



**GCSE**

## **Design and Technology Graphics**

Unit **A535**: Sustainability and technical aspects of designing and making

General Certificate of Secondary Education

**Mark Scheme for June 2015**

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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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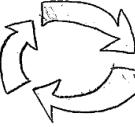
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**Annotations**

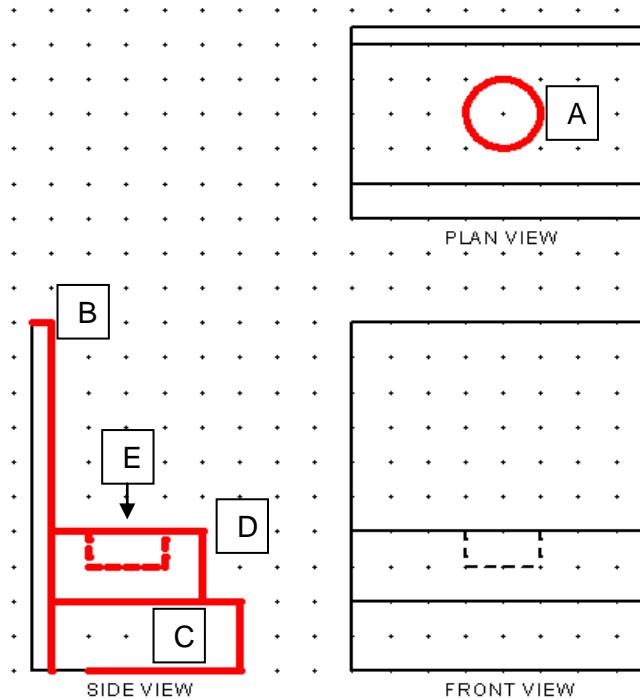
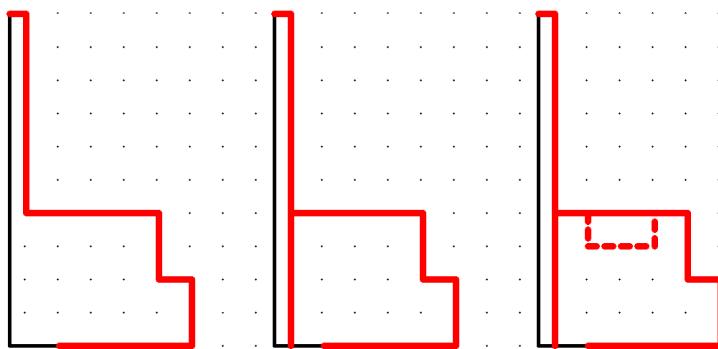
Annotation	Meaning
Green tick	Use for all correct answers and to show where marks are awarded
L1, L2, L3	Use to show the level of response in 16d, and 18f

Question		Answer	Marks	Guidance
1		(b) Globalisation	1	These are the only acceptable answers. No mark awarded if more than one answer ringed or if a candidate's response is not clear. Accept any other method of indicating response eg. tick
2		(d) Ear protection must be worn	1	
3		(c) It should be thrown away	1	
4		(d) Anthropometrics	1	
5		(c) Plant matter	1	
6		The company has made a <b>financial</b> contribution to recycling	1	Must relate to finance/money/payment.
7		COSHH, Control of Substances Harmful to Health	1	These are the only acceptable answers
8		Repair	1	This is the only acceptable answer. Note - only accept a single answer not multiple answers even though one might be correct
9		Produce less fumes, they are sustainable, come from renewable sources, Ink can be removed easily, can be recycled easily, less toxic, causes less damage to ozone	1	Do not accept - Good to the environment or environmentally friendly – too vague
10		Aesthetics	1	This is the only acceptable answer. Note - only accept a single answer not multiple answers even though one might be correct
11		True	1	These are the only acceptable answers. Only one answer should be ticked. If candidate ticks/marks both answers award zero.
12		False	1	
13		True	1	
14		True	1	
15		False	1	
		Total	15	

