



2012 Product Design and Technology GA 3: Examination

GENERAL COMMENTS

This was the first exam for the new *VCE Product Design and Technology Study Design*. Students appeared to be well prepared.

Areas of strength

- highlighting the key client needs in the design option
- promotion within the poster
- understanding of how to use the boxes in the design option

Areas of weakness

- understanding of how Australian standards affect the production and construction of products
- understanding of new terminology and ability to apply this knowledge to questions
- providing appropriately detailed answers to two-part questions

SPECIFIC INFORMATION

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.

This report provides sample answers or an indication of what the answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

Section A

Question 1

Marks	0	1	2	3	4	Average
%	2	11	28	41	18	2.6

1a.

B. examines the use, re-use, recycling and final disposal of a product

1b.

C. the end user's personal connection with the product

1c.

C. the identification, assessment and control of hazards and risks, and the checking of risk controls

1d.

D. an evaluation of the production planning and processes as well as an evaluation of the product

Question 2

Marks	0	1	2	Average
%	15	34	51	1.4

Students were required to explore why it is important for the designer to consider the selected parameter; hence, they needed to do more than just define the term.

The following are examples of successful answers.

Parameter: Emotional Sensory appeal

Explanation: The design allows people to shape their eggs into an interesting shape. The design creates interest for the end user and creates a bit of fun in the eating of the egg.

Parameter: Fashion and trends

Explanation: The trend to make food interesting, such the British chef Heston has made popular, has influenced the way it is presented. This has led to products being made, such as the egg ring.

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Question 3

Marks	0	1	2	3	Average
%	14	30	33	23	1.7

Students were required to explain why design and innovation are important in the product development process.

The following is an example of a successful answer.

The product must change and evolve, with the end user, to sell. Hence a designer's ability to alter, modify or provide an alternative approach to the product will allow the product to be sold and be still seen as relevant to the end user. There may also be changes in the production of a product which would allow the product to be produced more cheaply or more efficiently.

Question 4

Marks	0	1	2	3	4	Average
%	65	5	8	10	13	1.0

Many students found this question difficult to answer. Students needed to identify a method of evaluating products and explain the advantage of this method. Methods of evaluating products included (but were not limited to): surveys, group discussions, questionnaires.

The following is an example of a successful answer.

Method of evaluating products: Interviews

Advantage: Interviews allows questions to be clarified and provides opportunities for the designer/manufacture to have a clear idea of what are some of the design elements that the end user likes, but also a chance to explore what the end user may see as limitations of the product.

Question 5

Marks	0	1	2	3	Average
%	10	23	34	34	1.9

Students who focused on why a designer would undertake comparative testing of similar commercial products, not their own, before designing a new version of the product, achieved full marks.

The following is an example of a successful answer.

You wish to understand how the products are able to sustain usefulness and what makes them last so you are able to take that into account of your product. Understand the qualities of the product, human centred design – sensory appeal, so that you able to assess what make that product popular or quality of the product, such as materials, manufacturing and finish of the product that make the product popular to the target audience

Question 6

Marks	0	1	2	3	Average
%	32	16	25	27	1.5

Students generally found this question difficult to answer. The question asked students to identify and describe one purpose of international and Australian standards. Purposes could have included: reliability, consistently perform in the way it is intended and define quality.

The following is an example of a successful answer.

Purpose: safety

Description: People who will use the egg rings will feel safe that the product will not contaminate their egg and they will be able to pick up the egg ring without burning their hands.

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Question 7

Marks	0	1	2	Average
%	18	16	66	1.5

Two of: place, promotion, people, product and price

Question 8

Marks	0	1	2	3	Average
%	28	17	26	29	1.6

Students who focused on 'place' or 'promotion' in Question 7 had a wide range of information with which to explain, in Question 8, how the 'P' could influence the commercial success of the flower-shaped egg rings.

Possible answers could have included the following.

