



2011 Design and Technology GA 3: Examination

GENERAL COMMENTS

Areas of strength

- highlighting the key client needs in the design option
- promotion within the poster

Areas of weakness

- knowledge of design factors
- failure to understand that drawing with pen or just pencil does not provide students with the ability to communicate their ideas effectively

This report should be read in conjunction with the 2011 VCE Design and Technology written examination.

SPECIFIC INFORMATION

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

For each question, an outline answer (or answers) is provided. In some cases the answer given is not the only answer that could have been awarded marks.

Question 1

Marks	0	1	2	3	4	Average
%	1	2	9	27	61	3.5

Students answered the multiple-choice questions quite competently.

Question 1a.

A product manufactured from a sustainable material is one that uses materials which can be continuously sourced without significantly damaging the environment or depleting resources (option D).

Question 1b.

Designers often use the term ‘Cradle to Grave’ when referring to the environmental impact of a product during its life cycle (option B).

Question 1c.

Style obsolescence is evident when the aesthetics of a product become unfashionable and no longer desirable to the user (option C).

Question 1d.

Occupational Health and Safety (OH&S) risk assessment is a process developed to determine the likelihood of injury or illness in the design stage and manufacturing process (option A).

Question 2a.

Marks	0	1	2	Average
%	14	31	56	1.4

Some appropriate tests that were suggested included:

- test to see whether the chairs can be stacked
- space taken up by the chairs
- durability of fabric on product B
- impact testing of product A.

Generally, students were able to answer this question quite competently. However, some of the tests indicated by the students would have taken too long for Aaron to make a decision.

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Question 2b.

Marks	0	1	Average
%	27	73	0.8

Some appropriate evaluation questions were:

- has the chair been finished to a high standard?
- do people feel comfortable sitting in the chair?

Most students were able to identify one evaluation criterion. Students must remember that an evaluation criterion must be written as a question. Some students were confused and thought that Aaron was the manufacturer.

Question 2c.

Marks	0	1	2	Average
%	25	35	40	1.2

Some appropriate answers as to how this criterion would influence Aaron's choice of chair were:

- Aaron does not want to spend money on repairing chairs; hence, if they are well-made he reduces his costs and increases his profit
- people will hire chairs that they find comfortable. This will mean that Aaron will not have stock sitting in the warehouse if people like the chairs.

Students tended to find this question difficult to answer. Some students compared the chairs rather than validating why they felt the evaluation criterion was important.

Question 2d.

Marks	0	1	2	3	4	Average
%	15	19	27	21	19	2.1

For students to gain full marks they had to identify one function and clearly explain the necessity of this function. The question was not an environmental question, and did not ask for a comparison or for students to choose a chair. The functional aspect needed to be directly related to Aaron.

Following is an example of a successful answer.

Identify: That the chairs will be easy to store.

Discuss: The chairs will be hired out and Aaron will need to be able to store large quantities without requiring large space. He will also need to move them to venues or people will need to place them in their cars and if they are easily to store they will not take up too much room in a van or car. This will make clients and Aaron happy.

Question 2e.

Marks	0	1	2	Average
%	27	27	46	1.2

Students were asked to evaluate the appeal of a product from different viewpoints: that of an end user customer and that of a supplier. The differences in viewpoint affected the way the product was assessed. Most students understood this concept.

Following is an example of a successful answer.

There is a difference because Aaron and the customers have different needs to be met. Aaron wants a product which is light yet strong, easy to store and will last for a long time. The hirer wants a chair which looks good, is safe with no sharp edges, easy to handle and transport.

Question 2f.

Marks	0	1	2	Average
%	46	32	22	0.8

Students generally found this question difficult to answer. The question asked what types of environmental costs there are in recycling these products, not which chair created the least impact on the environment.

Following is an example of a successful answer.

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There will be a cost of collecting the chairs for recycling, in energy for trucks and in labour costs for people to collect and sort the chairs. There is an energy cost to recycle plastic because it has to be melted down and re-formed. All of the director's chair cannot be recycled, therefore it will contribute to landfill.

Question 2g.

Marks	0	1	2	3	4	Average
%	54	10	12	10	15	1.2

Students still seemed to have difficulty understanding quality management techniques as compared to Total Quality Management (TQM), and confused the role of Aaron as being the manufacturer rather than a client. Sample quality management techniques included:

- training of workers
- quality controllers to supervise stages of production
- random sampling of finished product
- risk management
- machine maintenance
- induction of employees
- quality control at specific production stages
- batch testing
- materials testing.

