

BOARD OF STUDIES
NEW SOUTH WALES

2006

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 5–8

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
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 ↙

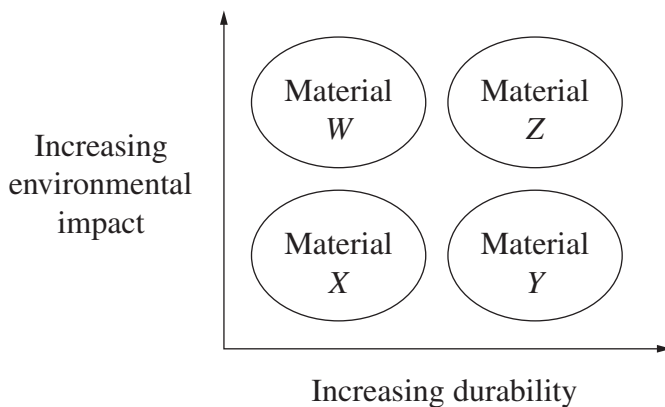
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- 1 What leads to effective communication in the work of designers?
- (A) Realising that all people will listen if the message is delivered well
 - (B) Using graphics as well as text when presenting ideas to large groups
 - (C) Considering the audience when deciding which communication method to use
 - (D) Understanding the needs of the target market and changing designs accordingly
- 2 Which factor is the most important when designers are commissioned to undertake a project?
- (A) The user needs
 - (B) The client needs
 - (C) Environmental considerations
 - (D) The functional and aesthetic aspects

3 An Australian company is developing a new product for the Japanese market.

What action would the company take to encourage acceptance of the product?

- (A) Research the culture and lifestyle of Japan, and adapt the product to suit
- (B) Emphasise the Australian element of the product in its marketing plan
- (C) Advertise that Australia's quality is superior to that of similar Japanese products
- (D) Saturate the Japanese market with cheaper versions of the product to build awareness

4 Which material is the best environmental choice?



- (A) Material W
- (B) Material X
- (C) Material Y
- (D) Material Z

5 Sustainability is a global issue that aims to ensure which of the following?

- (A) Pollution and waste are minimised.
- (B) The hole in the ozone layer does not increase.
- (C) All materials used in production are recyclable.
- (D) Natural resources can be utilised well into the future.

6 Which principle underlies safe work practice?

- (A) Provision of health insurance and protective equipment to workers
- (B) Employment of a full-time safety officer and supervisor of equipment
- (C) Implementation of task-related training, clear procedures and continuous monitoring
- (D) Management being responsible for supervising occupational health and safety and for the maintenance of equipment

- 7** Which statement best describes ergonomics?
- (A) The science of measuring humans
 - (B) The study of human interaction with the work environment
 - (C) The study of human resource management and the quality of workplaces
 - (D) A science relating to the funding of design projects by government agencies
- 8** There are many innovative ideas but only a small percentage are developed into successful products.

To what is the success of these products mainly due?

- (A) Thorough planning, research and good management
 - (B) The skills of a sound marketing team and wide advertising
 - (C) Creativity, marketing and the availability of unlimited funds
 - (D) Producing locally to enable immediate placement of the product in the marketplace
- 9** How can a designer best predict trends in order to remain competitive?
- (A) Employ experts from overseas
 - (B) Produce a new product line that is original
 - (C) Research other designers' work and adapt to fit this trend
 - (D) Read research journals and keep up to date with technological activities
- 10** Individuals involved in designing and producing have to make responsible decisions.

Which of the following is a consequence of this responsibility?

- (A) Designers follow government regulations.
- (B) New products are recyclable and economical.
- (C) Social and environmental impacts are analysed.
- (D) Consumers have access to high quality products.

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)

Please turn over

Question 11 (15 marks)

Identity theft is one of the world's fastest growing crimes

Biometrics refers to technologies for measuring and analysing human characteristics for authentication purposes. It can help to reduce identity theft and terrorism by improving security. Biometrics involves recording an individual's physical characteristics on a computer chip to authenticate identity. This is known as identity management.

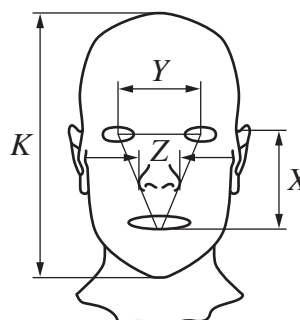
Examples of biometric characteristics include fingerprints, eye retinas and irises, facial patterns and hand measurements.



Iris recognition analyses the structure of the eye and matches it to stored images.



Fingerprint recognition uses image matching to compare the scanned image with the stored one.



Face recognition uses mathematics to determine if the face matches the stored version.

