

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

HIGHER SCHOOL CERTIFICATE EXAMINATION

1999

**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)

Read the stimulus material on the following page.

Using the stimulus material provided and examples of successful and unsuccessful innovations you have studied:

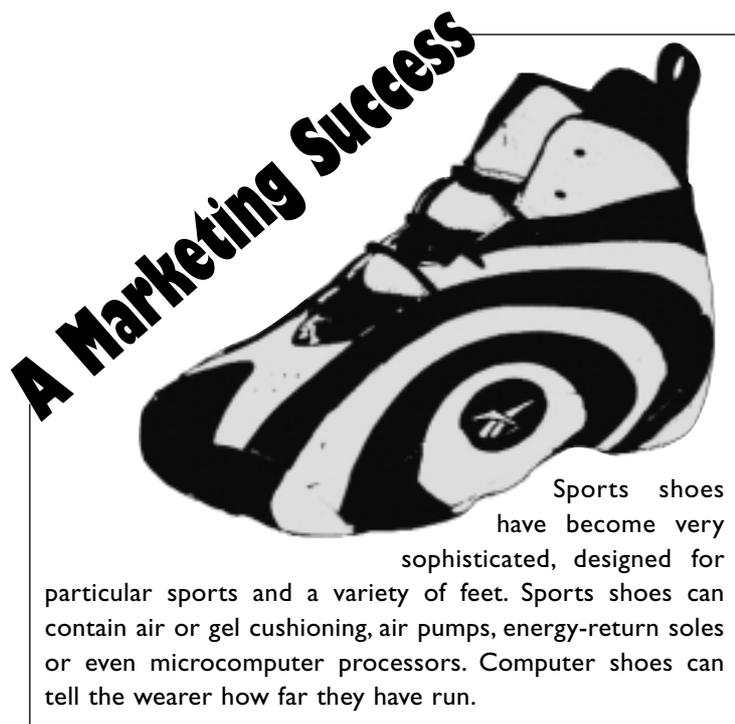
- (a) identify reasons why some innovations are unsuccessful in the marketplace;
- (b) assess how important the impact on people and the environment is to the success or failure of innovations;
- (c) discuss the role of research and development in bringing ideas to realisation as successful innovations;
- (d) critically analyse the degree to which entrepreneurial activity can hinder or support the ultimate success of innovation.

AN INNOVATIVE NATION

Innovations are not inventions or discoveries, although they may develop from them.

The resources needed to produce a patentable invention or a publishable scientific discovery are typically only one-tenth of the resources needed to implement a successful innovation based on them.

Usually, considerable effort over many years is needed to develop, test and refine a concept into a marketable new product or process, and even more resources are needed to design, manufacture, package, promote, distribute and service it.



Another One Lost

“A nation of ideas and gamblers but not risk takers.”

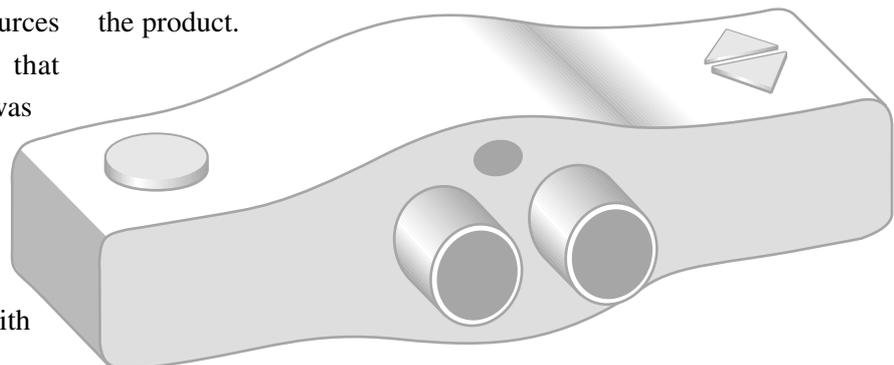
The frustrated comment of yet another designer at Sydney Airport off overseas to get backing for development of a new idea into a marketable product.

LIGHT GOES OUT ON NEW CAMERA

After 6 months in the market, Fuzzy Photos Corp. have withdrawn their new 3D vision camera launched worldwide with a multi-million dollar marketing campaign. Sources told Technology Week that failure of the product was due to a classic case of insufficient testing with consumer groups and pressure to introduce the product ahead of rivals with

competing technologies.

Teething problems in the film developing processes was the final blow, leaving Fuzzy Photo with no option but to withdraw the product.



SECTION II

Attempt ONE question.