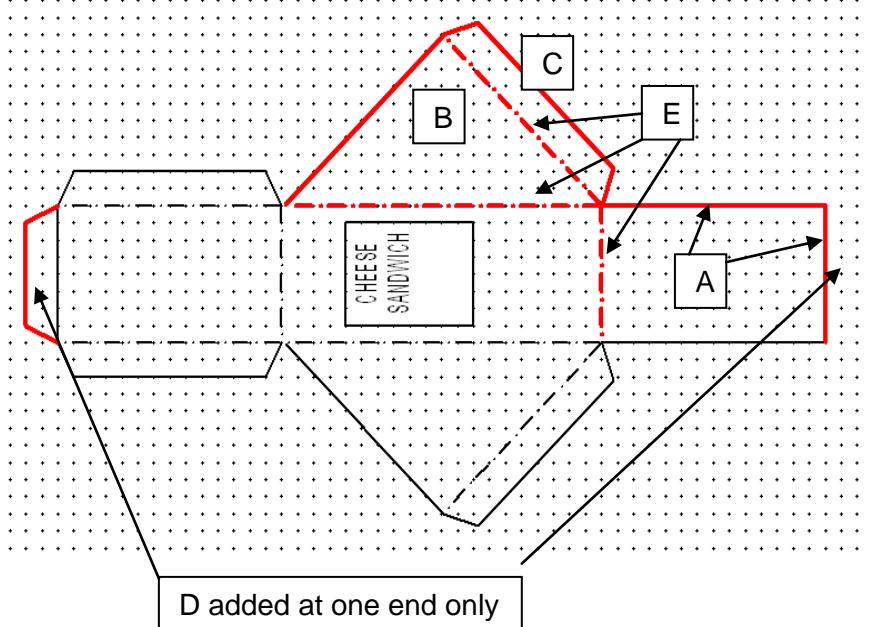
Question		Answer	Marks	Guidance
16	(a)	To promote/advertise the film Information about the film Name of the film Give the release date State who the actors/actresses are Show what the film is about Whether the film has been nominated or won awards Where the film is being shown Attract people to the cinema to watch the film Show the age rating/certification of the film Name of the studio	2	Answer must relate to the function of the poster  Be careful not to credit repeat answers
	(b) i	Paper, thin card	1	These are the only acceptable answers. Accept paper even if justified e,g, cartridge, glossy, weight up to 120gsm / thickness up to 250 micron. Not laminated. <b>Do not accept 'Cardboard' or 'Card' on its own</b>
	(b) ii	Can be recycled/ can biodegrade/ made from recycled material	1	Accept suitable named environmental benefits. Do not accept answers relating to performance characteristics eg. can be cut/folded/printed onto
	(c)	The <b>carbon footprint</b> of the poster will be greatly increased because of the <b>distance it has to travel</b> being shipped worldwide	2	Look for two aspects to this answer:  1. Carbon footprint/Co2 emissions  2. Because the poster is manufactured in one country and shipped to other countries / extra distance travelled / more/multiple vehicles needed to transport/ increased transport = increased emissions produced

Question		Answer	Marks	Guidance
(d)		<p>Symbol shows 3 arrows going in the same direction (can be single lines and/or arrowhead pointing counterclockwise) – 1 mark</p> <p>Accurate symbol, arrows must go clockwise, be triangular, go round bend and have thickness to the arrows – 2 marks</p>	2	   
(e)		Because once the film has finished showing the poster is taken down and is not needed anymore	2	<p>Do not accept: It lasts for a limited time/ It has a limited lifetime unless qualified</p> <p>Look for two aspects to this answer;</p> <ol style="list-style-type: none"> <li>1. The film has finished</li> <li>2. The poster is not needed anymore</li> </ol>
(f)		<p>Used as a poster on a bedroom wall</p> <p>Sold on ebay</p> <p>Given to a charity shop</p> <p>Kept by a collector</p> <p>Framed as a picture</p> <p>Given as a gift</p> <p>Used as decoration</p> <p>Send to another country to advertise the same film</p>	2	Do not accept answers relating to the cutting up of the poster or using it for a completely different purpose e.g writing on the back of it
(g)		<p>You could get rid of the poster and have a digital or video display outside the cinema; this would reduce the need for printing.</p> <p>The movie trailer could be sent viral using social networking sites, this could be worldwide advertising.</p> <p>A text message could be sent out giving details of the film.</p> <p>Popup advertising on the internet</p> <p>TV advertising shown at appropriate times/channel for target audience</p> <p>Downloadable Apps advertised in other apps or on social media</p> <p>Electronic Billboard shown outside a football ground</p>	2	<p>Accept variations</p> <p>Up to 2 marks for one well explained answer e.g a clip of the film shown on an electronic billboard outside the cinema</p> <p>Or</p> <p>2 marks for 2 workable ideas</p>

