

## Design and Technology GA 3: Written examination

### GENERAL COMMENTS

#### Areas of strengths and weaknesses

##### Strength:

- many more students took risks generally or in design brief questions; design options on the whole were more creative and innovative than past years
- drawing skills for the design option showed improvement
- students generally conveyed a sense of empathy for their ageing clients
- most completed all sections of the paper
- students generally demonstrated a good understanding of marketing and most answered all the marketing questions.

##### Weakness:

- as in previous years some questions were poorly interpreted
- the 'environmental concerns' question solicited the least successful responses. Few students were able to demonstrate knowledge of any environmental concerns related to the products listed. Some students identified environmental benefits rather than concerns
- mass-production was another area that students had difficulty in demonstrating their knowledge or understanding. Some responses referred to steps involved in the marketing of a product rather than mass-production.

### SPECIFIC INFORMATION

The following information should be read in conjunction with the 2002 Design and Technology examination.

#### Section A

Question	Marks	%	Response
<b>Question 1</b>	Most suitable materials for products (students were required to answer this question in the grid provided).		
	<b>Column 1</b>		<b>Material description</b>
	0/4	4	Most students were able to adequately describe the two chosen materials.
1/4	7		
2/4	28		
3/4	27		
4/4	34		
(Average mark 2.79)			
<b>Column 2</b>			<b>Properties and characteristics</b>
	0/6	9	Some students had difficulties identifying the properties and characteristics of the materials.
	1/6	5	
	2/6	12	
	3/6	14	
	4/6	20	
5/6	16		
6/6	23		
(Average mark 3.7)			
<b>Column 3</b>			<b>A suitable use</b>
	0/2	5	Most students were able to identify an appropriate use for each of the materials.
	1/2	12	
	2/2	83	
(Average mark 1.77)			

<b>Column 4</b>	<b>Care and maintenance</b>
0/4            11	Responses varied depending on the selected materials and their use. For example, if a student had chosen aluminium and its use was a soft drink can, then the description of the care and maintenance was minimal compared with, for example, a mountain bike frame. Examples of good student responses:
1/4            10	
2/4            24	
3/4            20	
4/4            36	
(Average mark 2.59)	

MATERIAL	DESCRIPTION [what does it look like]	PROPERTIES/ CHARACTERISTICS	ONE SUITABLE USE [based on the properties and characteristics you have identified]	CARE AND MAINTENANCE [based on the use you have nominated]
1. Corduroy	Fabric with a pile that protrudes from the right side of the fabric in alternate rows of raised and not raised rows come in a variety of widths.	made from cotton, Corduroy has alot of strength and therefore wears well for a long period of time before wearing out. It is a soft fabric and easy to wash comfortable wear.	Pants. as it will last a long time and is warm in winter and <del>not</del> a soft fabric. So also very comfortable. being cotton is dyed and available in many colours	Can be washed in warm or cold water and hung on the line to dry. best to hang inside out to avoid fading can also be ironed with crease
1. Huan Pine	A light yellow coloured wood with sometimes brown spotted birdseyes.	Very soft & easy to work with. Smells nice, looks The finish of it is excellent. Very Rare. Very expensive	Used for a lounge side table a little round one with a turned leg and 3 small legs coming off it.	To care for the huan pine table use a mat, a clean one or a dolly to prevent scratches. Every now & then sand it back lightly & apply a wax.

<b>Question 2</b>	0/3            30	<b>Environmental Concerns</b> This question was very poorly answered. Very few students demonstrated understanding of any environmental concerns for the listed products. Some students listed correctly the environmental advantages of the products, but that was not answering the question. Examples of good student responses: <b>Aluminium saucepan</b> The way aluminium is produced has the most impact on the environment because it has to be mined, melted down, cast and treated. These all involve polluting the environment. <b>Mahogany chair</b> Mahogany is a timber that has been logged so extensively that not many forests remain. This means the loss of habitat to native birds and animals. Logging of these forests means clearing of the areas which makes erosion occur. Transportation of the logs to manufacturing sites uses fossil fuels contributing to greenhouse pollution. <b>Printed cotton t-shirt</b> The growing of cotton uses a lot of irrigation water which is a problem in a dry climate like Australia. The plants are also sprayed with many pesticides throughout the growing season. Some of the pesticides end up in the soil and water run off. The manufacturing and use of the dyes for
	1/3            35	
	2/3            23	
	3/3            12	
(Average mark 1.17)		