- (a) (i) Using examples from the stimulus material, identify some applications of biometrics. 2

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Question 11 continues on page 7

Question 11 (continued)

- (ii) Outline the advantages of ONE form of technology used in identity management. **2**

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- (iii) Explain possible impacts of biometrics on society. **3**

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- (b) Explain the responsibilities of designers when considering cultural diversity in the development of new technologies. **3**

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Question 11 continues on page 8

Question 11 (continued)

- (c) Discuss how changes in society have impacted on the uses of technology. Refer to examples illustrated in the stimulus material and/or other technologies you have studied. **5**

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End of Question 11

Design and Technology

Section III

15 marks

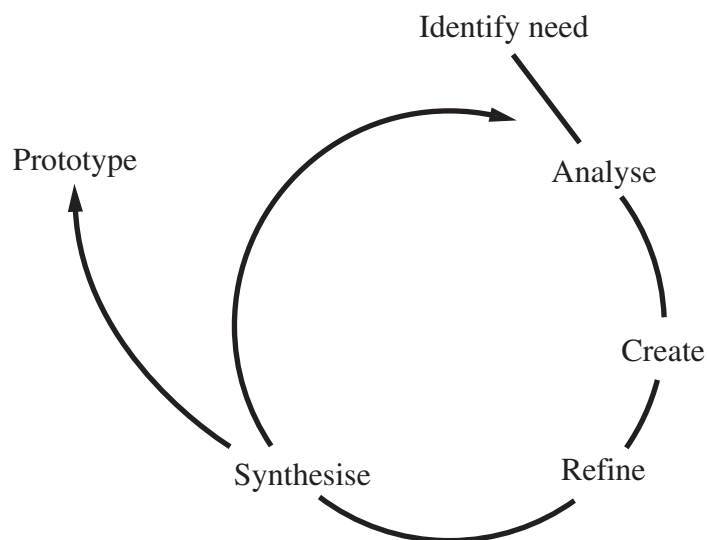
Attempt ONE question from Questions 12–14

Allow about 40 minutes for this section

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

Marks

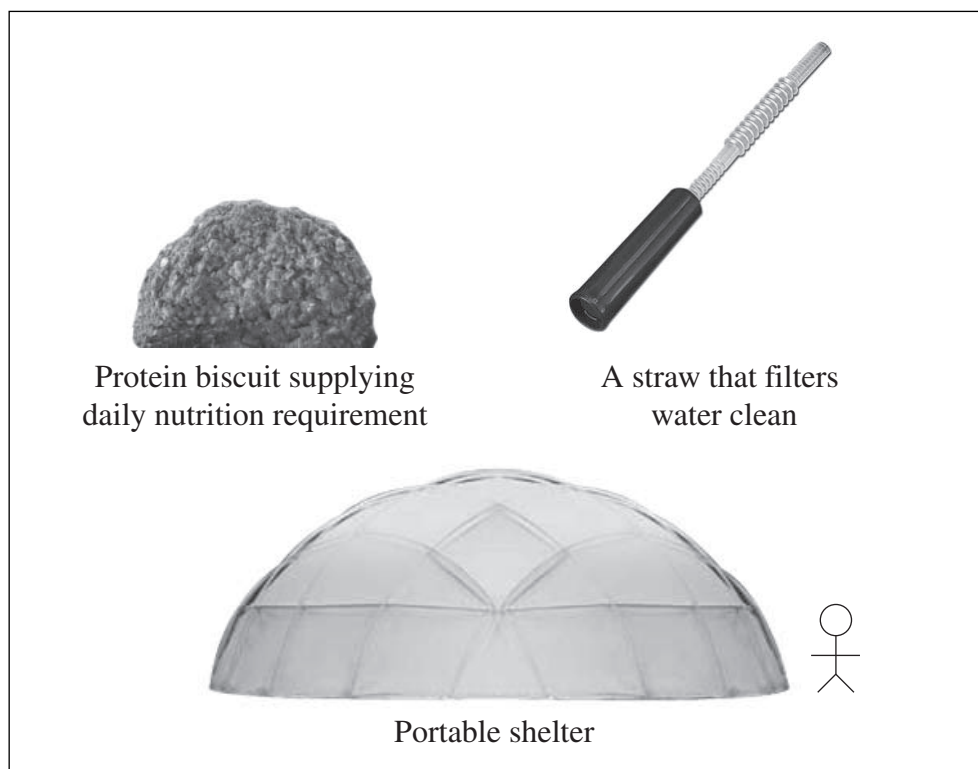
Question 12 (15 marks)



- (a) Explain the process shown above from an industrial and commercial perspective, using examples to support your answer. **6**
- (b) Analyse the effectiveness of creative processes that you are familiar with and those used in industrial and commercial settings. **9**

OR

Question 13 (15 marks)

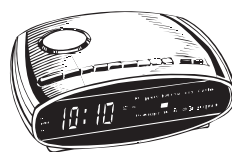


New technologies have been developed to provide sustenance, emergency shelter and emergency care to areas suffering natural disaster.

- (a) Using examples from the stimulus material, identify factors that lead to the successful development of new technologies, and explain the impact that these technologies have on society. 6
- (b) Analyse management strategies used in design and production that you are familiar with, and their relationship to those used in the development of new technologies. 9

OR

Question 14 (15 marks)



Plastic carry-bag

Environmentally friendly
paper tote bag

- (a) Using the stimulus material, explain how conducting a life cycle analysis has had an impact on the redesign of products. **6**
- (b) Analyse ethical and environmental decisions a designer may be faced with as a result of undertaking a life cycle analysis. **9**

End of paper

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