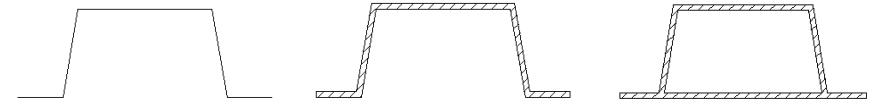
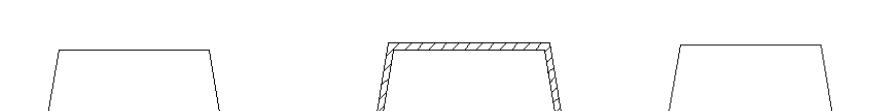
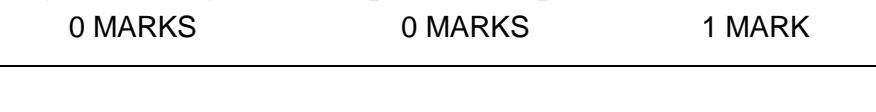
Question		Answer	Marks	Guidance
(h)		<p>Read through candidates answer decide on the level of response, then decide whether it just meets that level or clearly meets that level.</p> <p><b>Maximum of 2 marks for a list of separate points</b></p> <p>Points to consider;</p> <ul style="list-style-type: none"> <li>• We live in a society where we often throw away products that we no longer need or want rather than repairing the product</li> <li>• Throwing products away can cause an increase in landfill which is depleting our planets resources</li> <li>• Some products are designed to be thrown away 'planned obsolescence' or 'built in obsolescence'</li> <li>• The speed of improvements in modern technology often mean that electronic products such as televisions, computers and mobile phones are out of date almost as soon as they are available to buy.</li> <li>• The term 'throwaway society' has a negative meaning</li> <li>• Manufacturers can help by producing goods that can be mended after use or by producing products that can be recycled as much as possible after use.</li> <li>• Consumers should be encouraged to not just throwaway products they no longer need or want, they should try to repair or recycle. They should try to give unwanted products to charity shops, sell on ebay or at a carboot sale.</li> <li>• Manufacturers should try to reduce excessive and unnecessary packaging.</li> <li>• Manufacturers have a responsibility to encourage consumers to recycle</li> </ul>	<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>0</b></p>	<p><b>Thorough discussion</b>, showing clear understanding of the issues of a throwaway society and what consumers <b>and</b> manufacturers can do to alleviate this. Can provide clear identification of the issues <b>with examples</b>. <b>Specialist terms</b> will be used <b>appropriately and correctly</b>. The information will be presented in a <b>structured</b> format. The candidate will demonstrate the <b>accurate</b> use of spelling, punctuation and grammar.</p> <p><b>Adequate discussion</b>, showing an understanding of the issues of a throwaway society and what consumers and/or manufacturers can do to alleviate this. Can provide a <b>reasonable discussion</b> of the issues <b>with some examples</b>. There will be <b>some</b> use of <b>specialist terms</b>, although these may not always be used appropriately. The information presented will be for the most part in a <b>structured</b> format. There may be <b>occasional</b> errors in spelling, grammar and punctuation.</p> <p><b>Basic discussion</b>, showing some understanding of the issues of a throwaway society and what consumers or manufacturers can do to alleviate this. Can provide a limited discussion of some of the issues. There will be <b>little or no</b> use of <b>specialist terms</b>. Answers may be <b>ambiguous</b> or <b>disorganised</b> or '<b>list like</b>'. <b>Errors</b> of grammar, punctuation and spelling may be intrusive.</p> <p><b>Response worthy of no credit</b></p>
		<b>Total</b>	<b>20</b>	

