



HIGHER SCHOOL CERTIFICATE EXAMINATION

1995

DESIGN AND TECHNOLOGY

3 UNIT (ADDITIONAL)

SECTION I—WRITTEN PAPER

(20 Marks)

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

DIRECTIONS TO CANDIDATES

- Attempt TWO questions.
- Part A (Question 1) is COMPULSORY.
- Attempt ONE question from Part B.
- Answer each question attempted in a *separate* Writing Booklet.
- You may ask for extra Writing Booklets if you need them.

PART A

Question 1 is COMPULSORY.

Answer the question in a *separate* Writing Booklet.

QUESTION 1. (12 Marks)

- (a)
 - (i) List THREE examples of design-development activities where environmental issues are a concern.
 - (ii) Decisions made during these design-development activities will affect the environment. Describe the effects of the decisions made for each of the examples listed in part (i).
- (b) Briefly describe how EACH of the following groups of people can effectively influence those who control the design process to take a more considered approach to recycling and manufacture.
 - (i) consumers
 - (ii) retailers
 - (iii) small manufacturers
 - (iv) large manufacturers
 - (v) governments
- (c) Material coding such as the recycling symbol shown in Figure 1 is widely used.

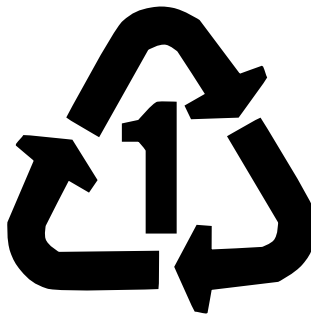


FIG. 1. This symbol indicates that the plastic is recyclable.
The number indicates the type of plastic.

- (i) Discuss why material coding is vital for the success of an effective waste-management system.
- (ii) Explain why it is important for this coding to be globally accepted.
- (d) During the design process it is necessary to ensure that component materials within the product can be recycled.

Describe the methods that can be used.

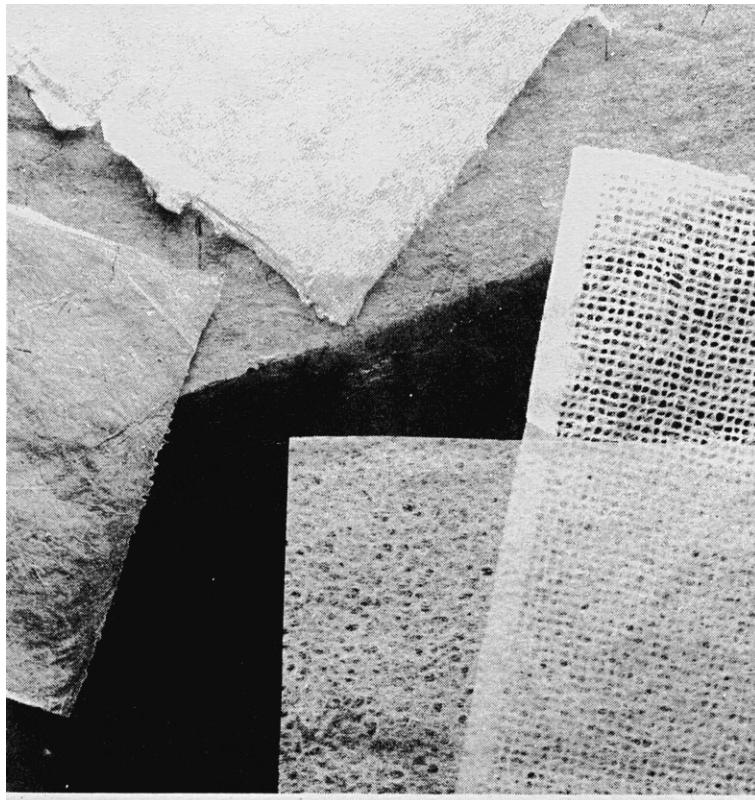
QUESTION 1. (Continued)

- (e) How does the concept identified in EACH of the Figures 2, 3, and 4, convey an environmental message?

Figures 2, 3, and 4 are examples of goods that show either:

- the use of appropriate technologies; or
- consideration of recycling issues in their design.

They have also contributed to a form of visual communication that appeals to the environmentally conscious consumer.



Mara Amats, London. Photos: Shaun Roberts.

FIG. 2. Here is a selection of papers illustrating the opacity of some unusual materials.

Pictured clockwise from the top left on a background of tsasho paper made from lokta bark are:

- pure flax made in the UK;
- tissues from the bark of the koze plant from Japan;
- tissue from recycled lokta from Nepal.

Question 1 continues on page 4

QUESTION 1. (Continued)



Mara Amats, London. photos: Shaun Roberts.

FIG. 3. These cotton garments are made in a Gambian village as part of an aid program to create work. The cotton is home-produced and home-spun. It is untreated, and the designs show how well the features of uneven texture can be exploited to create a beautiful effect.