		printing cotton create pollution problems.
<b>Question 3</b>	<b>Marketing chairs</b> Generally this question was well answered.	
	<b>a</b> 0/3                    2 1/3                    11 2/3                    34 3/3                    54 (Average mark 2.39)	<b>Product</b> For their selected chair most students were able to describe the marketable features and the material from which it was made.
	<b>b</b> 0/2                    2 1/2                    18 2/2                    80 (Average mark 1.77)	<b>People</b> Nearly all students were also able to describe an appropriate target group likely to purchase the selected chair.
	<b>c</b> 0/3                    9 1/3                    17 2/3                    32 3/3                    42 (Average mark 2.06)	<b>Price</b> The way in which the manufacturer arrived at the recommended retail price was also well answered by most students. An important factor not mentioned by some students was what the target group would have been prepared to pay for the chair.
	<b>d</b> 0/2                    2 1/2                    26 2/2                    72 (Average mark 1.7)	<b>Promotion</b> Effective promotion methods listed included letterbox drops of pamphlets, lifestyle magazine advertisements, and newspaper advertisements as well as in store displays and demonstrations of the chair in use. Nearly all students were able to explain why their named method of promotion would be effective.
	<b>e</b> 0/2                    4 1/2                    26 2/2                    70 (Average mark 1.66)	<b>Place</b> Most students were able to state where the best place to sell the chair would be and were able to justify why this would be the best place.
	<b>fi-ii</b> 0/4                    4 1/4                    4 2/4                    22 3/4                    21 4/4                    48 (Average mark 3.04)	<b>Two changes to your marketing plan</b> The response to this question was not as good as for the other marketing questions. The key words students needed to focus on in this question were, 'increases sales quickly and beat the competition'. An example of a good student response: ' <i>Decrease the price and offer free delivery</i> ' would mean that the chair would be cheaper and the purchaser would also save on delivery charges. Less successful responses mentioned changes to the design or colour of the chair which would require costly changes in manufacturing rather than changes to the marketing plan.
<b>Section B</b>		
<b>Question 4</b>	<b>Specifications and criteria for evaluation</b>	
	<b>i</b> 0/4                    10 1/4                    12 2/4                    21 3/4                    20 4/4                    36 (Average mark 2.59)	The 2002 examination asked students to list three most important specifications from the design brief and an evaluation criteria and justification of each criterion. Students needed to demonstrate a direct relationship to the needs and wants of the client. This question was very well handled by most students. Many students' specifications were taken directly from the brief. A few students lost marks because they invented new specifications not included in the given brief, for example cost. Justifications were sometimes a restating of the specification rather than a justification of the evaluation criteria.
	<b>ii</b> 0/4                    12 1/4                    12 2/4                    20 3/4                    20	

	4/4 36 (Average mark 2.55) <b>iii</b> 0/4 13 1/4 12 2/4 21 3/4 19 4/4 35 (Average mark 2.5)	
<b>Question 5</b>	<b>clarity and detail of drawing</b> 0/6 3 1/6 6 2/6 14 3/6 18 4/6 24 5/6 20 6/6 15 (Average mark 3.76) <b>clearly annotated specifications</b> 14 0/3 20 1/3 30 2/3 36 3/3 (Average mark 1.88) <b>creativity and aesthetic appeal</b> 12 0/3 32 1/3 35 2/3 21 3/3 (Average mark 1.65) <b>a clever/innovative feature</b> 19 0/3 34 1/3 30 2/3 17 3/3 (Average mark 1.45)	<b>Design Option</b> For students to achieve full marks their design had to be: <ul style="list-style-type: none"> <li>• an appropriate response to the brief</li> <li>• clearly drawn and show adequate detail</li> <li>• clearly annotated stating how all specifications had been addressed</li> <li>• aesthetically appealing and demonstrating creative flare</li> <li>• clever and innovative.</li> </ul> Many more students took risks and demonstrated a more creative approach to their designing. Generally, drawing skills showed improvement on past years.

