



2004 Design and Technology GA 3: Written examination

GENERAL COMMENTS

Most students completed all sections of the exam and answered all questions, although some students need to take care to read and interpret questions more carefully so that they do not lose marks.

In most cases if a student answered part of a question incorrectly, they were not disadvantaged in other parts of that question. However, if the other parts related to the incorrect answer, then no marks were awarded for that question.

Areas of strength

- knowledge of life cycle analysis (LCA) and environmental concerns
- the use of specific names of materials rather than general terms such as wood, metal and cotton.

Areas of weakness

- ethical issues in marketing
- mass production
- quality management, which was often confused with particular methods of quality control.

SPECIFIC INFORMATION

Section A

Question 1 – NiE sports shoes

Marks	0	1	2	3	4	Average
%	5	9	18	29	39	2.9

A new marketing strategy to increase sales and maintain the market position of NiE sports shoes could include:

i. product

The product could be changed to make it more appealing, innovative or up-to-date.

ii. price

The price or pricing strategy could be altered to entice purchasers.

iii. place

The product could be placed in different/additional stores to sell the product **or** particular placement could be altered within a store.

iv. promotion

A way of promoting the sports shoes (other than magazines or television) could be sponsoring a sports star and using graphic displays at sporting venues.

Question 2 – Shady Lenses sunglasses

2a

Marks	0	1	2	Average
%	40	29	31	0.9

The company might respond to consumer demand for a new range of sunglasses by:

- collecting data through market research to identify the needs and wants of consumers
- designing and developing a new range of sunglasses, using information collected from the market research.

2b

Marks	0	1	2	Average
%	27	36	37	1.1

Demand could be created for a new range of sunglasses by making potential consumer groups aware of the new sunglasses and targeting a marketing campaign towards these groups.

2c

Marks	0	1	2	Average
%	62	18	20	0.6

An ethical issue that relates to the marketing of sunglasses could be that it is:

- false or misleading – do the sunglasses do what they are advertised to do?

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- manipulative – the branding, status and value of products can inflate the price of a product. People may falsely believe that a product could ‘change their life’
- offensive – some advertising may be offensive on ethnic, cultural, religious, moral or gender grounds
- an invasion of privacy – some methods of marketing, such as direct marketing, can be an invasion of people’s privacy
- a pricing collusion between companies, where high, false prices are set.

Question 3 – New toaster

3ai. Appearance

Marks	0	1	2	3	Average
%	5	24	39	33	2.0

- shape – survey what shapes people prefer
- colour – survey what colours people prefer
- material – shiny, matt, textured, etc. Survey what materials people prefer.

3aii. Function

Marks	0	1	2	3	Average
%	5	16	34	45	2.2

- ergonomics – collect data to find out ease of use, and test models
- competitors’ products – find out what other types of features/functions are available for toasters
- safety features – research and test features and materials.

3bi.

Marks	0	1	Average
%	49	51	0.5

Examples of technological developments that might influence the design of a toaster could be:

- power source; for example, solar power
- microchip.

3bii.

Marks	0	1	2	Average
%	57	21	22	0.7

This technological development might influence the design of the toaster because:

- the power source could be rechargeable and eliminate the need for a cord
- a microchip could mean that the toaster could have multiple functions; for example, defrost, toast and reheat.

3ci.

Marks	0	1	2	Average
%	37	27	36	1.0

Benefits of planned obsolescence could be:

- keeping up-to-date with the latest technology
- the product is usually affordable
- the product is easily replaced
- increased employment because many are produced.

3cii.

Marks	0	1	2	Average
%	35	26	39	1.1

Problems associated with planned obsolescence could be:

- negative environmental impact
- more materials being used
- more energy being used
- waste in landfill
- products do not last
- products can be difficult to repair.

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3di.

Marks	0	1	2	Average
%	19	41	40	1.2

Benefits of mass-producing the toaster could be:

- a large quantity of the toasters can be produced
- materials can be purchased in bulk
- automated machines are used to produce the toaster, keeping labour costs to a minimum.

3dii.

Marks	0	1	2	Average
%	22	47	31	1.1

Problems associated with mass-producing the toaster could be:

- it is expensive to set up – machinery, labour, factory, etc.
- it is costly if mistakes are made
- items are all the same – no individuality.

3diii.

Marks	0	1	2	Average
%	37	35	28	0.9

Things the designer will have to consider could be:

- material sizes and availability
- available machinery
- available processes.

3ei.