Following is an example of a successful answer.

Quality management is dependent on the training of the workers. If the workers have been shown the processes needed in the making of the chair then they have a clear understanding of their role. They also require training to ensure that they are aware of things like hazards and standards required. If the workers are not trained then they have no idea of what is expected of them and they may make poor quality products.

Question 2h.

Marks	0	1	2	3	4	Average
%	14	11	29	13	33	2.4

Some appropriate answers to identify and briefly explain the characteristics or properties of chair cover material included:

- washability – the covers will probably need to be cleaned after every use so they will need to be able to be washed multiple times without deterioration
- drapability – because of the style of the cover, the fabric needs to have a softness when it is gathered and tied around the chair, so the material falls well and is soft to sit on
- durability – able to withstand constant use, won't tear easily
- stain resistant – able to repel stains; for example, food and drink.

Students showed an ability to answer this question quite competently.

Question 3a.

Marks	0	1	2	Average
%	31	25	43	1.1

Students demonstrated understanding of the importance of establishing a need for the product.

Following is an example of a successful answer.

Without the need for the product, it is very unlikely that there will be a market for the product, and without a market there will be no consumption of the product.

Question 3b.

Marks	0	1	2	Average
%	16	24	60	1.5

Students demonstrated understanding of the specific need for the plug.

Following is an example of a successful answer.

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It reduces the size of the plug so its size is in relation to the electronic equipment that it will be connected to. There will not be a slim lap-top with a plug which is thicker than the lap-top. It should also reduce damage to equipment, e.g. laptop screens, from large plugs with very prominent prongs.

Question 3c.

Marks	0	1	2	3	4	Average
%	18	13	36	12	20	2.1

Design factors apparent in the folding plug design included (two of):

- human needs and wants
- purpose, function and context
- visual, tactile and aesthetic factors
- materials
- tools
- processes
- economics
- environmental
- innovation
- legal compliance.

Most students were able to identify one or two design factors, but many students found it difficult to discuss the design factors they had identified.

Following is an example of a successful answer.

1. Correct choice of materials, finding a plastic which is sufficiently flexible to be able to have joints which will fold without deteriorating.

2. Innovation – seeing a problem and evolving a solution – large plug with prongs capable of damaging equipment and requiring larger cases and carrying equipment for equipment which needs to be easily transportable.

Question 3d.

Marks	0	1	2	3	Average
%	34	26	23	17	1.3

Students seemed to have difficulty remembering what the product cycle is and struggled to apply the concept to a specific scenario.

Following is an example of a successful answer.

The plug has not been changed for quite awhile. There is no need, by users, to buy new plugs until either you have lost them or they need replacing. With the change in Design people would be willing to buy the new plugs create a new demand for an old product. This will increase demand and rejuvenate sales and production. Design can extend the saleability, appeal to a new market. It looks/functions better.

Question 3e.

Marks	0	1	Average
%	14	86	0.9

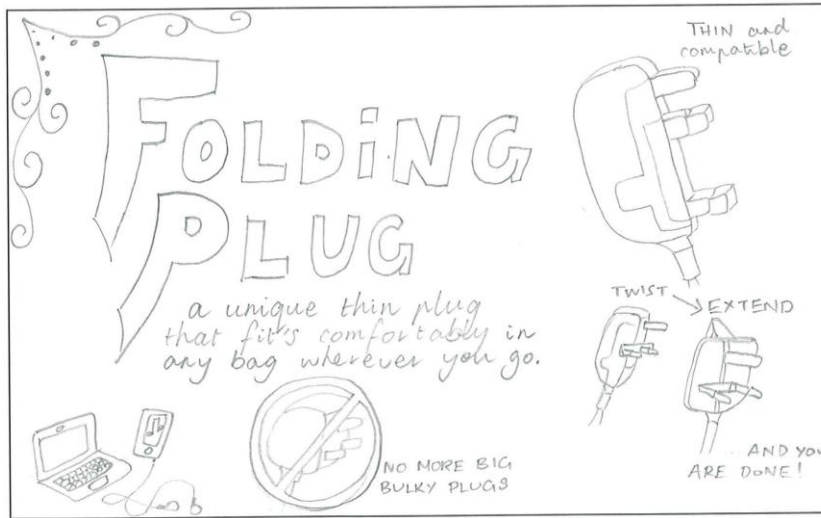
Students needed to identify a specific end user for the folding plug product. One appropriate example was frequent travellers.