Examples of good student responses:

DES&TECH EXAM

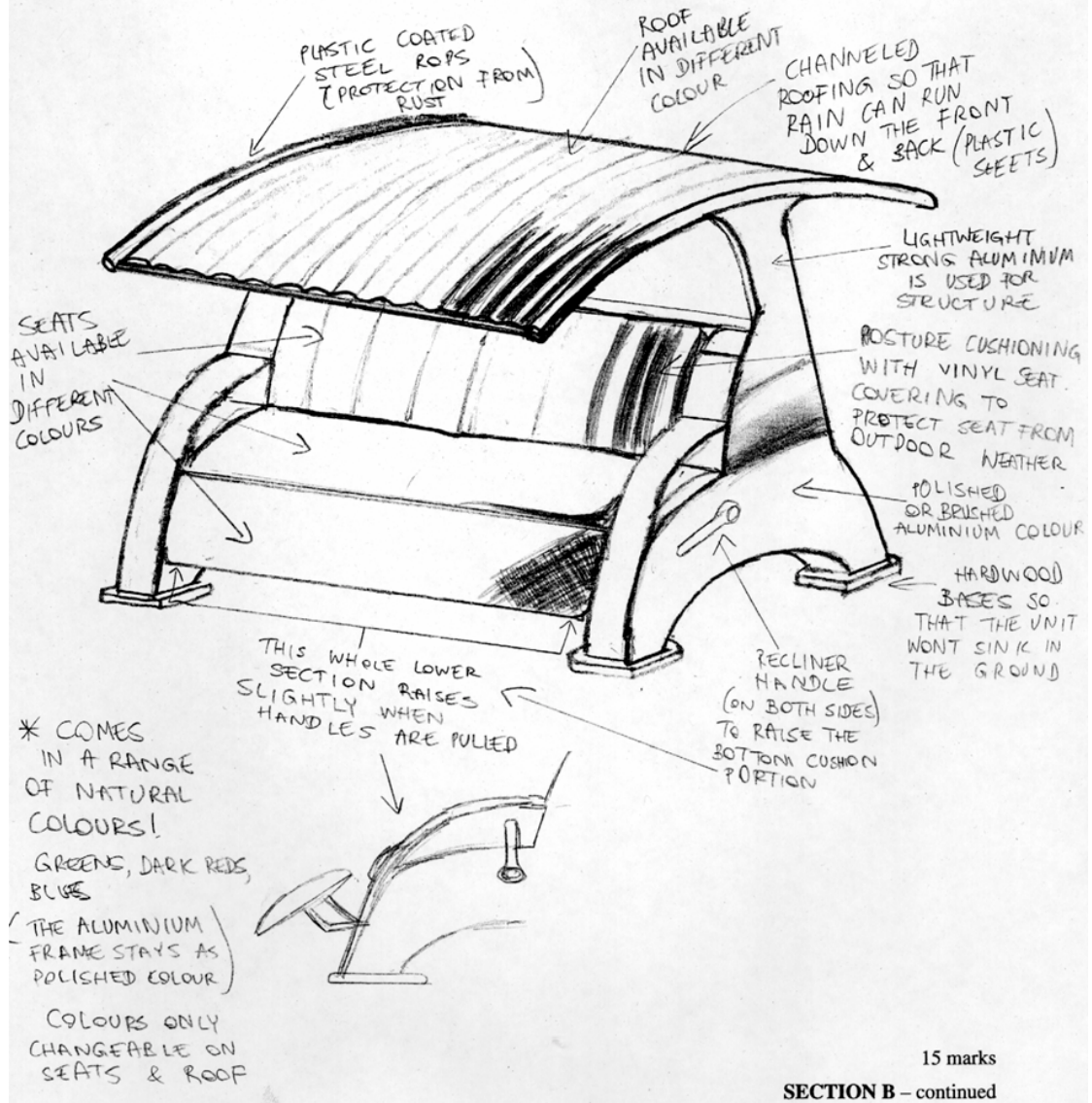
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Question 5

Annotated Design Option

Design your product in the space provided below. You must pay particular attention to the following:

- clarity and detail of drawing 6 marks
- clearly annotated specifications 3 marks
- creativity and aesthetic appeal 3 marks
- a clever/innovative feature. 3 marks