Marks	0	1	2	Average
%	42	45	13	0.7

Quality management is the management of methods, systems, procedures and staff training.

3eii.

Marks	0	1	2	3	Average
%	39	42	17	3	0.9

The outcome of the successful management of the four things encompassed by 'quality management' is to produce a quality product. Ideally, quality management maximises profit, minimises loss and minimises wastage of materials.

Section B

Question 4

4a

Marks	0	1	2	3	Average
%	16	39	25	20	1.5

The main tasks performed by the designer are to:

- seek out relevant information
- extract useful information from the client
- present the client with options for solving the problem
- indicate costs involved
- work within a time constraint.

4b

Marks	0	1	2	Average
%	20	51	29	1.1

Client

Tourism Melbourne

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Role

- give the designer as much helpful information as possible
- indicate a time-frame
- agree to costs
- choose materials and components
- select a design option
- be available to check on progress and provide feedback about likes and dislikes.

4c

Marks	0	1	2	3	Average
%	6	24	41	30	2.0

Methods used to communicate ideas to the client include:

- sketches and samples
- prototypes and mock-ups
- written comments.

4d

Marks	0	1	2	Average
%	13	29	57	1.5

Students needed to provide a question that would enable them to gain additional information from the client. It had to be written as a question. An example could be: Will the lectern be used by Tourism Melbourne again after the Grand Prix?

Question 5

Specification 1

Marks	0	1	2	3	4	5	Average
%	15	12	18	25	15	15	2.6

Specification 2

Marks	0	1	2	3	4	5	Average
%	18	13	18	24	14	14	2.5

Both specifications listed here needed to come from the brief. The evaluation question had to be written as a question. The justification and method of testing had to relate logically to the previous question. For example:

i. Evaluation question: Is the section of the lectern that is used to rest notes and papers on able to be easily adjusted for people of different heights?

ii. Justification of question: It is important that the lectern can be adjusted easily so that the transition time between speakers is minimised and audience attention is maximised.

iii. Method of testing/checking: See if it is easy to move the lectern's note resting section up and down and whether the resting section is secure when a small amount of pressure is applied.

