

# **Design and Technology**

General Certificate of Secondary Education

Unit **A534**: Graphics: Technical Aspects of Designing and Making

## **Mark Scheme for January 2013**

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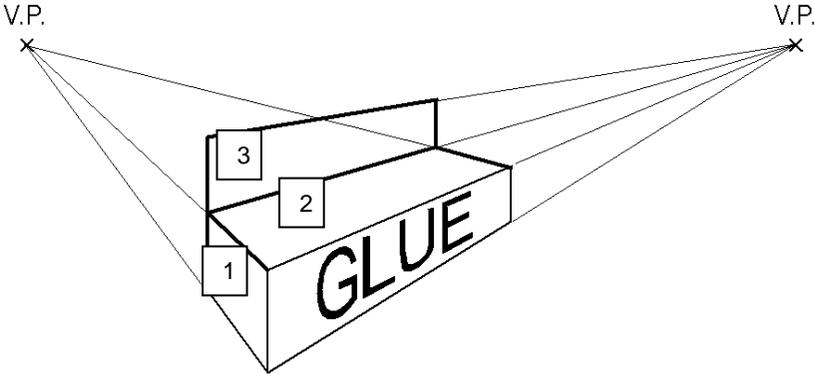
This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

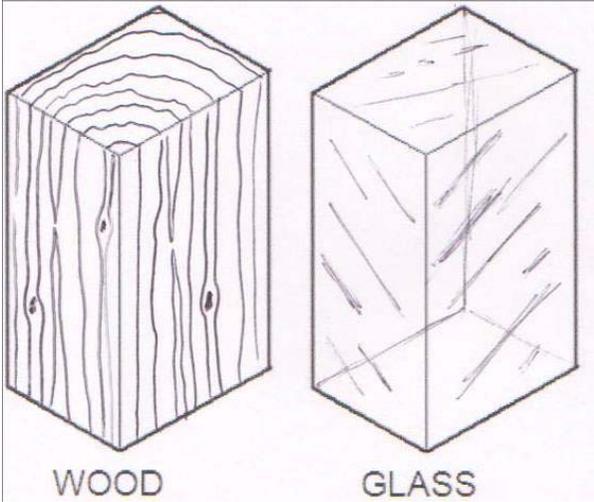
All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

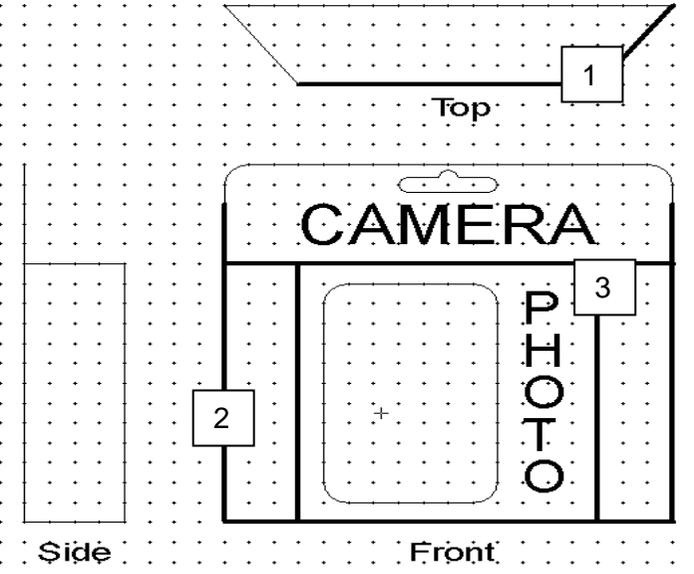
Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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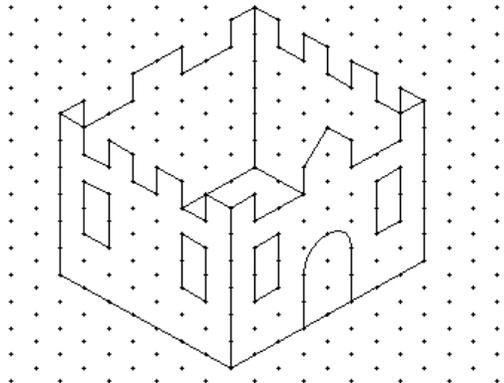
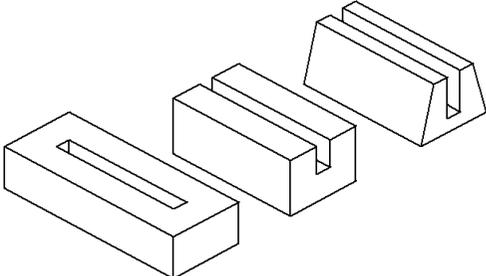
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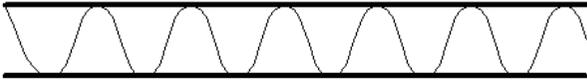
Question	Answer	Mark	Guidance
1 (a)	<p>To prevent tube of glue from being opened / squashed/ squeezed/ damaged / pierced To protect it OR To make it easier to stand up on shelf / easier to see by customer/easier to display/present the product better</p> <p>Award one mark for naming any of the above reasons.</p>	1	<p><b>Do not accept:</b></p> <ul style="list-style-type: none"> <li>• Easier to carry, easier to stack etc.</li> <li>• Answers relating to making it more attractive</li> <li>• More space for warnings/instructions</li> <li>• Easier to handle / easier to scan at till</li> <li>• Safer</li> </ul> <p>or any other answers.</p>
(b)	<p>The three aspects to this answer are:</p> <p>1. Side completed correctly [1] 2. Top surface completed correctly [1] 3. Back face completed correctly [1]</p> 	3	<p>Award marks for freehand or accurate drawings that clearly show lines going towards vanishing points.</p> <p>For mark to be awarded the lines must go towards the vanishing points and not be parallel.</p>
(c) (i)	Toxic / Poisonous / Poison [1]	2	<p>These are the only correct answers. Do not accept toxic for (cii) eg. toxic to the environment</p>
(ii)	Dangerous / Harmful / Hazardous to the environment [1]		
(d)	Wear gloves, wear mask, wear goggles/eye protection, work in well ventilated area, wear barrier cream	2	Award 1 mark for each correct answer