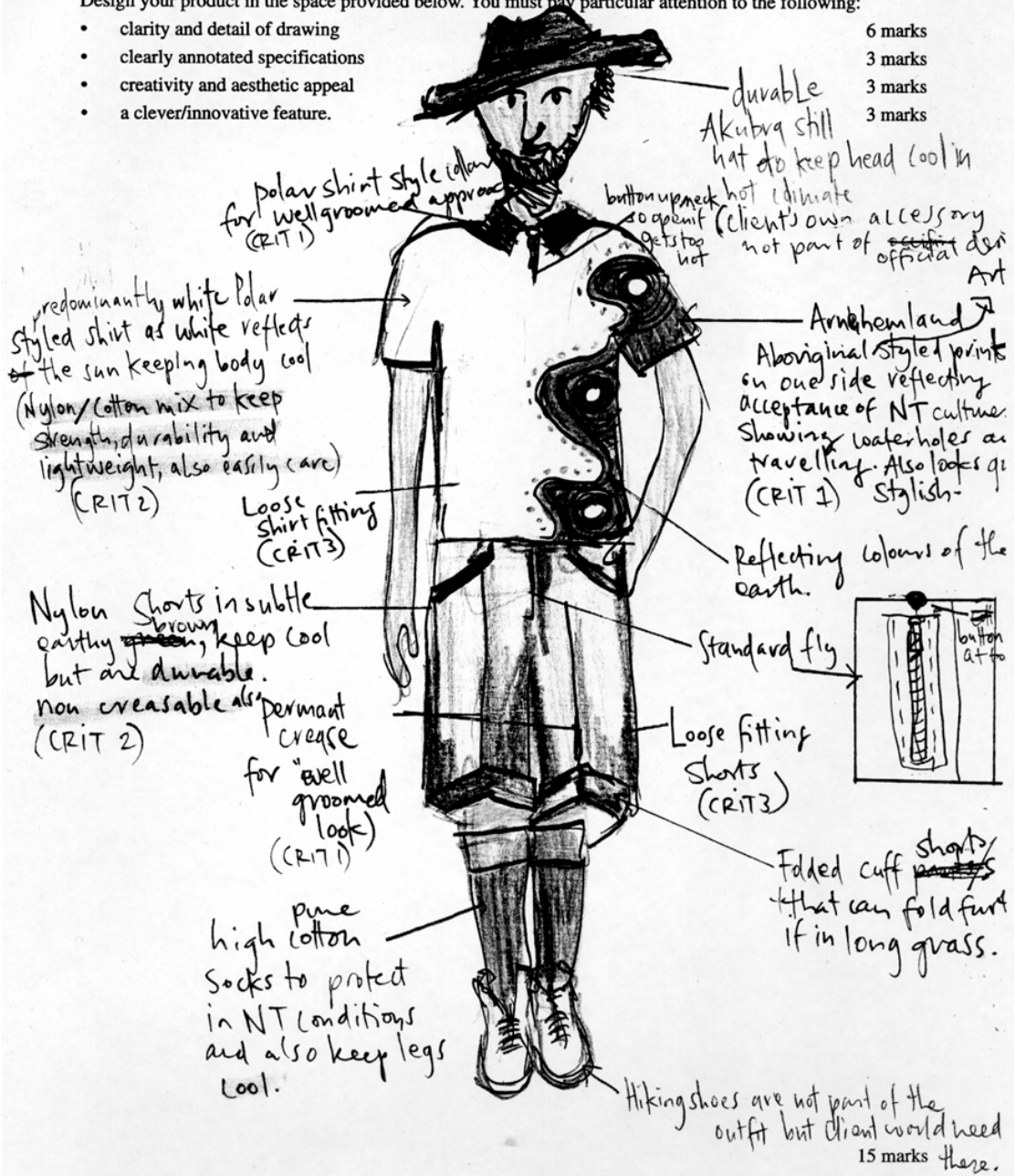
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- a clever/innovative feature.