- **People:** This product may be bought by families with young children in an attempt to make food interesting or people who wish to present food in an artistic and interesting way.
- **Promotion:** The most effective promotion would be through flyers in supermarkets, promoting how to make eating fun or by demonstrating the use of the egg rings and how effective the eggs look. Families visiting the store would then be able to decide whether they would be useful in making food interesting for their children.
- **Price:** The price of the product would need to be very low because it is not a specialised or required product for cooking. Hence, families may buy it on impulse if it was cheap enough.
- **Product:** The egg ring is a product that can be used to cook eggs in a unique way. They would need to be seen as a way to make food look fun or interesting.

The following is an example of a successful answer.

Place – People who may wish to buy such products tend to visit kitchen/home stores. The product will have a greater ability to have sales if placed in stores that are marketed towards these kinds of clients. The product will also have high sales for online stores that have similar products, that is, recipe sites, cookbook sites.

Question 9

Marks	0	1	2	3	Average
%	28	23	24	25	1.5

Weak students tended to define sustainability systems. To gain full marks, students needed to explain the benefits of the system or model.

The following is an example of a successful answer.

Sustainability system or model: Design for Disassembly (DfD)

Explanation: The product needs to be able to be recycled through the easy process of separating the components. The product should be made from a small range of materials therefore limiting the difficulty of separating the product. The product also should require no complex pieces of tools or equipment to disassemble the product, therefore allowing anyone and any company to recycle the product.

Question 10

Marks	0	1	2	3	Average
%	51	7	13	28	1.2

Students who demonstrated an ability to identify the type of obsolescence that may apply to the flower-shaped egg rings and then justify their answer received full marks.

The following is an example of a successful answer.

Type of obsolescence: style obsolescence

Justification: style obsolescence would apply to this product because this product depends on the end user attaching to some form of value to the product. The product would go out of the popular fashion very quickly.

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Question 11

Marks	0	1	2	3	Average
%	54	6	12	29	1.2

Students could not just name an emerging technology. Students needed to demonstrate an understanding of one emerging technology and explain the use of this technology in product design or production.

The following is an example of a successful answer.

Emerging technology: computer-aided design (CAD)

Explanation: CAD allows designers to quickly explore designs in 3D form prior to constructing the product. CAD allows the designers to modify/alter designs without having to redraw the product from the beginning.

Question 12

Marks	0	1	2	3	4	5	6	Average
%	21	11	21	18	16	7	6	2.4

Investigating and defining stage: Identify client, design brief, design option criteria and product evaluation criteria, development of criteria, research

Design and development stage: Working drawings and pattern drafting, design options (presentation drawings), selection and justification of preferred option, visualisations

This question asked students to do more than simply list information about two selected steps. For students to gain full marks, they needed to show a comprehensive understanding of how the two steps related to each other and, when correctly used, would not create the problems stated in the question. Hence, they needed to explain how the correct application of these steps within the Product design process would have prevented the problems.

The following is an example of a successful answer.

The Designer needs to be aware how research will have impact on the working drawings and therefore lead to an appropriate product for the client. The designer needs to be aware whether the construction techniques are possible and whether what is drawn in the working drawing are possible. If not enough research has been done, such as staining abilities, embellishment techniques, then what will be stated on the working drawing/flat's may not be possible or what is stated may not be correct because the research has not confirmed nor allowed the designer to modify or correct the drawings. This could also have impact on the final piece because elements of the working drawing may be outsourced and therefore there may need to be modifications which the designer was not aware of because they have not correctly been checked. hence the ability for a working drawing to be correct not only requires the procedures to have been confirmed but the ability for the working drawing to have confirmed with other people that what is stated is possible and viable. There is also the issue that what the working drawing states has not been confirmed that the materials are not available in sizes required. Hence though testing has been done, the availability of the material maybe limited, hence what is asked for in the working drawings may not be possible. Thus research is important, but also making sure that what is stated in the working drawings is possible and available.