Question 6

i. Clarity and detail of drawing

Marks	0	1	2	3	4	5	6	Average
%	5	8	15	24	24	16	7	3.3

ii. Function – suitability for the product's intended use

Marks	0	1	2	3	Average
%	9	23	39	29	1.9

iii. Clear annotation that satisfies the expectations of the design brief

Marks	0	1	2	3	Average
%	14	26	34	25	1.7

iv. Form/aesthetic appeal

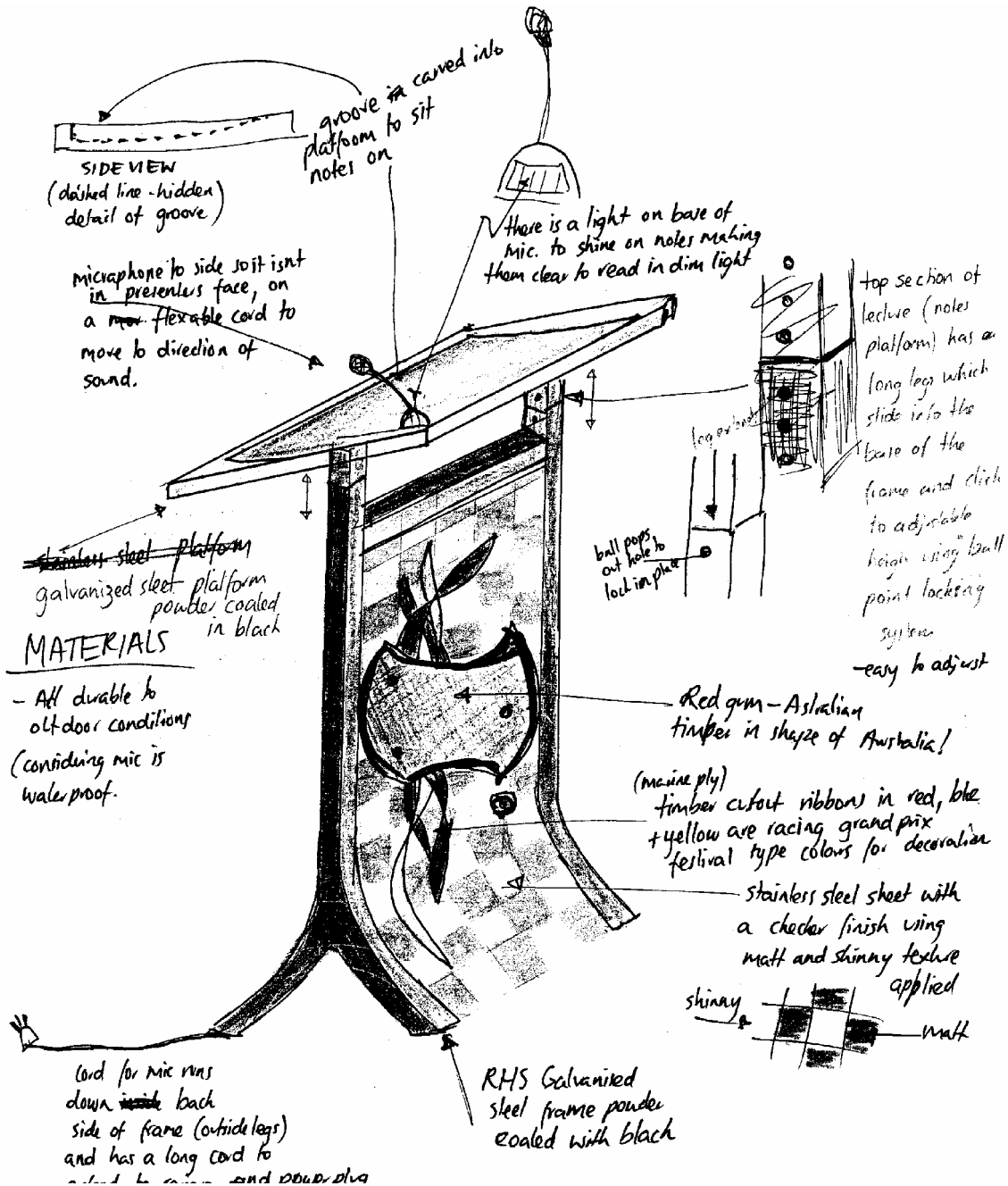
Marks	0	1	2	3	Average
%	16	39	32	13	1.4



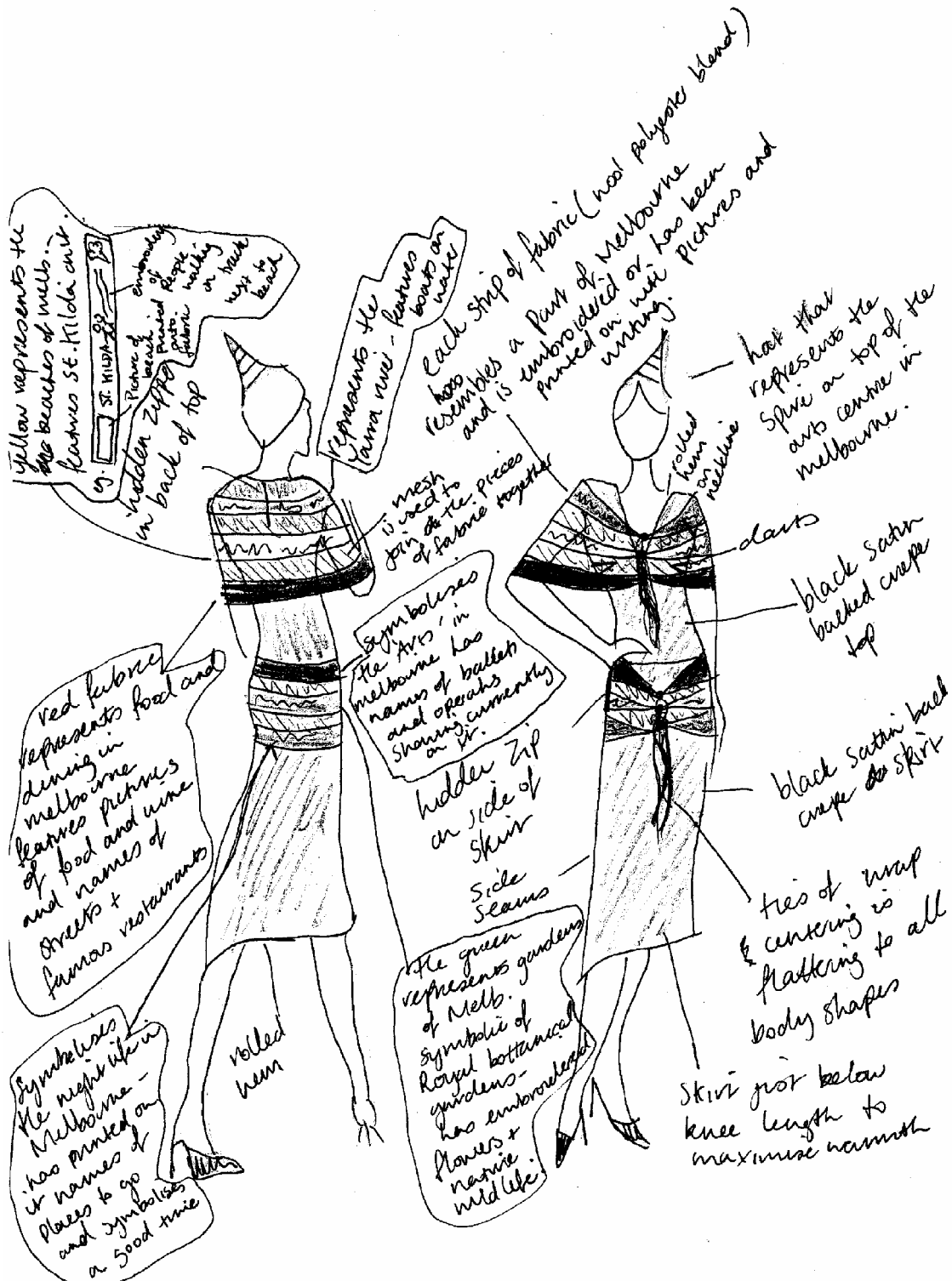
v. Innovation/creativity of design

Marks	0	1	2	3	Average
%	23	40	25	12	1.3

Examples of two high-scoring student responses to Question 6 are shown below.



Example 1



Example 2

Question 7

7ai.

Marks	0	1	Average
%	12	88	0.9

Specific materials, for example red gum or blackwood, needed to be identified here. General terms such as wood, metal, plastic and fabric were not accepted.

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7aii.

Marks	0	1	2	3	Average
%	21	18	29	32	1.7

A specification needed to be given or no marks were awarded for this entire part of the question. A logical justification of how the specification influenced the choice of material had to be provided. For example:

- **specification** – Tourism Melbourne would like to feature Australian materials
- **justification** – Tourism Melbourne has requested that Australian materials be featured in the lectern, so red gum has been chosen. It was chosen firstly because it is heavy, giving it stability, and secondly because of its attractive, deep red colour.

7bi.

Marks	0	1	2	3	Average
%	23	15	30	32	1.7

7bii.

Marks	0	1	2	3	Average
%	34	13	28	26	1.5

A particular/specific material had to be nominated in order to answer this question; for example, red gum. Students then had to name two properties/characteristics and explain how these influenced their choice of the nominated material. For example:

i. Property/characteristic: red colour, fine texture and close grain with veins and pockets.