- 6 marks
- 3 marks
- 3 marks
- 3 marks





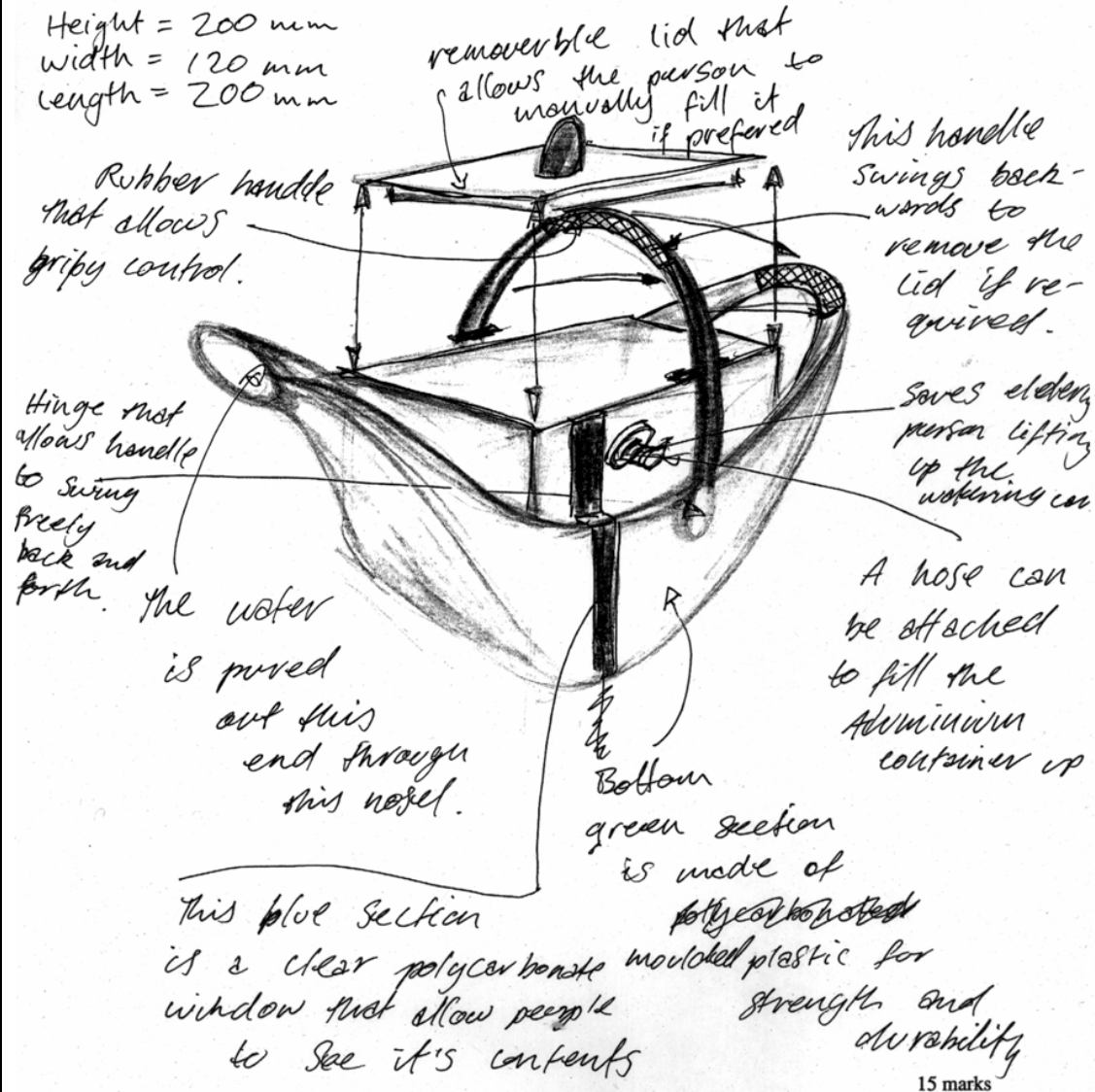
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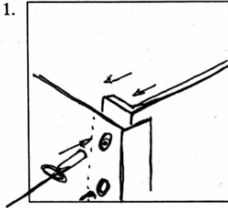
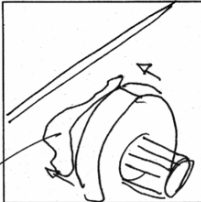
Design your product in the space provided below. You must pay particular attention to the following:

- clarity and detail of drawing 6 marks
- clearly annotated specifications 3 marks
- creativity and aesthetic appeal 3 marks
- a clever/innovative feature. 3 marks