Question	Answer	Mark	Guidance
(e)		4	<p>Wood: Award 1 mark for grain lines shown on at least two sides of the block</p> <p>Award second mark for vertical lines on 2 sides (going same direction) to show grain of wood, <b>and</b> end grain shown on end. End grain can be on any side so long as it is at the end of the grain lines.</p> <p>Glass: Award 1 mark for rear edges of the block shown (through the glass)</p> <p>Award 1 mark for <b>diagonal</b> lines in one direction only on each face (across the isometric) to show shine. Spacing of lines should be as shown opposite, do not accept 'shading'. OR Award 1 mark for surface lightly shaded and areas erased to suggest reflections</p>

Question	Answer	Mark	Guidance
<p>2 (a)</p>	<p>The three aspects to this answer are:</p> <ol style="list-style-type: none"> <li>1. Top view completed correctly [1]</li> <li>2. Outline of front view completed correctly [1]</li> <li>3. Inside detail on front view completed correctly [1]</li> </ol> 	<p>3</p>	<p>Award marks for freehand or accurate drawings that are within 2mm of lines.</p>
<p>(b)</p>	<p>easy to cut, lightweight, wipe clean/ waterproof.</p>	<p>1</p>	<p>Do not accept clear or transparent as this is already given. Do not accept answers such as strong, thin, cheap unless qualified.</p>
<p>(c)</p>	<p>The two main aspects to this answer are:</p> <ol style="list-style-type: none"> <li>1. Sheet cut slightly larger than the aperture [1]</li> <li>2. Glued to the <b>inside</b> of the box using a suitable adhesive [1]</li> </ol>	<p>2</p>	<p>Sketches and notes show that:</p> <p>The acetate is cut <b>larger than the hole</b></p> <p>Glued <b>inside</b>.</p>

Question		Answer	Mark	Guidance	
2	(d*)			Content	Levels of response
		<p>The discussion should focus on the different ways digital images such as photographs can be manipulated on screen to alter their appearance.</p> <p>Key factors to be discussed:</p> <ul style="list-style-type: none"> <li>• Understanding of some different graphics software packages.</li> <li>• Understanding of some typical commands such as: copy/stretch/recolour/rotate/mirror/crop/lighten/ darken.</li> <li>• Explanation of how images can be manipulated and how this affects their appearance.</li> <li>• Suitability/uses of different types of manipulation</li> <li>• Issues affecting quality of the image when printed.</li> <li>• Use of examples to support explanations.</li> </ul> <p>(Note: maximum mark of 2 for a list)</p>	<p><b>Level 3 (5-6 marks)</b></p> <p><b>Level 2 (3-4 marks)</b></p> <p><b>Level 1 (1-2 marks)</b></p> <p><b>Below Threshold (0)</b></p>		<p>Thorough discussion, showing detailed understanding of the different packages, commands and ways they can be used to manipulate images including their suitability. 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>Discussion identifies and discusses some of the factors /shows some understanding of the different packages, commands or ways they can be used to manipulate images. 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>Discussion shows limited understanding of any of the different packages, commands or ways they can be used to manipulate images. 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>

Question	Answer	Mark	Guidance
3 (a)		4	<p>Award 1 mark for each correctly completed face.</p> <p>Windows must be shown on the two front faces to get the mark.</p> <p>If one side is too long/short do not double penalise if the opposite side is also drawn the same.</p>
	(b) Die Cutting	1	This is the only correct answer.
	(c) Make them waterproof , less easy to tear / less likely to bend / last longer / more durable / more attractive/glossy / easy to wipe clean / more hygienic /protect from damage / slide off each other	2	Do not accept answers such as strong unless qualified.
	(d) The two aspects to this answer are: The use of plastic film with adhesive on a roll or a pouch to cover <b>both</b> sides of the card. This is then heated which melts the glue on the inside of the film and passed through rollers which presses the material together and seals the edges.	1  1	Award first mark for stating use of adhesive film / pouch/ wallet/ sleeve on <b>BOTH</b> sides  Award second mark for stating that <b>HEAT AND PRESSURE</b> are then applied to seal the plastic.
	(e) (i) 	2	<p>Sketches and notes show a design for a stand that:</p> <p>Is made from Styrofoam [1] Will hold the card in an upright position (without the use of glue). [1] Expected answers are a block of Styrofoam with a slot of some kind in the top to put the card into.</p> <p>Some examples shown opposite</p>
	(ii) Craft knife, hot wire cutter, hacksaw (or other fine toothed saw), file, sandpaper, sander, CNC milling machine, Stanley knife, scalpel.	1	Award mark for naming one suitable tool. Do not accept: laser cutter, chisel, knife, saw, or any other tool.