Explanation: the red colour and fine texture of the timber would look attractive and fit in with the prestige of the event.

ii. Property/characteristic: heavy, dense timber.

Explanation: the timber is heavy so the lectern would be stable and not easily knocked over if someone was to brush past it or lean on it.

7ci.

Marks	0	1	Average
%	19	81	0.8

Students had to choose an appropriate alternative to the previously mentioned material.

7cii.

Marks	0	1	2	Average
%	24	34	42	1.2

Students had to explain how the change of material would affect the product in relation to colour, expense, weight, etc.

Question 8

8a

Marks	0	1	2	3	Average
%	9	16	35	40	2.1

Things that would need to be considered when estimating the cost to produce a product are:

- materials
- labour
- machinery
- components
- factory rental.

8b

Marks	0	1	2	3	4	5	Average
%	15	9	12	17	21	25	2.9

Students had to indicate the impact of their product on the environment. For example:

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Stage of life cycle	Environmental concern
Source of materials	<ul style="list-style-type: none">• are pesticides used when growing materials?• how are the materials extracted or produced?• have non-renewable sources been used?
Manufacture	<ul style="list-style-type: none">• will the manufacturing processes used create pollution?• are fossil fuels used in the manufacture of the product?
Packaging and transport	<ul style="list-style-type: none">• are recyclable materials used for packaging?• what happens to the packaging after delivery if it can not be recycled?• what effect does the method of transportation have on the environment?
Product use	<ul style="list-style-type: none">• do the cleaning or the maintenance of the product use chemicals that can harm the environment?
Disposal	<ul style="list-style-type: none">• how will the product be disposed of when it is no longer being used?• will the materials used break down if disposed of in landfill?