Question		Answer	Mark	Guidance
17	(a)	 <p>Look for accuracy of lines (approx. 1/4 of a square)</p>	1 1 1 1 1	<p>Hole in plan completed correctly – (A)</p> <p>Backboard completed correctly on side view – (B)</p> <p>Bottom block completed correctly on side view – (C)</p> <p>Top block outline completed correctly on side view – (D)</p> <p>Hidden detail completed correctly on side view – (E)</p> <p>On side view do not double penalise e.g. If part C is too big, but part D is drawn 1 square smaller, award mark for part D</p> 
17	(b)	To make the POS easier to send by post/courier, to stop it getting damaged in transit, so more can be transported at the same time, takes up less storage space, flat pack delivery.	1	Award one mark for any of the answers shown opposite

Question		Answer	Marks	Guidance
17	(c)	<p><u>Marking out the sizes of the blocks:</u> Pencil, pen, marker, felt pen, scribe, ruler, try square, tape measure</p> <p><u>Cutting the blocks to size:</u> Hot wire cutter, tenon saw, band saw, hacksaw</p> <p><u>Smoothing the finish of the blocks:</u> Sandpaper, abrasive paper, wet n dry, sanding block, Disc sander, belt sander, finisher</p> <p><u>Joining the blocks together:</u> PVA glue, double sided tape</p>	1 1 1 1	<p>Award one mark for any of the answers shown opposite</p> <p>Award one mark for any of the answers shown opposite. Do not accept: craft knife, Stanley knife, scalpel or other knife or coping saw or laser cutter or saw on its own</p> <p>Award one mark for any of the answers shown opposite. These are the only acceptable answers</p> <p>Award one mark for any of the answers shown opposite.</p> <p>Do not accept any solvent based glues eg. Super glue, araldite etc. Or hot glue.</p> <p>Do not accept 'glue', 'adhesive' on their own.</p>
17	(d)	Digital Printing / screen printing	1	This is the only acceptable answer
17	(e)	<p><u>Thermochromic inks:</u> The colour of the ink changes according to the temperature</p> <p><u>Phosphorescent inks:</u> The ink absorbs light then gives off light (glows) in the dark</p>	2 2	<p>Award 1 mark for stating the colour of the ink changes</p> <p>Award 1 mark for stating it reacts to temperature</p> <p>Award 1 mark for stating the ink absorbs light</p> <p>Award 1 mark for stating it glows in the dark</p>

Question	Answer	Mark	Guidance
18 (a)	 <p>The diagram shows a sandwich package on a dotted grid. A dashed line labeled 'A' indicates the base fold. A dashed line labeled 'B' indicates a side fold. A dashed line labeled 'C' indicates a flap fold. A dashed line labeled 'D' indicates a flap fold at one end. A dashed line labeled 'E' indicates three fold lines on the side of the package. A box labeled 'CHEESE SANDWICH' is inside the package.</p> <p>D added at one end only</p>	1 1 1 1 1	Base of package added correctly, two lines added (A) Side of package added correctly (B) Flap added correctly (C) Flap added on <b>ONE</b> end (D) (award no marks if added to both ends) <b>Three</b> fold lines (E) correctly drawn and shown as dotted/dashed lines.
18 (b)	<p>Easy to cut to shape, easy to fold, easy to print onto/write on, can be recycled,  Can be flat-packed for easy storage, transport and disposal  Comes from a sustainable source.</p>	2	Any two of those shown opposite Do not accept; reused, light, eco friendly, easy to open Cheap, answers relating to cost unless qualified. Do not credit repeat answers
18 (c)	Die Cutter	1	This is the only correct answer
18 (d)	The finish is dull / not shiny / not glossy / does not reflect light	1	Award one mark for any of the answers shown opposite.