Question		Answer	Mark	Guidance
4	(a)	High strength to weight ratio, good insulation properties, keeps pizza hot, crush resistant/shock absorbent to protect pizza in transport, high impact strength, doesn't bend easily.  Any of the above.	1	Do not accept answers such as strong, light, cheap, rigid, unless qualified.  Do not accept answers which relate to recyclability.
	(b)		1	This is the only correct answer One continuous curved line. Not zig-zag /pointed.
	(c)	Less storage space needed, Easier to store, More can be transported at a time, less likely to get damaged. Saves on transportation costs. Easier to stack.	2	Award one mark for each reason Do not accept answers which relate to recyclability.
	(d)	<ul style="list-style-type: none"> <li>- It is instantly recognisable as a pizza sign / shaped like a slice of pizza / more distinctive design /image is clearer / more eye catching</li> <li>- Writing is clearer/ bigger</li> <li>- Less fine detail / simpler and cleaner design</li> </ul>	2	Award one mark for each valid reason.

Question		Answer	Mark	Guidance	
4	(e*)			Content	Levels of response
		<p>Key points:</p> <p><b>Importance to Consumer</b></p> <ul style="list-style-type: none"> <li>• Consumers can instantly recognise products.</li> <li>• Makes finding in shop easier.</li> <li>• Consumer assured of product quality</li> </ul> <p><b>Importance to Company</b></p> <ul style="list-style-type: none"> <li>• Symbols/logos/colours can be recognised by all nationalities/countries.</li> <li>• Company can reach a wider audience.</li> <li>• Easier to expand business.</li> <li>• Consumers associate quality of brand and will more likely to buy other products.</li> </ul> <p>(Note: maximum mark of 2 for a list)</p>	<p><b>Level 3 (5-6 marks)</b></p> <p><b>Level 2 (3-4 marks)</b></p> <p><b>Level 1 (1-2 marks)</b></p> <p><b>Below Threshold (0)</b></p>		<p>Thorough explanation, showing detailed understanding of the importance of product branding/logos and symbols to both the company and consumer. 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 shows some understanding of the importance of product branding/logos and symbols to both the company and consumer. 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>Explanation shows limited understanding of the importance of product branding/logos and symbols to both the company and consumer. 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>

Question		Answer	Mark	Guidance
5	(a)	<p>A lightweight graphic material (card, paper, foamboard, corrugated card, corriflute, polypropylene etc) is specified for the design [1]</p> <p>Design displays a £ sign and four numbers [1]</p> <p>Design clearly shows a method of changing the individual numbers quickly and easily. [1]</p> <p>Innovative/inventive method of changing price [1]</p> <p>Design can hang from the rear view mirror of the car. [1-2]</p>	6	<p>Tick (✓) to indicate where a mark has been awarded.</p> <p>Award one mark for each of the four points opposite.</p> <p>Award 1 mark for a simple hanger design eg. Hole with string or wire through it.</p> <p>Award 2 marks for hanger design which is 'integral' to the sign and can be easily fitted/removed.</p>
	(b)	(i)	2	<p>Waterproof/weatherproof, lightweight, rigid</p> <p>Any two of the above answers</p> <p>Do not accept answers relating to strength (strong, tough, durable etc.) unless qualified. eg. Stronger than card but still lightweight.</p> <p>Do not accept answers relating to cost or environmentally friendly issues. eg. Cheap, easy to recycle etc.</p>
	(b)	(ii)	1	<p>Corrugated polypropylene (Corriflute or other trade name).</p> <p>This is the only correct answer</p>
	(c)	<p>There are 3 aspects to this answer:</p> <p>Lettering produced on screen using appropriate CAD program</p> <p>CAM equipment loaded with vinyl, centred and set up. Design placed correctly on screen for vinyl.</p> <p>Lettering cut out on appropriate CAM equipment (laser cutter, vinyl cutter etc)</p>	<p>1</p> <p>1</p> <p>1</p>	<p>Accept trade names for CAD programs and CAM equipment providing they are appropriate.</p> <p>eg. 2D Design, Verso, CAMM 1, Stika etc.</p>
	(d)	<p>The back of the lettering has glue already on it / additional glue is not needed to stick them on / sticks on it's own /sticks without glue</p>	1	<p>Answers must relate to the letters already having glue on them so no additional adhesive is required.</p>

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