QUESTION 1. (Continued)

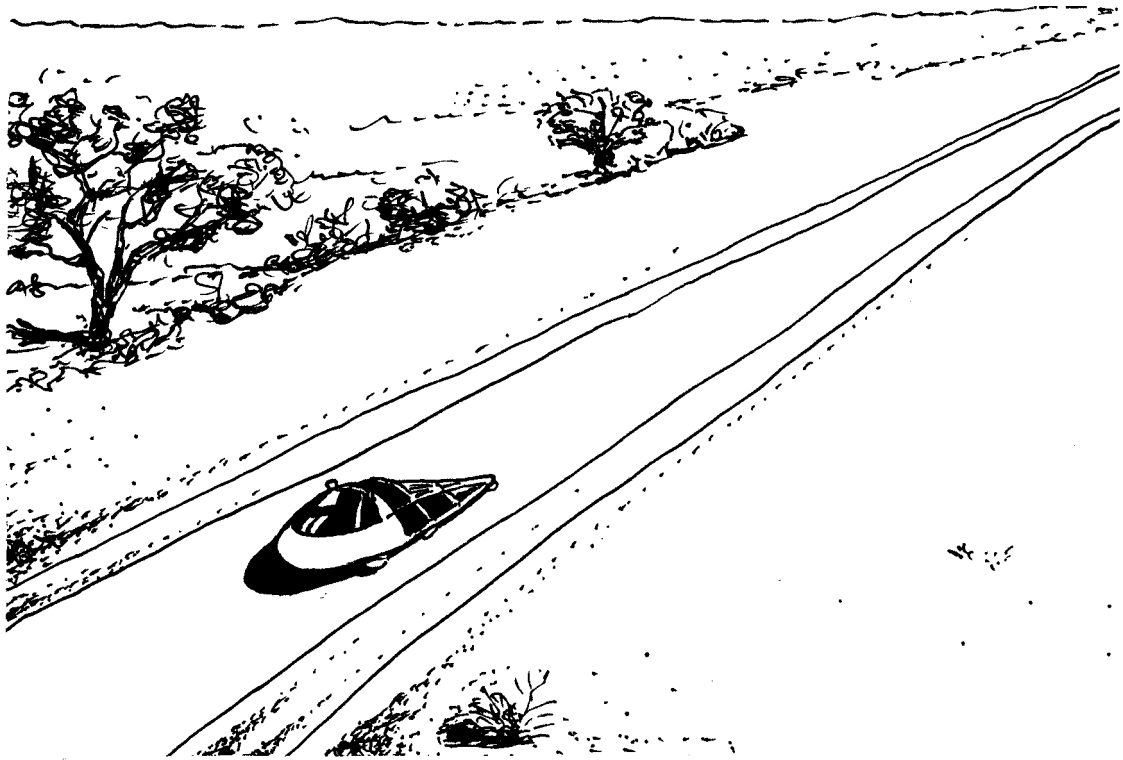


FIG. 4. The 'Sunracer' car is competing in the first international race for solar-powered cars. The race runs between Darwin and Adelaide. The Sunracer car is powered by 7200 photovoltaic cells joined to form a hood over the top and back of the vehicle.

PART B

Attempt ONE question.

Each question is worth 8 marks.

Answer the question in a *separate* Writing Booklet.

EITHER

QUESTION 2

- (a) Explain the term 'intellectual property'.
- (b) Kim was employed by a company. During this employment, Kim also worked at home at night on original ideas. Among these was an idea for a new application for one of the company's existing products. Kim registered the idea with the patents office. The company took Kim to court, saying that they were paying Kim's salary, therefore the intellectual rights to the idea belonged to the company.

Briefly explain how EACH of the following factors influenced the conflict between Kim and the company.

- (i) ethics
- (ii) employee skills
- (iii) training and development of employees
- (iv) working from home
- (v) how ideas are generated
- (vi) originality of design
- (vii) protection of intellectual property

OR

QUESTION 3

- (a) Microchips, laser beams, and optical fibres are examples of recent innovations that have impacted on areas such as *sales and marketing, medicine, manufacturing, and communication*.

Explain how a recent innovation has impacted upon ONE of these areas.

- (b) Australia has had many innovations that have met with success within Australia and overseas.

- (i) Identify and describe TWO successful Australian innovations, at least one of which has had success overseas.
- (ii) Propose and justify THREE reasons for the success of each of the two innovations you described in part (i).
- (iii) The use of resources has an important impact on the environment.

Analyse this statement with respect to the realization of the TWO innovations you described in part (i).

OR

QUESTION 4

- (a) The Sydney Opera House, the rotary clothes-line, and sun-block creams are examples of innovative design.

Answer the following questions using *either* the above examples *or* others that you have studied.

- (i) Entrepreneurial activities are important for the success of innovative design.

Analyse this statement.

- (ii) Government, commercial, and industrial agencies can affect entrepreneurial activities and the implementation of innovation in design and in technology.

Identify and explain THREE possible effects that may occur.

- (b) A company is planning to market a product in Australia. It needs to consider the relationship between market size and demand. Critically analyse this relationship. Use THREE examples to explain your answer.

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