Question	Answer	Marks	Guidance
18 (e*)	<p>The discussion should focus on different manufacturing methods used, the reasons for the method used and the possible benefits and possible drawbacks of each.</p> <p>Key factors to be discussed:</p> <ul style="list-style-type: none"> <li>• The differences between the materials used for each and how they are produced.</li> <li>• The differences in the way the products would be cut and formed to their shape.</li> <li>• The different kinds of CAD and CAM equipment used in the manufacture.</li> <li>• The amount of manual labour or workforce used to manufacture the product.</li> <li>• The different ways of applying surface graphics to the packages.</li> <li>• The amount of waste materials produced in the manufacture of the products.</li> <li>• Comparisons between the cost of manufacturing the products.</li> </ul>	<p>Level 3 (5-6 marks)</p> <p>Level 2 (3-4 marks)</p> <p>Level 1 (1-2 marks)</p> <p>0</p>	<p>Thorough discussion, showing detailed understanding of the different manufacturing methods, reasons for its use and the possible benefits and drawbacks of each. 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 shows some understanding of the different manufacturing methods, reasons for its use and a possible benefit or drawback of each. 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 the different manufacturing methods, reasons for its use or a possible benefit/ drawback of each. 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>Response worthy of no credit</b></p>
	<p><b>Total</b></p>	<p><b>15</b></p>	

Question		Answer	Mark	Guidance
19	(a)	<p>Name : Euroslot</p> <p>Purpose: To allow the pack to be hung up to allow pack to be displayed from a hanger / hook</p> <p>To save space / so lots can be put out on display / easier to display / easier to remove / easier to see / product can be hung up instead of stacked, slot stabilises the hanging object.</p>	1 2	<p>Do not accept 'slot', 'hole', 'hanger'</p> <p>Award one mark for stating the product can be hung from some sort of hanger.</p> <p>Award second mark for giving a reason why they are hung up e.g. to display or store</p>
19	(b)	Styrene, Polyester Copolymer, Polystyrene, Polycarbonate, Polypropylene, Polyethylene, Polyvinyl Chloride, High Density Polystyrene	1	<p>Accept acronyms: ABS, PVC, HIPS, HDPE</p> <p>Do not accept any other plastics or acronyms</p>
19	(c)	        	1 1	<p>2 marks for simple single line sketch, showing correct shape (with draft)</p> <p>1 mark for no draft angle</p> <p>Ignore orientation and backing card if shown</p> <p><b>See examples opposite for clarification</b></p>

Question		Answer	Mark	Guidance
19	(d)	<p>Heat the plastic sheet / pull over heater / turn on heater/ until plastic softens.</p> <p>Turn on vacuum to suck plastic down around the mould</p> <p>Allow plastic to cool and harden</p>	1 1 1	<p>Accept answers which relate to heating up the plastic sheet to make it soft and formable.</p> <p>Accept answers which relate to the vacuum being created and/or the air being sucked out.</p> <p>Accept answers which relate to removing the heat / leaving the plastic to harden or cool.</p>
19	(e)	<p>Uses approx one A4 sheet of card</p> <p>Shows the type of battery</p> <p>Shows the number of batteries</p> <p>Is operated using a mechanism</p> <p>Incorporates the Lightening logo (shape or picture)</p>	1 1 1 1 1	<p>Stated or determined by dimensions given</p> <p>The type / size of battery is displayed (AA, C or PP3)</p> <p>The number of batteries is displayed 1, 2 or 4</p> <p>Award one mark for the use of a mechanism.</p> <p>Award second mark for the quality/feasibility/explanation of the mechanism.</p> <p>Do not award either of these marks if a <b>mechanism</b> is not used, e.g. hanging on hooks, velcro, blue tack, marker pen.</p> <p>The logo is clearly visible (lightening strike shape is evident on the design).</p>
		<b>Total</b>	<b>15</b>	

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