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Section B

Question 1

Marks	0	1	2	3	Average
%	6	13	22	59	2.4

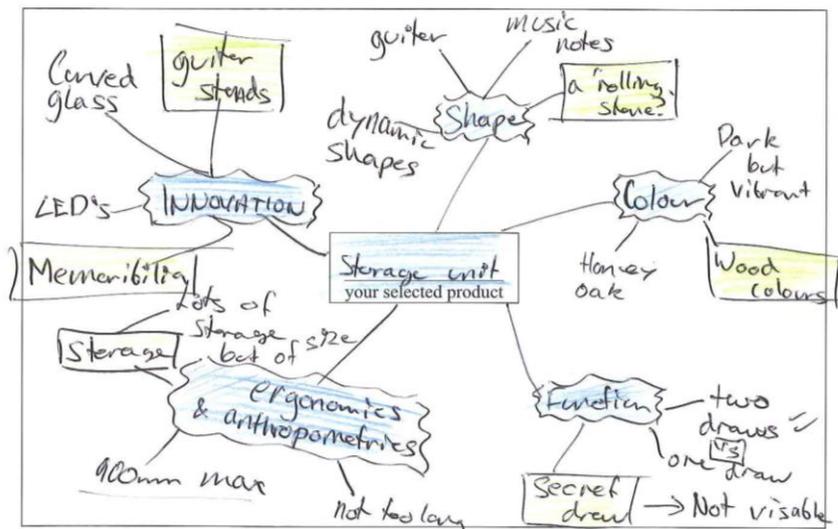
Students demonstrated an understanding of and ability to complete a concept map to explore their ideas for the product. To gain full marks, students needed to show at least two levels from their product and a range of areas from the two levels.

The following is an example of a successful answer.

End user	Muso			
End user's gender (if relevant)	-			
Product	Storage unit			
Tick (✓) main material(s)	wood/timber	✓	metal	✓
	textiles		polymers (plastics)	

Question 1

Complete a concept map in the space provided, exploring your ideas for the product.



Question 2

Marks	0	1	2	3	4	Average
%	21	14	26	22	17	2.0

Most students were able to identify one aspect from the Design Brief insert (other than materials testing) that they would research, but many students found it difficult to explain how this research would influence their design.

Aspects identified included

- obsessed with the latest technology
- collects records, objects and clothing related to rock music
- loves vintage and retro objects and clothes.

The following is an example of a successful answer.

The Retro/Indie look

The client has asked that certain characteristics of the end user must be reflected within the product. For me to do this I need to have a better understanding of the characteristics and how they reflected and impacted on the way people designed and constructed their image. This is very significant for the design brief because this will have major impact on the look of the

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product that is an aesthetic look. Hence the design brief may have a range of basic criteria, such as height of certain materials, but the overall look is the one that the client wishes to influence all aspects of the product.

Question 3

Marks	0	1	2	3	Average
%	31	18	24	27	1.5

Tests included: flammability, durability, strength, joining strength, glue strength, colour or dye testing.

The majority of students could name a test, but explaining why the test would be relevant to the product's development created difficulties.

The following is an example of a successful answer.

I would test the ability of the material to be durable. The product needs to be continually used and washed by the end user. Hence the material needs to be durable and not expensive to maintain clean.

Question 4

Marks	0	1	2	3	Average
%	31	10	22	37	1.7

Students were asked to name and describe a strategy to help a client visualise a finished product. Possible answers included maquettes or CAD drawings.

The following is an example of a successful answer.

Strategy: Present a design option drawing.

Description: Design option drawing allows people to visualise the product in 3D. This allows the client to visualise the product in a way they can easily understand. The colouring would allow the client to have an understanding of what the product will look like.

Question 5

i. Function/suitability of the design option for intended use

Marks	0	1	2	3	Average
%	8	24	38	30	1.9

ii. Drawing, in the boxes, of processes, including one from the degree of difficulty list

Marks	0	1	2	3	Average
%	14	12	18	55	2.2

iii. Use of visual, tactile and aesthetic Product design factors (parameters) in the design option

Marks	0	1	2	3	Average
%	19	40	29	13	1.4

iv. Annotations, on the design option, that indicate how the requirements of the design brief have been met

