

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

HIGHER SCHOOL CERTIFICATE EXAMINATION

2000

**DESIGN AND
TECHNOLOGY**

3 UNIT (ADDITIONAL)

(20 Marks)

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

DIRECTIONS TO CANDIDATES

- Attempt TWO questions.
- The question in Section I is **COMPULSORY**.
- Attempt ONE question from Section II.
- Answer each question in a **SEPARATE** Writing Booklet.
- You may ask for extra Writing Booklets if you need them.

SECTION I

The question in this Section is **COMPULSORY**.

Answer the question in a **SEPARATE** Writing Booklet.

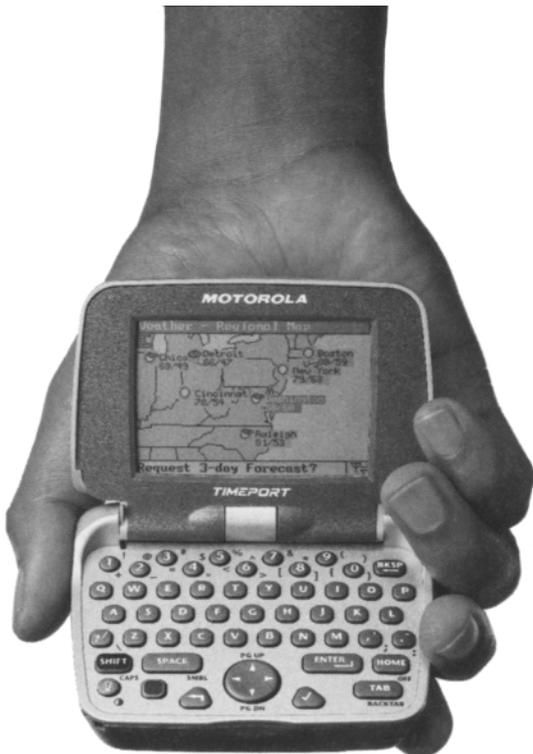
QUESTION 1 (12 marks)

It seems that as soon as a product is developed, it is superseded by a newer, seemingly better version with more features.

For example, the models are often reduced in size. The illustrations on the following page are products currently available to consumers.

Choose one of the products illustrated, or an innovation you have studied, and:

- (a) Explain **THREE** technological factors that have influenced the design of the product or innovation.
- (b) Discuss how each of the following factors impacts on the chosen product or innovation:
 - (i) economic climate;
 - (ii) cultural needs and wants;
 - (iii) environmental issues.
- (c) Describe the likely role of entrepreneurial activity in the development and promotion of your chosen product or innovation.
- (d) Critically evaluate the statement that today's product designs are more 'consumer led' than technologically based. Use the product or innovation chosen as an example to support your opinion.



SECTION II

Attempt ONE question.

Each question is worth 8 marks.

Answer the question in a SEPARATE Writing Booklet.

EITHER

QUESTION 2

People, Product and Control

Innovation can be stimulated by consumer demand, by the development of new technology or by new combinations of emerging technologies.



- bringing together email, fax and voice communication in a mobile phone
- the use of barcode readers in tracking people and products.

Innovations that rely on combining new technologies in a new way include:

- the use of satellites for navigation in motor vehicles

To operate effectively, these examples require the storage of information that tracks and records both the product history and the history of the user.

Choose an example from the article above, or a similar innovation that combines a number of technologies, and:

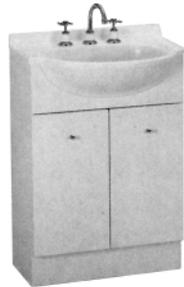
- Outline the advantages that may result from the use of the innovation.
- Discuss TWO ethical issues arising from the use of the innovation.
- Critically analyse the changes in lifestyle that may result from the use of the innovation.
- Discuss ways in which the chosen innovation can be protected from potential competitors.

OR

QUESTION 3

Better by Design

One aspect of seeking success in innovation is by value-adding through design. This can be achieved through changes in form, through improved function or by using different materials in new and exciting ways.



Choose examples from the stimulus material above, or similar examples, and:

- Describe a range of ways in which design can add value to products.
- Explain the range of factors that can be used to evaluate the success or failure of an innovation in design.
- Justify how design can be used to create market opportunity and demand.
- Critically evaluate TWO ethical issues you would consider in promoting a redesigned product.

OR

QUESTION 4

From engineering to make-up

Rather than mail order or shop around, Mona decided to forgo her successful career as a mechanical engineer and start her own company—NeoXtreme.

Armed with a recently completed MBA and a lot of perseverance, Mona interviewed 300 women as to what they were looking for in a lipstick.

So Mona came up with six matt colours that have remained the same three years on. “They all sell,” she explains.

The success of Neo Xtreme is largely due to Mona’s background and her approach to new products. She uses her engineering expertise to formulate the products and explores new ideas through her own needs and listening to women on the street.

Neo Xtreme products are available in beauty salons and health food stores, and can be purchased on the web through her site, www.neoxtreme.com



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When two Melbourne entrepreneurs had a fresh idea they wanted to turn into a business, they called on Telstra.

eatfresh (www.eatfresh.com) has since become an eCommerce success story. Telstra helped Jackie Steedman and Anne Vinton build a fruit and vegetable market on the Internet, and now the entire Melbourne metropolitan area can order oranges, lettuces and avocados with the click of a mouse.

Read the stimulus material above.

- (a) Explain the nature of entrepreneurial activity.
- (b) Choose an entrepreneurial activity you have studied, and suggest how it has been managed to develop and implement the innovation.
- (c) Explain the role that government agencies may have in supporting entrepreneurial activity.
- (d) Critically analyse possible ethical issues raised by introduction of eCommerce or other entrepreneurial activities.

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