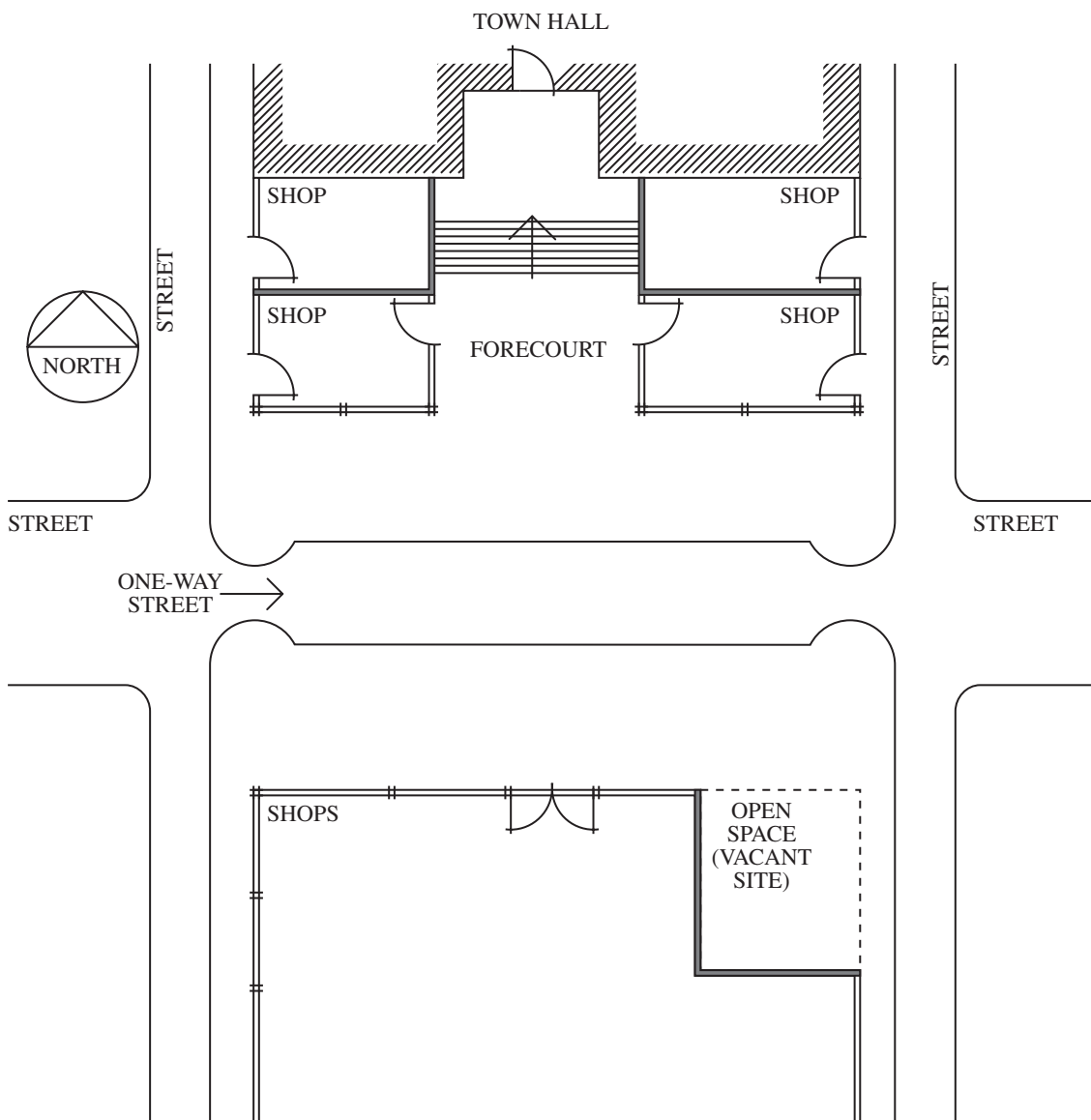
STUDENT NUMBER

**2000
HIGHER SCHOOL CERTIFICATE EXAMINATION
DESIGN AND TECHNOLOGY
2/3 UNIT (COMMON)**

CENTRE NUMBER


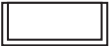




This page is to be detached, completed and attached to the inside front cover of your Writing Booklet for Question 14.

QUESTION 14 Answer sheet: Main street area to be rejuvenated



NOT TO SCALE

KEY

- | | | | | | |
|-------------------|---|-------------|---|------------|---|
| tree |  | seating |  | litter bin |  |
| drinking fountain |  | planter box |  | lighting |  |

BLANK PAGE