Marks	0	1	2	3	Average
%	11	21	27	41	2.0

v. Clarity and detail of drawing in the design option

Marks	0	1	2	Average
%	8	51	40	1.3

vi. Innovation and creativity in the design option

Marks	0	1	2	3	4	Average
%	15	32	31	18	5	1.7

A number of students have yet to understand that

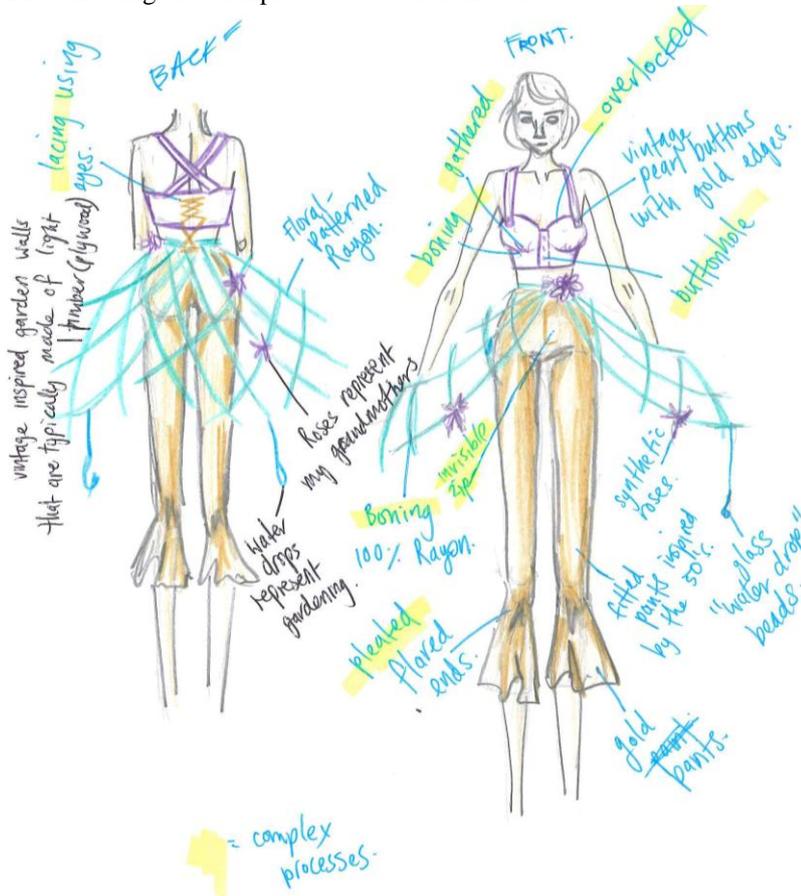
- innovation and creativity form a combination of processes, design and materials

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- the use of visual, tactile and aesthetic refers to the use of drawing techniques, such as how the coloured pencils were used to show texture or line to convey shape and form
- the clarity and detail of a drawing also refer to making sure that text does not dominate the drawing.

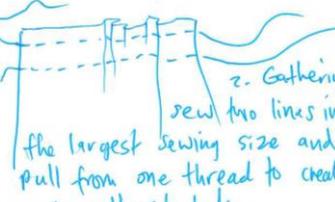
The following are examples of successful answers.



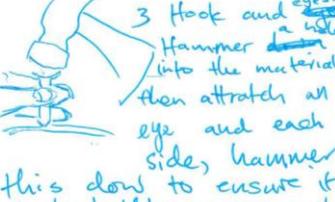
1. Developing a prototype. This ensures that the end product (with the expensive material) is fitted to the end-user



2. Gathering sew two lines in the largest sewing size and pull from one thread to create a gathered look.



3. Hook and Hammer into the material, then attach an eye and each side, hammer this down to ensure it holds/stays on correctly

