



**Victorian Certificate of Education  
2007**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

**STUDENT NUMBER**

Letter

Figures																				
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# DESIGN AND TECHNOLOGY

## Written examination

**Monday 12 November 2007**

**Reading time: 9.00 am to 9.15 am (15 minutes)**

**Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)**

### QUESTION AND ANSWER BOOK

**Structure of book**

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	7	7	35
B	7	7	45
			Total 80

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers, coloured pencils, markers, a shape template and a female human figure template and a male human figure template.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

**Materials supplied**

- Question and answer book of 11 pages with a detachable Design Brief Insert in the centrefold.

**Instructions**

- Detach the Design Brief Insert from the centre of this book during reading time.
- Write your **student number** in the space provided above on this page.
- You may use diagrams, notes or sketches to help explain your answers.
- All written responses must be in English.

**At the end of the examination**

- You may keep the detached Design Brief Insert.

**Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.**

**SECTION A****Instructions for Section A**

Answer **all** questions in the spaces provided.

**Question 1**

The **application** of **design factors** affects how a product is made or produced. Designers need to consider the application of these **design factors** to ensure that a product meets certain standards or requirements.

Julia is a clothes designer. Below are a number of design factors which Julia will need to consider when she is designing clothes. In the box below **write the letter (A–C) of the most relevant application** Julia needs to consider for that design factor.

**Human needs and wants**

- a. What is the most relevant application Julia needs to consider if she is designing clothes for people who work in a cold environment?

- A. customer satisfaction
- B. fashion trends
- C. user protection

1 mark

**Materials – characteristics and properties**

- b. What is the most relevant application Julia needs to consider if she is designing a jacket that keeps the client cool?

- A. sourcing of the fabric
- B. properties and characteristics of the fabric
- C. strength of the fabric

1 mark

**Economics – time and financial**

- c. What is the most relevant application Julia needs to consider if she is designing a jacket for low income earners?

- A. cost
- B. market
- C. production time efficiency

1 mark

**Environmental and ecological**

- d. What is the most relevant application Julia needs to consider if she is trying to reduce the amount of power used in the making of a jacket?
- A. energy use
  - B. sustainability
  - C. renewable resources

1 mark

**Legal compliance**

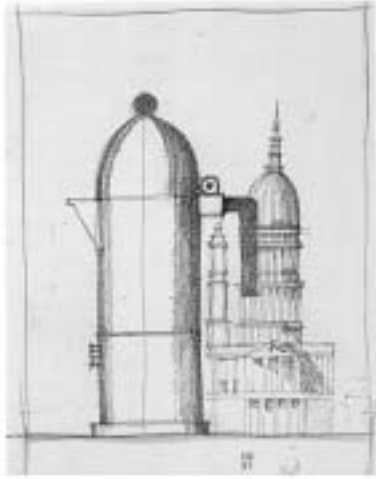
- e. What is the most relevant application Julia needs to consider if she is selecting a machine that is safe for employees to make a jacket?
- A. patents
  - B. WorkCover Authority guidelines
  - C. legislation

1 mark

Total 5 marks

*The following information is to be used in answering Questions 2–7.*

Aldo Rossi, an architect, was asked by kitchen manufacturer ‘Alessi’ to design an affordable espresso coffee maker to meet an untapped market. The sketch below shows a drawing of the coffee maker in front of a piece of architecture which was one of the influences of Rossi’s design. The ‘La Cupola’, as shown on the right, met the needs of Alessi and became a very popular espresso coffee maker.



Sketch of La Cupola (espresso coffee maker)



La Cupola (espresso coffee maker)  
Designer: Aldo Rossi

The fundamentals of the visual, tactile and aesthetic design factors are sometimes referred to as design elements and principles. Below is a list of some of the fundamentals and their applications which are used in design.

<b>Fundamentals</b>	point, line, shape, form, texture, tone, colour, transparency, translucency, opacity
<b>Applications</b>	balance, emphasis, repetition, movement/rhythm, pattern, proportion, space/composition/spatial organisation, surface qualities

**Question 2**

a. i. From the list above select one appropriate **fundamental** that is explored successfully in relation to the **physical appearance** of La Cupola.

\_\_\_\_\_

ii. From the list above select one appropriate **application** that is explored successfully in relation to the **physical appearance** of La Cupola.

\_\_\_\_\_

1 + 1 = 2 marks

b. Explain how the fundamental and application that you named in **part a.** above influenced the physical appearance of the espresso coffee maker.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 marks

Total 5 marks

Aldo Rossi would have explored many ideas before submitting his final design.

**Question 3**

- a. Why was it important for Rossi to explore ideas before developing appropriate solutions for his design problems?

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3 marks

- b. List **two** simple methods, other than sketches, that Rossi might have used to explore his ideas.

1. \_\_\_\_\_

2. \_\_\_\_\_

2 marks

Total 5 marks

After a period of two years the sales of the espresso coffee maker (La Cupola) declined. Alessi found that **two factors** were identified which contributed to this decline in sales.

They were **style obsolescence** and **technical/functional planned obsolescence**.

**Question 4**

a. List **two** problems with **style obsolescence** for the manufacturer, Alessi.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_

2 marks

b. What is the advantage of **style obsolescence** for the manufacturer, Alessi?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 marks

c. Explain **one** problem associated with either **technical** or **functional planned obsolescence** for buyers of Alessi products.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 marks

d. List **two** advantages of **technical** or **functional planned obsolescence** for buyers of Alessi products.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_

2 marks

Total 10 marks

Alessi incorporates quality management techniques in its production of kitchen products.

