

Design and Technology

General Certificate of Secondary Education

Unit **A554**: Designing Influences

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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Annotations

Annotation	Meaning
✓	Green Tick to show where each individual mark is awarded (unless specified below)
REP	Repeat of answer
BOD	Benefit of the doubt
TV	Too vague
SEEN	Seen – placed on an answer where ticks are not shown to indicate the examiner has seen the answer. For example in Q4(a)

Subject-specific Marking Instructions

Apply ticks to show where each individual mark is awarded for Questions 1 – 3 & 4(b)(c)

Do not apply ticks on the Level of Response Question 4(a)

Do not apply ticks to any part of Question 5

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Question			Answer	Marks	Guidance
1	(a)		<ul style="list-style-type: none"> Capable of holding liquids/pourable dry materials Has measurements Easy to read measurements Has different measuring scales Has a wide base/is stable/not tip over/flat base Has a handle Has a spout/lip/notch/funnel Easy to pour/use/does not spill/drip Easy/comfortable to hold Is cheap to produce Can be used in a microwave Can be cleaned in a dishwasher Lightweight Shatterproof Transparent/can see contents Low heat transfer properties 	3	<p>1 mark for each design feature</p> <p>Do not accept or award marks for '...it is made of plastic.'</p> <p>Do not accept (unless clarified): shape, size, easy, ergonomics, cheap, numbers, light</p>
	(b)	(i)	<ul style="list-style-type: none"> Design ideas can be changed/edited easily Measurements/scale/dimensions of designs are accurate/precise Design files can be stored and retrieved easily as they are electronic/digital Designs can be graphically modelled in 3D on the screen/can be viewed/seen on screen It can be viewed on screen from different angles The design can be sent direct to CAM machines. Allows the designer to try different sizes/colours/designs/rendering Design ideas can be sent electronically/emailed to others Designs are better quality/appearance Ability to zoom in for detail 	2	<p>1 mark for each advantage</p> <p>Do not allow cheaper</p> <p>Do not allow quicker/simple without clarification eg can make alterations to components and designs quickly</p> <p>References to the advantages of CAM eg production of identical products, precise manufacture are not to be credited.</p>

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	(ii)	<ul style="list-style-type: none"> CAD is used to do the design which is then sent direct to the CAM machine (1) this means that there is less chance of error being introduced between designing and making the product (1) CAD and CAM systems work together by communicating electronically (1) the design is transferred directly from the designer's computer to the machine that is making the product (1). 	2	This is not asking for advantages of CAD/CAM but a description of how the two systems work together/ digital link leading to the manufacture of a more accurate product.
	(c)	<ul style="list-style-type: none"> The unit costs of manufacturing will be lower/cheaper (1) The reasons for this lower cost (1) (up to max 2) <ul style="list-style-type: none"> Labour costs are lower Ready supply of workers Factories are geared to higher volume production Competition so companies can shop around for the lowest price Huge/appropriate/adaptable/greater manufacturing capacity in countries such as China/India Raw materials readily available Resulting in more profit for designers/companies(1) <ul style="list-style-type: none"> Products sold at UK retail prices meaning greater profit Benefit from economies of scale 	3	<p>Examples</p> <ul style="list-style-type: none"> <i>The unit cost will be cheaper (1) as there is a huge manufacturing capacity in some other countries like China/India (1) so UK manufacturers can shop around until they find the lowest price (1)</i> <i>Manufacturing labour rates in some other countries are lower than in the UK (1) this means that manufacturing costs are lower (1) which means that more profit can be made when the products are sold at UK retail prices (1)</i> <i>Manufacturers in other countries such as Chinese/Indian have factories that are geared to high volume mass production (1) this means that UK companies can benefit from economies of scale (1) which should bring down the unit cost (1).</i>

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Question		Answer	Marks	Guidance
2	(a)		4	1 mark for each correct colour association
		Moods and emotions		
		Colour		
		<i>Stability, warmth, excitement</i>		
		<i>Orange</i>		
		Nature, relaxing, restful		
		Green		
	(b)	Danger, passion, energy	2	Award maximum 1 mark for stating basic way of finding out/researching which colours are most popular (may be implied) + 1 mark for developing description of how paint manufacturers could find out which colours are most popular
		Red		
		Calming and soothing, serenity		
		Blue or Violet		
		Sunshine, optimism, freshness		
		Yellow		
		<ul style="list-style-type: none"> Look at the sales figures for each colour paint (1) rank them in order to see which one sells the most (1) Conduct market research/consumer survey (1) show consumers a range of colours and ask them which ones they like best (1) Ask shops which colours are selling the most/are most popular (1) collate and rank data to identify the bestselling colours (1). 		