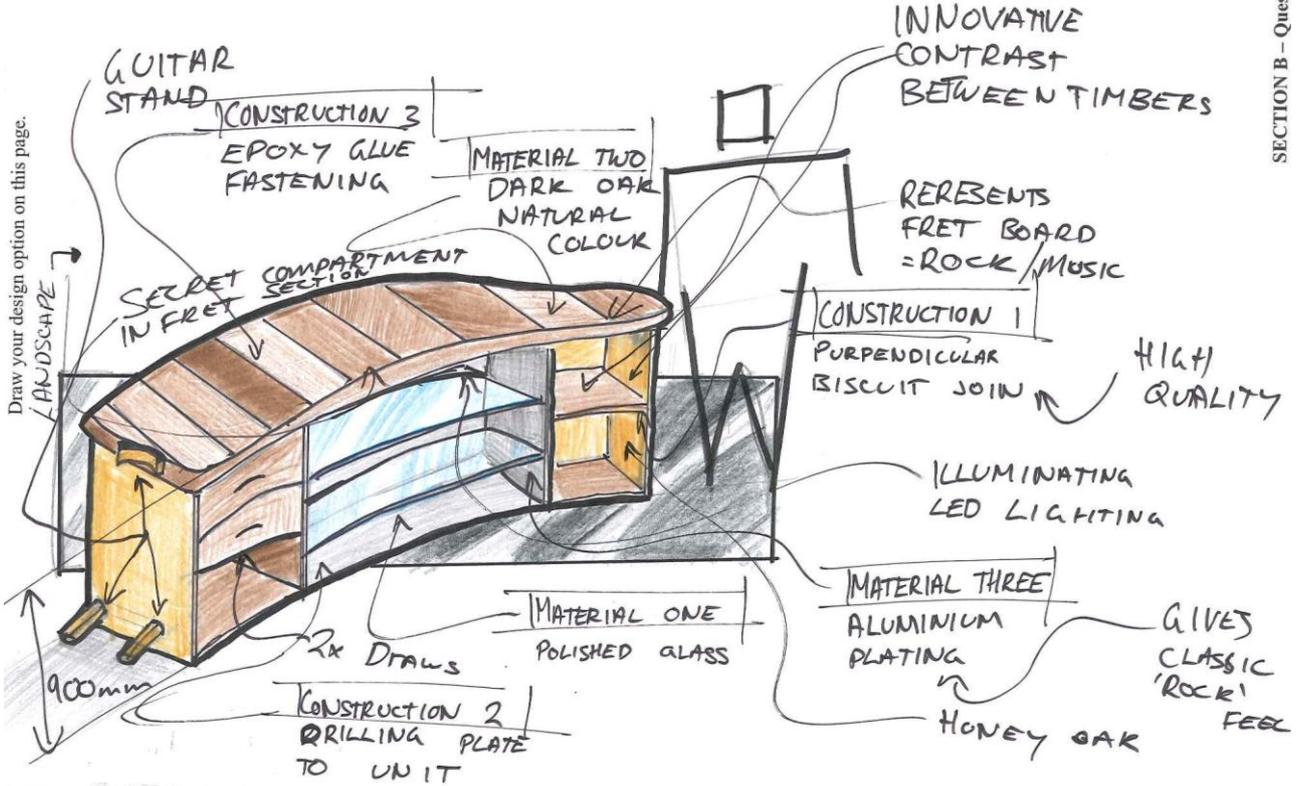


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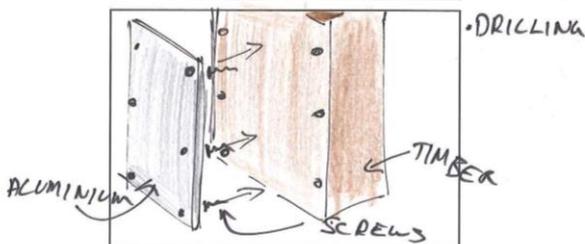
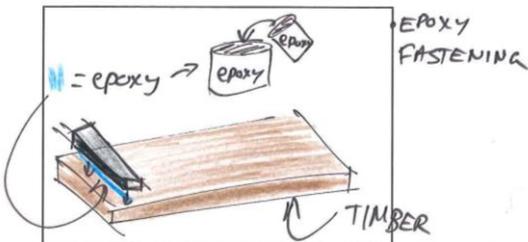
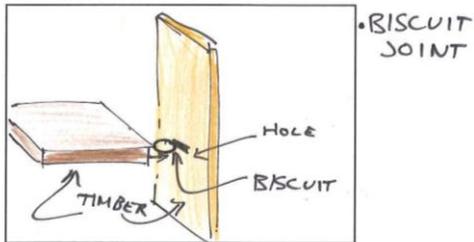


CLASSIC ROCK N ROLL STORAGE UNIT

HEIGHT: 900mm
LENGTH: 1800mm
DEPTH: 600mm



SECTION B - Question 5 - continued



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Question 6a.