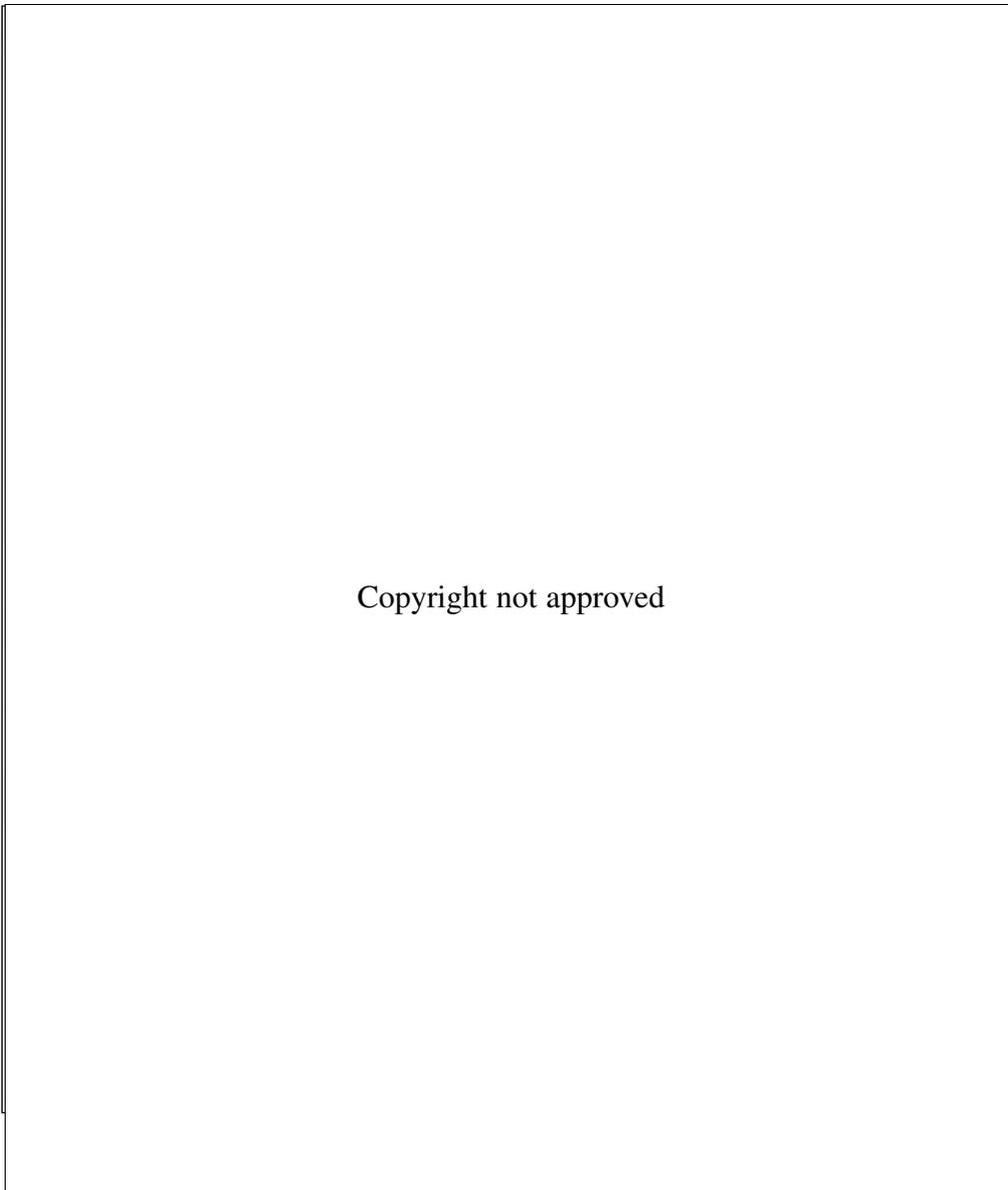
Each question is worth 8 marks.

Answer the question in a SEPARATE Writing Booklet.

EITHER

QUESTION 2

An integral part of our information technology society is the use of ‘plastic cards’ to store and exchange information and purchase products and services. Examples of these are shown below.



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Question 2 continues on page 5

QUESTION 2 (Continued)

- (a) List some benefits to organisations that utilise this form of technology.
- (b) Explain possible ethical and legal issues related to the introduction of these 'plastic cards'.
- (c) Discuss the marketing and promotion of 'plastic cards' to consumers.
- (d) Critically analyse the impact that 'plastic cards' have on:
 - (i) individuals;
 - (ii) services within the community.
- (e) Describe the role governments have in the implementation and adoption of such significant new technologies.

OR

Please turn over

QUESTION 3

A technological innovation has been presented to a company which has an entrepreneurial reputation. This innovation could perform a task that significantly reduces the impact of a process on ecosystems and on individuals. The initial cost of the innovation is likely to be substantially higher than the existing technology. Using examples that you are familiar with:

- (a) list the issues the entrepreneurial company might need to consider when deciding whether to be involved in developing the innovation;
- (b) suggest marketing strategies that might be used to promote such innovations to consumers;
- (c) discuss the role government might take in response to such technological innovations;
- (d) evaluate the ethical issues associated with profit, ecological responsibility and social responsibility.

OR

QUESTION 4

Innovation and entrepreneurial activities in design and technology have created new opportunities for the entertainment industry. There are many examples in the following areas:

- theme parks
- special effects
- game zones
- home entertainment
- outdoor entertainment.

Using one or more of the above examples, answer the following questions.

- (a) Describe briefly an innovation that has occurred in the entertainment industry.
- (b) Discuss positive and negative impacts resulting from the innovation.
- (c) Identify and explain the technological developments that have had a significant impact on the area(s) of the entertainment industry selected.
- (d) Discuss the aspects an entrepreneur needs to consider when managing an entrepreneurial activity.

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