Height = 200 mm  
 width = 120 mm  
 length = 200 mm



15 marks

Question 6		Extension of design option
This question related directly to what the student had drawn and annotated in Question 5.		
<b>i-ii</b>		<b>i</b>
0/4	3	<p>Students should have named specific materials; general terms such as wood and metal were not accepted. Materials that were not appropriate for the design were not awarded marks even if they were annotated in Question 5, for example wool tweed for travelling north or red gum sleepers for a light weight seat.</p> <p><b>ii</b></p> <p>The reasons given for the materials selected had to justify why they were suitable for the product.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>• Aluminium – light and corrosion resistant (holding water)</li> <li>• Rubber – good for helping control the product when full</li> <li>• Polycarbonate (clear) – able to see the contents</li> <li>• Moulded plastic – strong, reliable and good for structure.</li> </ul>
1/4	4	
2/4	17	
3/4	23	
4/4	52	
(Average mark 3.17)		
<b>iii</b>		<b>iii</b>
0/6	17	<p>Generally this question was well done. Drawings of the processes used were usually clear and simple. However, where the processes seemed self explanatory, some students described the process rather than where it would be used.</p> <p>Examples of good student responses:</p> <p><b>iii.</b> Draw two processes that would be used in construction of your design option. Explain where they would be used in the construction of the product.</p> <p>1.  Explain <i>The corner of the aluminium container would be 'pop-riveted' together as shown. It must be drilled with right sized drill bit then insert the rivet into hole and use 'rivet gun' to clamp the two together.</i></p> <p>2.  Explain <i>Attaching the 'hose end' to the aluminium container. Drill the required size hole and glue the hose onto the aluminium panel.</i></p> <p style="text-align: right;">3 + 3 = 6 marks</p>
1/6	3	
2/6	8	
3/6	12	
4/6	17	
5/6	12	
6/6	31	
(Average mark 3.69)		
<b>iv</b>		<b>iv</b>
0/3	6	<p>The intended colour scheme and reasons for use was straight forward and well done by most students.</p>
1/3	15	
2/3	31	
3/3	47	
(Average mark 2.2)		
<b>v</b>		<b>v</b>
0/3	22	<p>The intended finish and reasons for use resulted in two common responses. Some students referred to paint finishes and some to the actual methods of finishing off the product. Both answers were accepted.</p>
1/3	14	
2/3	26	
3/3	38	
(Average mark 1.8)		
<b>vi</b>		<b>vi</b>
0/3	13	<p>Most students were able to state a feature that they considered was clever or innovative although views on cleverness/innovation varied considerably.</p>
1/3	29	
2/3	34	
3/3	24	
(Average mark 1.69)		



<b>Question 7</b> 0/4 1/4 2/4 3/4 4/4 (Average mark 2.35)	8 16 31 23 22	<b>Evaluation</b> Student responses as to how the product would improve quality of life were sympathetic to the needs of the elderly. For full marks students needed to relate their answer to the evaluation criteria questions they had developed in Question 4. Most students responded well to this question.
<b>Question 8</b> 0/8 1/8 2/8 3/8 4/8 5/8 6/8 7/8 8/8 (Average mark 2.66)	33 7 15 8 14 5 9 2 7	<b>Mass production</b> This question tested student's knowledge/understanding of mass production. Many students demonstrated a limited knowledge/understanding of mass production. Some misread the question and listed the P's of marketing. Examples of good student responses: <b>Travel garments</b> Step 1 Work out a cutting layout to use the least amount of material. Purchase material. Step 2 Lay out pattern pieces and cut out fabric. Cut a range of sizes and colours. Step 3 Skilled machinists assemble garments. Step 4 Finishing such as buttonholes, buttons and trims applied. Final quality check and press. <b>Seating</b> Step 1 Materials purchase finalised after determining quantities needed. (Including all secondary materials for example canvas, nails, glue) Step 2 Use skilled workers to cut wood and other materials to correct size. Step 3 Skilled workers assemble construction. Step 4 Finishing completed including attaching canvas, sanding all rough edges and protective estapol finish.
<b>Question 9</b> 0/2 1/2 2/2 (Average mark 0.9)	37 36 27	<b>Checking quality</b> Two methods of checking quality or one well explained quality check were required for full marks. For example: <ul style="list-style-type: none"> <li>• check points at various stages of production, where a particular person checks for flaws or irregularities</li> <li>• teams that check their work continuously during the making of a product.</li> </ul>