Marks	0	1	Average
%	62	38	0.4

Students had difficulty remembering product design factors (one of): purpose, function, and context.

Question 6b.

Marks	0	1	Average
%	63	37	0.4

Students had to convert this Product design factor into an evaluation criterion; for example, Does the product have decoration?

Question 6c.

Marks	0	1	2	Average
%	34	33	34	1.0

Students were asked to give this criterion a level of priority and explain why. Marks were allocated for the explanation only.

Students needed to realise that the level of priority has more to do than just meeting what the client had asked for. Students were required to explain why they would have given this level of priority to the criterion in the decision matrix.

The following is an example of a high-scoring response.

I would give this a high priority. Though the main function of the product is to store objects for the client's. The product needs to reflect the client's distinct tastes. The product needs to reflect the client and the client needs to feel that their needs have been met.

Question 6d.

Marks	0	1	2	3	Average
%	26	28	28	18	1.4

Students needed to explain why they would need to use a decision matrix when deciding on the best design option.

The following is an example of a high-scoring response.

The design matrix will allow the designer to make sure that the product selected meets the highest level of the client's needs and wants. It is important that weighting is given to the most important elements of the client. Therefore they can heavily influence in the decision and make sure that these have been met.

Question 7

Marks	0	1	2	3	Average
%	73	6	8	14	0.6

Students needed to identify one component of the production plan.

Possible responses could have been

- overall timeline
- Gantt chart
- safety
- tools and equipment
- steps to follow
- quality check.

Students then needed explain the role of this component in the production plan. A possible response could have been: Gantt chart – This will allow me to have a clear understanding of what I need to do and the order in which I need to complete the tasks. This will allow me to know how long it will take me to make the product and what I will be required to do at each step so it is finished by the due date.

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Question 8a.

Marks	0	1	Average
%	42	58	0.6

Students had to identify the risk assessment associated with the process that they had selected from the degree of difficulty list. Examples of suitable responses include

- getting a sore back from arching too much over the machine
- sitting poorly leading to poor posture.

Question 8b.

Marks	0	1	2	Average
%	34	15	51	1.2

Students needed to provide two procedures that they would put into place to reduce the risk. An example of a suitable response is: I will make sure that the machine is not set too high or too low so that I do not have to position myself incorrectly. I will also make sure that the chair I am using is adjustable so that I do not become sore from my sitting position.

Question 9a.

Marks	0	1	2	3	Average
%	53	17	15	15	0.9

Students needed to identify one quality measure. The quality measure had to be quantifiable in order to be given marks. Students then needed to explain how this quality measure contributed to the quality of the product.

Possible responses could have been

- check that all seams have been sewn
- check that all joints have been correctly made
- ensure all welding joints have been checked.

Question 9b.

Marks	0	1	Average
%	38	62	0.6

Students were asked to name one care requirement that is intended to prolong the product's life and maintain its appearance.

Possible responses could have been

- regularly dust with a soft cloth so no scratches occur
- place the washed garment to dry on a table so that it does not stretch.

Question 10a.

Marks	0	1	Average
%	52	48	0.5

Students seemed to find this question difficult. They needed to decide what form of presentation would suit their specific end user.

Possible responses could have been

- web page (Techno)
- a poster that looks rock-and-roll (Musos)
- a pamphlet (Indie).

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Question 10b.

Marks	0	1	2	Average
%	54	18	28	0.8

Students then needed to explain why they would choose this type of presentation for their end user.

Possible responses could have been as follows.

- Technos would spend quite a bit on time on the internet, so this would be the best place to achieve an effective connection with the end user.
- Musos would be attracted to anything that has a rock look to it. If the poster has a rock-and-roll feel, they would look at it and read the information.
- Pamphlets are low-tech and Indie people would like the idea of having something that does not cost much.