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	(c)	<ul style="list-style-type: none"> • So that they can sell more products (1) as the shops will want to keep up with the latest colour (1) so will need to take in new stocks (1) • To keep up with current fashions (1) consumers follow fashion trends from many design sources and clothing is one of them (1) so clothing manufacturers always need to be bringing out new colours/designs to keep up-to-date with other fashions (1) • To stay competitive (1) the clothing industry is notoriously competitive with each manufacturer trying to have the latest designs (1) introducing new colours each season is one way that clothing manufacturers can maintain a lead over their competitors (1) • Because some customers associate different colours with different seasons (1) for example lighter colours tend to be worn in summer (1) darker colours are more associated with winter (1) • Cost of altering a colour is less than designing a new style (1) and if styles are popular/sell well then manufacturers will make them again in new colours (1) 	4	<p>Award (1) mark for basic reason (up to a maximum of 3 marks) + 1–3 marks remaining for explaining or developing reason</p> <p>Award up to 2 marks for relevant supporting examples to any 1 point.</p>

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Question		Answer	Marks	Guidance
3	(a)	<ul style="list-style-type: none"> • Consistent shape/size/weight/slices • It has a regular cross-section/shape • Rectangular/cuboid shaped • Can be displayed in supermarkets more easily • Cleaner to display as it is in a bag • It is ready sliced/easier to use • Even thickness of slices • The poly bag can be printed for branding/marketing • It can be stored in its poly bag/package to keep it fresh for longer • It is made/moulded in one piece • It is machine formed rather than hand formed. • Soft crust/less crust • Sell by and best before dates • Additional information on packaging, eg ingredients, allergies • Better shape for sandwiches/toasters • Different varieties mass produced • Easier to store/stack/transport/display • Easier to carry • More hygienic 	3	<p>1 mark for each design feature of the modern loaf which makes it different to the traditional loaf from the 1890s.</p> <p>If more than three given, mark any 3.</p> <p>Do NOT accept: cheaper, bigger/larger, lighter, more attractive, neater shape, compact, has crust</p> <p>Do not allow marks for the words 'polythene bag'</p>

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Question	Answer	Marks	Guidance
(b)	<p>An explanation of two different points that justify the choice in part (a) Each explanation must consist of two creditable linked points that justify why the chosen feature makes the modern loaf popular with customers.</p> <p><i><u>Point 1:</u> It is wrapped and sold in a poly bag.</i></p> <p><i><u>Explanation:</u> Nowadays most customers do not want their food products exposed to the air (1) for fear of it becoming contaminated with germs (1) so producers sell them ready-wrapped in a protective bag.</i></p> <p><u>All answers should follow this format</u></p> <p><u>Point 2:</u> It has a regular square cross-section</p> <p><u>Explanation:</u> This means that it has a consistent size (1) that is suitable to put in a toaster/make sandwiches with (1)</p>	4	<p><u>No mark for 'feature' – as this will have already been given in Q3a</u></p> <p><u>For explanation</u> Award (1) mark for basic reason why the design feature may have been chosen for the modern loaf + (1) mark for further explanation or development</p> <p>(1+1) x 2</p> <p>If the point given is incorrect eg compact, but a clear explanation is given the marks can be awarded accordingly. The explanation requires a point plus a reason why the feature is successful</p>
(c)	<p><u>Examples of how modern production methods have influenced the design of the modern loaf could include:</u></p> <ul style="list-style-type: none"> Automation/automatic cooking/ovens requires standard sized products/loaves Mass production requires continuous production methods Automatic wrapping machines need loaves which are all the same size and shape Modern production methods are most efficient with standard sized products/loaves. Use of standard moulds/tins Computerised methods of production Automatic mixing Monitoring of ingredients 	3	<p>Award (1) mark for any basic example of how modern production methods have influenced the design of the modern loaf (maximum 2 marks) + 1 – 2 marks remaining for developing or expanding example</p> <p><u>Answer could be in the form of:</u> <i>Mass production requires continuous production methods (1) this requires standard shaped and sized loaves going through the automatic ovens (1) this is best achieved by moulding the dough into regular/standard sized tins which results in loaves with a regular/rectangular cross section (1).</i></p>