Question 3f.

Marks	0	1	2	3	Average
%	8	10	28	54	2.3

Students' poster drawings showed improvement on those from the previous year. The quality of the responses had dramatically improved.

Following is an example of a successful answer.



Section B

Questions 1a–d.

Marks	0	1	2	3	4	Average
%	6	3	11	21	60	3.3

The majority of students demonstrated an understanding of how to list a client specification from the brief, how to develop an evaluation criterion in question form and how they would test the specification. However, some students still did not understand how to draw this information from the design brief or from the specific requirements for each of the products.

Following are examples of two successful answers.

Example 1

1a.

Needs to be modest to conform to censors classification.

1b.

Ensure that the costume is not 'skimpy' and covers most of Jet's body.

1c.

Is the costume appropriate for a PG classification?

1d.

Show five people from a variety of age groups and ask them to complete a questionnaire re the suitability of the design.

Example 2

1a.

The wardrobe must have at least two doors.

1b.

I will ensure that the wardrobe has 2 doors.

1c.

Does the wardrobe have at least two doors?

1d.

Usually check that there are two doors.

Question 2

Marks	0	1	2	Average
%	22	32	45	1.3

This question asked students to explore the role of the evaluation criteria.

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Following is an example of a successful answer.

It is a means to ensure the designer is meeting the client's brief and therefore creating an end product that meets the client's needs.

Question 3

Marks	0	1	2	Average
%	36	39	24	0.9

This question asked students to explain the role of determining testing prior to making the product.

Following is an example of a successful answer.

So that the designer can be aware at all times during all stages of the creation of the product what the performance of the end product will be judged against.

It ensures that the method of testing or checking is appropriate and that the elements being checked are incorporated in the final product.

Question 4

Overall, students demonstrated an understanding of how to present a design option. Some students still had difficulty gaining full marks for parts ii. and iv., which specifically asked them to either annotate or identify specific requirements of the brief. Below is specific information about each marking criterion.

i. Function/suitability for intended use

Marks	0	1	2	3	Average
%	5	24	38	32	2.0

Students who received full marks clearly understood the balance between meeting the needs of the client (the director) and the specific needs, in some cases, of the end user (Jude Jet). The product not only had to reflect one of the three worlds – Gothic Supernatural, Comic Strip or Ice – but also had to meet certain distinctive needs. Students were able to communicate this through their drawing by either:

- identifying the specific client requests by numbering them
- highlighting specific client needs by colour coding them.

ii. Identification, on the drawing, of two processes with a degree of difficulty

Marks	0	1	2	3	Average
%	21	19	3	56	2.0

Students who clearly identified, on the drawing, two processes with a degree of difficulty were given full marks.

iii. Use of visual and aesthetic design factors – fundamentals and applications

Marks	0	1	2	3	Average
%	9	34	36	20	1.7

Students' ability to get full marks for this criterion was dependent on their ability to use aspects such as colour, shading, and reference to texture in their work. Students must understand that they are trying to communicate an understanding of the product/look/mood of the product through these techniques. For resistant materials, students must be able to show spatial organisation, by using isometric or oblique drawing; for non-resistant materials, they must use surface qualities to communicate their ideas.

iv. Annotations, on the drawing, that indicate how the specifications have been met

Marks	0	1	2	3	Average
%	12	25	30	32	1.9

Students who annotated three specifications were given full marks.

v. Clarity and detail of drawing

Marks	0	1	2	Average
%	6	48	46	1.4



Students need to ensure that their drawing is not difficult for the assessors to understand because of too many lines or excessive text around the drawing. Students who were given full marks were able to clearly show details, by using processes such as:

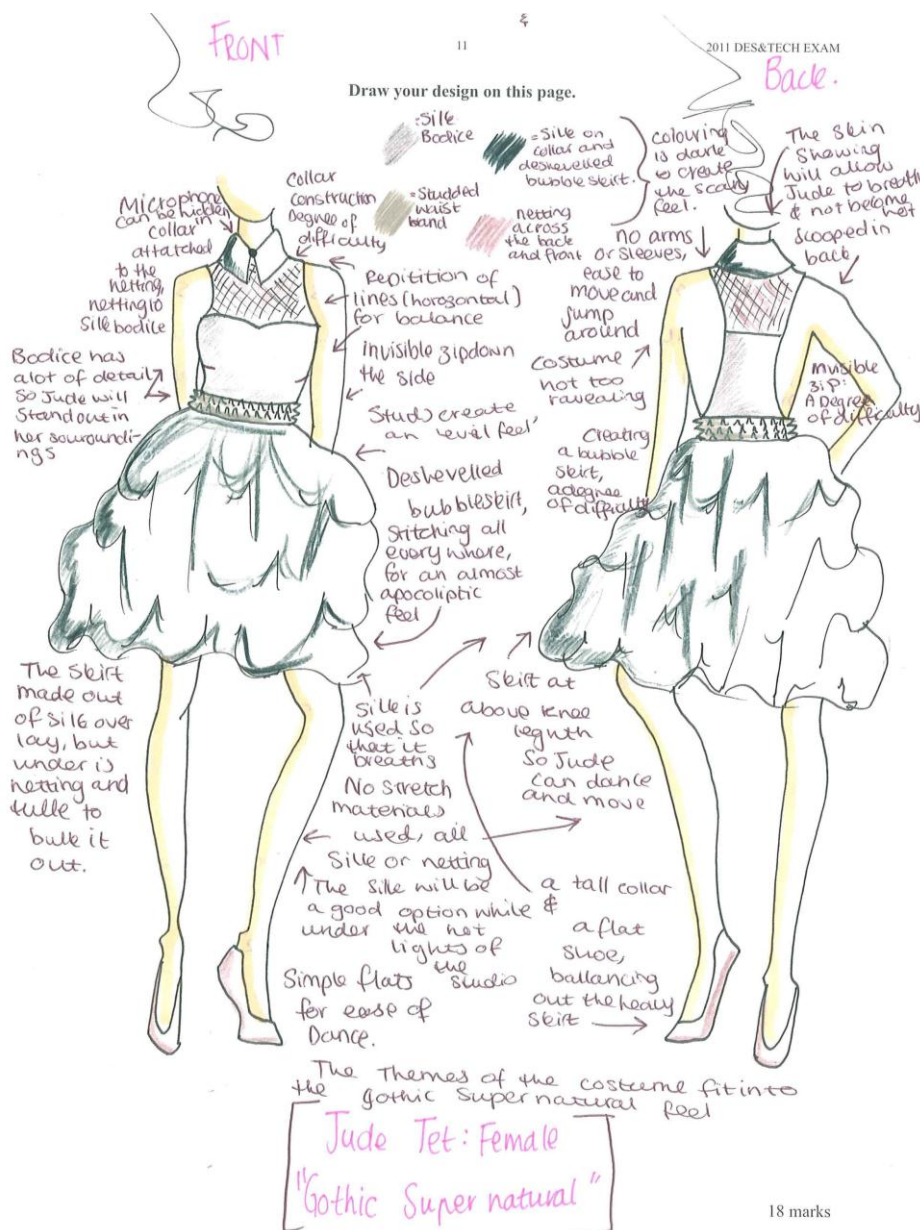
- exploded views, for specific examples of processes or details
- measurements to give an understanding of size
- appropriate drawing techniques, for:
 - resistant materials – isometric or oblique drawing
 - non-resistant materials – areas to emphasise how fabrics drape and stretch.

