

# **Design and Technology**

General Certificate of Secondary Education **A534**

Graphics: Technical Aspects of Designing and Making

## **Mark Scheme for June 2010**

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Question		Expected Answers	Rationale	Marks
1	a	Light shading (1) Medium shading (1) Dark shading (1) Ignore shadows	Accept very simple shading for this opening question. The three tones must be clearly visible if the maximum mark is to be awarded. One surface left un-shaded – maximum 2 marks. Majority of surface must be shaded.	3
1	b	Colour - white, red, yellow... (1) Size - A0 to A5 or a specific size such as 297mm x 210mm (1) Weight - 80 to 120gsm (accept g) (1)	Accept any colours other than black.  Only accept answers that identify a recognised standard size of paper (allow a 2mm tolerance).  Do not accept answers that just give 80.	3
1	c	The ink will change colour (1) When the temperature changes (1)	This answer requires two aspects in any order within the candidate's response. The two aspects are: 1. What the ink will be (change of colour). 2. Why the change will take place (change in temperature).	2
1	d	Varnish (or UV varnish) (1) Embossed (1)	The following finishes are stated in the specification: laminating; spirit varnish; ultra violet (UV) lacquer; embossing; foil application. Do not accept paint.	2
1	e	Place in a collection bin (1) Paper will then be recycled (1)	The two aspects for this answer are making arrangements for the collection or delivery of the paper and then what will happen to the paper. For example, place in a compost bin (1) and then the paper decomposes for use on the garden (1).	2
<b>Total</b>				<b>12</b>

Question		Expected Answers	Rationale	Marks
2	a	<p><b>Projection symbol</b>            Correct shape (side view of truncated cone) (1)            Correct position, size and orientation (1)</p> <p><b>End view</b>            Missing wall added (1)            Missing roof added (1)</p> <p><b>Front view</b>            Two vertical lines - correct height and position (gables) (1)            Two horizontal lines - correct length and position (ridge and wall plate) (1)</p>	Freehand or accurate lines are acceptable. Do not mark to a tolerance. Allow a 'hipped' roof if it matches the end view. End view must have a horizontal line.	6
2	b	1:100 ticked (✓) or clearly identified (1)	The question asks candidates to tick (✓) the correct answer. Other methods of identification can be allowed (cross, circle ... ). Do not award marks if two or more boxes have been identified.	1
2	c	See what the house looks like before it is built (1) Promote the sale of the house/display in an estate agents Check out things/proportions	Accept very simple answers for this question as long as they show some understanding of why a model might be made rather than the actual object.	1
2	d	Solvents will melt the polystyrene (foam board) (1)	Make sure that the answer specifically states that some adhesives will melt the polystyrene. Do not accept answers that relate to solvent abuse.	1
2	e	Check how well it works To check it is suitable	Make sure that the answer refers to testing to check that the adhesive is suitable/appropriate for the material. If answer is a repeat of 2d - to check if it melts the polystyrene – award the mark.	1
2	f	Cut part way/scored through (1) 'Vee' channel cut (1)	Do not award the second mark if candidates have not clearly shown how the folded roof could be made from one piece of material without joining.	2
<b>Total</b>				<b>12</b>

Question		Expected Answers	Rationale	Marks
3	a	Rectangle or oblong (1) Equilateral triangle (1)	There are no other acceptable answers for this question.	2
3	b	Font type (1) Text colour (1) Font size (1) Font style (1) Max (2)	This question does not specifically say that the text is selected at a computer screen but the majority of candidates will answer the question from this perspective. Typical answers will focus on font type, style, size or colour.	2
3	c	Durable/waterproof/tough (1) Lightweight (1) Easy to fix (1)	Other acceptable answers are reasonably lightweight or easy to fix to a post/wall. Do not accept available in a wide range of colours, easy to print on or cheap.	1
3	d	Screen printing or digital printing (1)	There are no other acceptable answers for this question within the scope of the specification. Do not accept letterpress or lithography. Do not accept vinyl cutting.	1
3	e	<p><b>Level 1 (0-2 marks)</b> Discussion shows limited understanding of the implications of copyright. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised. Errors of grammar, punctuation and spelling may be intrusive.</p> <p><b>Level 2 (3-4 marks)</b> Discussion shows some understanding of the implications, for the estate agency and/or customers, of protecting the design by copyright. There will be some use of specialist terms, although these may not always be used appropriately. Information will be presented for the most part in a structured format. There may be occasional errors in spelling, grammar and punctuation.</p> <p><b>Level 3 (5-6 marks)</b> Discussion shows a thorough understanding of the Customer implications, for the estate agency and/or customers, of protecting the design by copyright. Specialist terms will be used appropriately and</p>	<p>Copyright protects creative or artistic works. You can only copy or use a copyrighted work with the copyright owner's permission. You can copyright:</p> <ul style="list-style-type: none"> <li>• instruction manuals, computer programs and song lyrics</li> <li>• photographs, technical drawings, diagrams and logos</li> <li>• layouts used to publish work</li> </ul> <p>Discussion could include:</p> <p>Estate agency</p> <ul style="list-style-type: none"> <li>• can help create trust in a 'brand'</li> <li>• easily recognisable</li> <li>• copyright gives ownership of the image to the estate agency</li> <li>• prevents image being used by competitors</li> <li>• allows a strong corporate image to be developed</li> <li>• can be used on a range of other products</li> </ul>	