**Question 5**

List one example of a quality management technique that Alessi might have used in the production of the espresso coffee maker and explain the purpose of this technique.

Example \_\_\_\_\_

Explanation \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(1 + 3) = 4 marks

Aldo Rossi, the designer of the espresso coffee maker, needs to consider the end user of the coffee maker as well as his client (Alessi).

**Question 6**

Why was it important for Rossi to consider the end user?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 marks

Alessi wishes to evaluate the effect that its kitchen products have on the environment. It has decided to do a Life Cycle Analysis (LCA).

**Question 7**

Define the term LCA.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 marks

**SECTION B****Instructions for Section B**

Read the Design Brief Insert. Select **one** product that you intend to design and answer the following questions.

Name the product that you intend to design.

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**Question 8**

- a. Identify one important specification (consideration or constraint) from the design brief. Your answer should not include cost or time.

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1 mark

- b. Justify why you consider this specification to be important.

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2 marks

- c. Using the specification you have identified above, write one evaluation criterion that could be used to evaluate the product.

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1 mark

- d. How will you check or test that your product meets this criterion?

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1 mark

Total 5 marks



**Question 9****The design option**

Draw and annotate your design in the space below.

- |  |         |
|--|---------|
| <b>i.</b> Clarity of drawing                     | 3 marks |
| <b>ii.</b> Details of construction               | 3 marks |
| <b>iii.</b> Annotation of design specifications  | 3 marks |
| <b>iv.</b> Function/suitability for intended use | 3 marks |
| <b>v.</b> Visual, tactile and aesthetic factors  | 3 marks |
| <b>vi.</b> Innovation and creativity             | 3 marks |

Total 18 marks

**Question 10**

Before making your product, complete the risk assessment table below.

Production process	Identify one hazard	Identify one risk control for the hazard
preproduction		
joining		
finishing		

(6 × 1) = 6 marks

An Australian company wishes to manufacture and promote your product. Before beginning production the company wishes to do some market research.

**Question 11**

Why is market research important before beginning production?

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2 marks

The manufacturer wants the product to comply with Australian Standards.

**Question 12**

List one reason for using Australian Standards for

manufacturers \_\_\_\_\_

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users \_\_\_\_\_

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(1 + 1) = 2 marks

The manufacturer wants to include instructions for the end user on how to care for the product.

**Question 13**

List one instruction for the care of your product and explain why this instruction is important.

instruction \_\_\_\_\_

explanation \_\_\_\_\_

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(1 + 2) = 3 marks

The company has asked you to develop some ideas for a marketing strategy for your product. In particular they would like you to focus on the following Ps (people, place, product, price).

### Question 14

#### People

- a. Who might purchase your product?

\_\_\_\_\_

1 mark

#### Place

- b. **Name** and **justify** the best location for the sale of your product.

name \_\_\_\_\_

justification \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(1 + 3) = 4 marks

#### Product

- c. List **two** marketable design features of your product.

1. \_\_\_\_\_

2. \_\_\_\_\_

2 marks

#### Price

- d. How would you calculate the best retail price for your product?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 marks

Total 9 marks

Please remove from the centre of this book during reading time.

**D E S I G N   B R I E F   I N S E R T**

**Your task is to design a product for Windthorpe School Council**



Windthorpe Secondary College is situated in a new, modern housing estate. There is a new VCE centre at the school and the school council wishes to raise funds to furnish the centre. The council wants the students to feel that they are participating in the project and has asked for student involvement. One of the ideas for student involvement is a sale of products that have been made by students. The school council has, therefore, asked the Design and Technology students at the school to design and make a range of products for the sale.

The students have been asked to design and make unique products which are of high quality.

The council believes that unique, well-made products will be more appealing to prospective purchasers and will suit the lifestyles of the people in the local community.

The council also thinks that products with a high degree of workmanship will be sold for higher prices.

It is important that there is information about the materials used, and care of the product, so that the people buying the product are informed and the product will have a long life.

The product is due by the end of October.

The products requested are

- an outfit for a formal occasion
- a screen or room divider
- a dressing table for a bedroom
- a set of jewellery objects to be worn
- a vase.

Windthorpe School Council has specified that the products selected by the students must be from the range below and meet all the requirements.

**1. An outfit for a formal occasion**

- A. It is for the school formal.
- B. It must have a jacket.
- C. It must use at least two different construction techniques.
- D. It must include at least two materials.\*

**2. A screen or room divider**

- A. It is for an open-planned house.
- B. It must be light and easy to move.
- C. It must use at least two different construction techniques.
- D. It must include at least two materials.\*

**3. A dressing table for a bedroom**

- A. It is for a new, modern house.
- B. It must have a mirror and a drawer.
- C. It must use at least two different construction techniques.
- D. It must include at least two materials.\*

**4. A set of jewellery objects to be worn**

- A. It is for the school formal.
- B. It must have a necklace, earrings and a bracelet.
- C. It must use at least two different construction techniques.
- D. It must include at least two materials.\*

**5. A vase**

- A. It is to be used as a feature in an entrance.
- B. It must be light and easy to move.
- C. It must use at least two different construction techniques.
- D. It must include at least two materials.\*

\* **Note:** two materials can be within the same category.