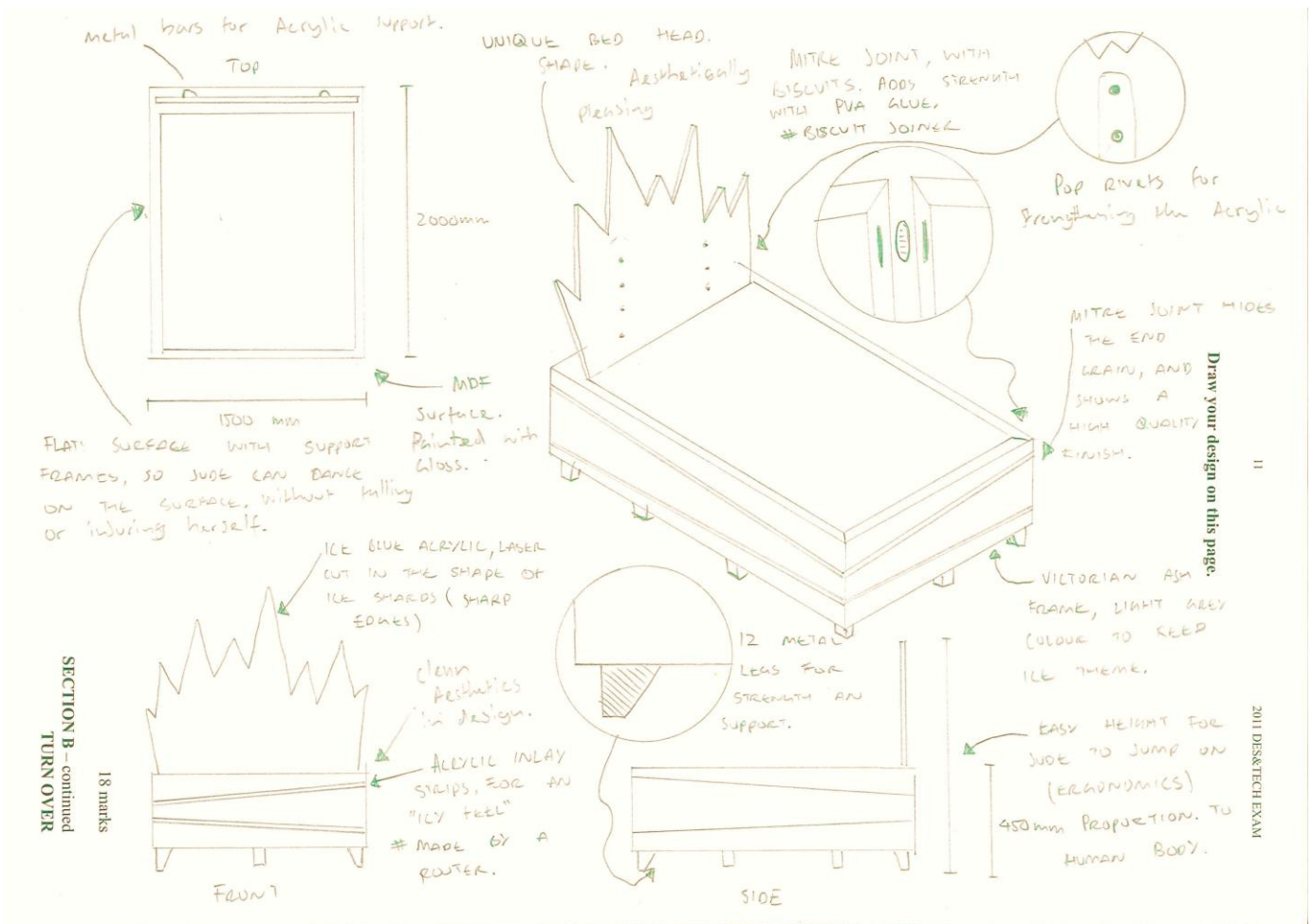
vi. Innovation and creativity

Marks	0	1	2	3	4	Average
%	7	27	36	22	7	2.0

Students need to understand that this criterion encompasses a combination of materials, processes and design. Students who received high marks were able to combine the three areas more readily than students who depended on only one of the three elements. Those who were able to integrate the three were given full marks for innovation and creativity.

Following are examples of two images that displayed a range of techniques.





Question 5a.

Marks	0	1	Average
%	27	73	0.8

The majority of students were able to list one purpose of a work plan.

The following examples were appropriate.

To assist the Designer to organise the necessary purchases at the most appropriate time.

To guide you through the construction steps of your product.

Question 5b.

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

Although most students answered Question 5a. correctly, many of them were unable to explain the role of a work plan. Clearly students had used work plans but had not necessarily thought about their purpose.

Following is an example of a successful answer.

It will ensure that you have the necessary materials when you want to use them. Sometimes it is not possible because of budget or storage restraints to purchase all the requirements at the very start of a project. This will require a clear understanding of the time required for the materials to be ordered and be received so that time is not wasted for materials to arrive.