Question			Expected Answers	Rationale	Marks
			correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.		6
				<b>Total</b>	<b>12</b>

Question		Expected Answers	Rationale	Marks
4	a	To provide information on houses (1) To promote the estate agency (1) To sell houses (1)	The specification states: Establish the function of commercially manufactured graphics materials products; determine what the product was designed to do. Accept answers that describe functions of a brochure but most candidates may well focus on either the 'information' or 'promotion' aspect.	2
4	b	Pie chart (1) Bar chart (1)	The specification states: Be able to translate or transpose written data into a visual form. Acceptable answers include graphs, pie charts, bar charts, pictographs and histogram. Do not accept spreadsheets or charts.	2
4	c	Fold shown in the shape of the brochure (1) Suitable design/shape for the mechanism/house (1) Method of attachment to the brochure shown (could be cut from backing card) (1) Fully functioning mechanical system (1)	The specification states: Select appropriate levers, linkages and rotating discs to design mechanisms that bring about required changes of movement; Pop-up Systems - based on V-fold mechanisms; multiple layers (parallelogram) mechanisms. Solutions that use any of these methods are acceptable. Accept 'springs'.	4
4	d	Website address (1) So that people can look at what the estate agency has to offer in the comfort of their home (1)  Mobius loop (1) Made from recycled materials (ignore quantity) or the company is environmentally friendly (1)	Accept reasonable variations on these answers.  Do not accept answers that indicate the product can be recycled.	4
<b>Total</b>				<b>12</b>

Question		Expected Answers	Rationale	Marks
5	a	<p>There are clearly five pieces of sheet material (thickness indicated) used in the design for the puzzle (1)</p> <p>The pieces 'fit' together to form a hexagon (1)</p> <p>The five pieces 'lock together' (1)</p> <p>The word 'Smith' is shown (1)</p> <p>The word 'Smith' is visible when the puzzle is fully assembled (letter on each piece) (1)</p> <p>A temporary method, such as a magnetic strip, is shown for fastening the puzzle to a fridge (1)</p>	<p>Indication that the material used is Styrofoam is not required for the mark.</p> <p>'Fit' means they come together without gaps.</p> <p>'Lock together' means they join in a temporary way and will not fall apart.</p> <p>This could simply be written on one piece of the puzzle.</p> <p>This mark is only awarded if the word 'Smith' is only visible when the puzzle is fully assembled. E.g. one letter on each piece of the puzzle.</p> <p>Method must be clearly shown with sketches and notes. Do not accept permanent methods, such as glue.</p>	6
5	b	<p><b>Level 1 (0-2 marks)</b> Explanation shows limited understanding of quality of design and quality of manufacture. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised. Errors of grammar, punctuation and spelling may be intrusive.</p> <p><b>Level 2 (3-4 marks)</b> Explanation shows some understanding of the differences between quality of design and quality of manufacture. There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured format. There may be occasional errors in spelling, grammar and punctuation</p> <p><b>Level 3 (5-6 marks)</b> Explanation shows a thorough understanding of the differences between quality of design and quality of manufacture and illustrates this understanding. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.</p>	<p>Explanation should focus on:</p> <p><b>Quality of design</b> There is an element of user perception in making judgements about the quality of a design but all quality designs must:</p> <ul style="list-style-type: none"> <li>• ...function as intended</li> <li>• ...be aesthetically pleasing</li> <li>• ...have user appeal</li> <li>• ...be sustainable</li> </ul> <p><b>Quality of manufacture</b> The four main features that define quality of manufacture are:</p> <ul style="list-style-type: none"> <li>• appropriate material selection</li> <li>• appropriate manufacturing methods</li> <li>• high quality surface finish</li> <li>• well fitting components</li> </ul> <p>The combination of quality of design and quality of manufacture does not always result in a quality product. For example a product can be:</p> <ul style="list-style-type: none"> <li>• a poor design that is made badly</li> <li>• a poor design that is made well</li> <li>• a good design that is made badly</li> </ul> <p>A product can only be a quality product if it is good design that is made to a high standard.</p>	6
			<b>Total</b>	<b>12</b>



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