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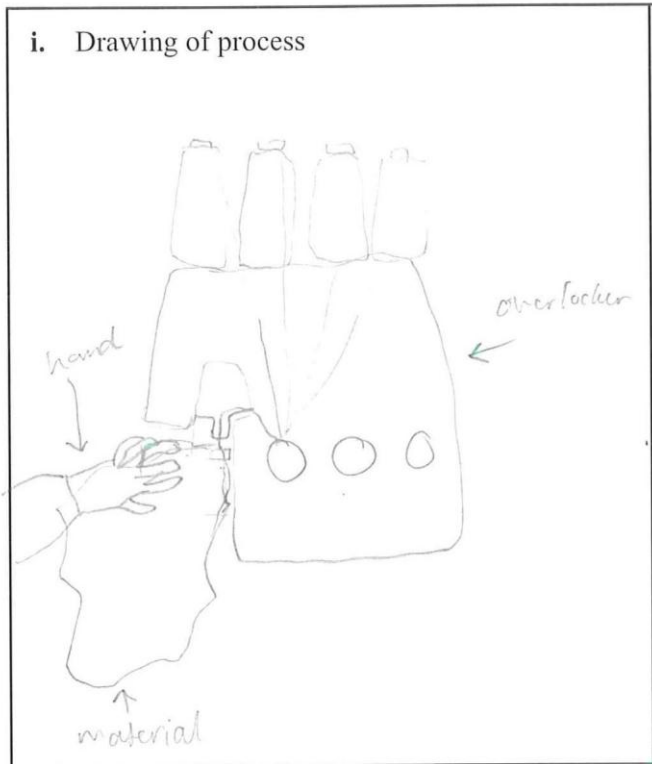
Question 6

Marks	0	1	2	3	4	5	6	Average
%	19	1	5	9	18	16	32	3.8

Students needed to make sure that the process selected came from the 'degree of difficulty' list and that they had annotated the process in their design. Students also needed to show the process in their drawing.

Following are some example of successful responses.

6i.



6ii.

On the silk chiffon wrap of Jude's costume

On the edge of the cupboard frame front and back to the side panels

6iii.

To give surface interest and a 'glitter' effect in the video clip. It is also a way to convey which 'world' Jude is operating in

To increase glue and joint strength

Question 7

Marks	0	1	2	3	Average
%	35	21	19	25	1.4

Students needed to demonstrate their understanding of their role as a designer and their ability to make judgments for the client about a minor technical modification. They should understand that they have expertise which they bring to the relationship between themselves (the designer) and the client.

Following is an example of a successful answer.

Making minor technical modifications are adjusting the processes used, not the final design outcome which is what the client wants. They are not interested in how, but in the end product/Design. The modifications don't affect the visual appeal or cost so doesn't affect the client. Client wouldn't be aware of the changes.

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Question 8a.

Marks	0	1	Average
%	24	76	0.8

Most students were able to list a finishing technique they would use to successfully complete the product they had designed.

Question 8b.

Marks	0	1	2	3	Average
%	26	15	30	29	1.6

Although most students answered Question 8a., their ability to properly explain the technique, its purpose and how it would help enhance the product was not always strong.

Following are examples of two successful answers for part a. and b.

Example 1

8a.

Hemming

8b.

Hemming is the process where the raw edge is neatened or over-locked the hem allowance turned to the wrong side and then hand-stitched or machined in place, depending on the level of finish required. Hemming provides a very neat and hard wearing finish on the edge of the garment, eg on the bottom of trousers legs, end of sleeves. Without hemming, there would be the risk of raw edges fraying with wear and cleaning and the life of the garment could be reduced.

Example 2

8a.

Use of high gloss, colourful enamel paint

High gloss enamel paint is applied with a brush or spray unit. It provides a colourful, fingerprint free finish that can easily cleaned and the finish will add to the colourful comic feel of the product.

Question 9

Marks	0	1	2	3	Average
%	39	24	20	17	1.2

Students had some difficulty in understanding the difference between the effectiveness of planning and efficiency of the design and production.

Following is an example of a successful answer.

Effectiveness means getting the right processes done at the right time in the construction process, which means ensuring that processes are done in the correct order, such as sewing a seam, then overlocking so that no process needs to be redone because it was done too soon. Efficiency relates to the economical use of materials and time, for example ensuring that the correct amounts of materials are purchased to both eliminate material waste and to reduce the amount of time wasted.

Question 10

Marks	0	1	2	3	4	Average
%	29	13	31	8	19	1.8

Students' ability to achieve full marks was based on their understanding that 'The product development process' was referring to the manufacture of a product in an industrial/commercial setting.

Stage 1

- product concept
- identification of need/want
- development of idea

Person involved

- designers
- manufacturer

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- marketing team
- inventors

Stage 3

- production and distribution

Person involved

- production staff
- suppliers
- sub-contractors
- company contractors
- company directors
- distribution company
- transport staff
- quality controllers
- sales and marketing
- production or section managers
- sales and marketing