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Question			Answer	Marks	Guidance	
					Content	Levels of response
4	(a)		<p><u>Reasons why trend setter has been influential could include:</u></p> <p><u>Philippe Starck</u></p> <ul style="list-style-type: none"> • Works in a wide range of media/disciplines, including products, furnishings, restaurant and hotel interiors, • Recognised/commissioned by French President • Produces distinctive/recognisable designs • Linked with Alessi which is itself associated with distinctive/creative designs for household goods • Promoter of ecological and sustainable design • Designs associated with a particular era (1980s/90s) • Designs associated with a particular social group of consumers (well-off/design conscious/trend setters). <p><u>Laura Ashley</u></p> <ul style="list-style-type: none"> • Produced floral designs which can be applied to a wide range of products • Made the use of small floral images as an overall patterns popular • Designs taken up by major retailers of furnishing fabrics and decorative materials 	6	<p>Many answers continue onto additional sheets or at the bottom of 4(b) – examiners must check</p> <p>Continuous prose – question marked for quality of written communication (look for reasoned argument).</p> <p>Only <u>one</u> Trend Setter must be referred to.</p> <p>If the answer relates only to the Iconic product then only award Level 1</p> <p>There is no credit for mention of the Trendsetter by name or the name of the Iconic Product, as these are given in the question.</p> <p>List/sequence of discrete words maximum of 2 marks If bullet points are used with full sentences appropriate credit/level given.</p> <p>Typical connectives that may be used to link points of discussion: so that, because, therefore, however, although, but, consequently, alternatively, whenever, besides, moreover, since, whereas, despite.</p> <p>Candidate's response should answer the question 'Explain why this trend setter has been so influential' rather than be a celebrity biography of the subject.</p>	<p>Level 1 (0 to 2 marks) Some understanding of the influence of the Trend Setter <i>Little or no use of specialist terms. Answers ambiguous or disorganized. Errors of grammar, punctuation and spelling.</i></p> <p>Limited range of points made with some relation to the Trendsetter and with limited justification</p> <p>Level 2 (3 to 4 marks) Reasonable understanding of the influence of the Trend Setter. <i>Some use of specialist terms, not always used appropriately. Information presented for most part in a structured format. Occasional errors in grammar, punctuation and spelling.</i></p> <p>Range of points adequately made with some relationship to the Trendsetter, with explanations and some justification</p>

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Question			Answer	Marks	Guidance	
					Content	Levels of response
			<ul style="list-style-type: none"> • Designs incorporated into fashion, home furnishings, lighting, wall coverings, home decoration • Designs associated with a particular era (1960s/70s) • Designs associated with a particular social group of consumers (middle class/middle England). <p><u>Alan Fletcher</u></p> <ul style="list-style-type: none"> • His distinctive use of typography for company logos which have stood the test of time (V&A, IoD, Reuters, etc) • Worked for 'household name' clients companies (Pirelli, Penguin Books, Olivetti) • Involved with well-known design partnership 'Pentagram' • Work recognised by solo exhibition at the Design Museum • Designs associated with 1980s and 1990s • Described by The Daily Telegraph as <i>"the most highly regarded graphic designer of his generation, and probably one of the most prolific"</i>. 			<p>Level 3 (5 to 6 marks) <i>Detailed understanding of the influence of the Trend Setter. Specialist terms used appropriately and correctly. Information presented in structured format. Accurate use of grammar, punctuation and spelling with some minor errors.</i></p> <p>Range of well made points that mostly relate to the Trendsetter and with reasoned explanations through discussion and justification</p>

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Question			Answer	Marks	Guidance	
					Content	Levels of response
			<p><u>Sir Clive Sinclair</u></p> <ul style="list-style-type: none"> • Pioneer in DIY/home electronics • Developed products such as radio receivers, amplifiers, calculators, Sinclair C5 electric pedal car. • Introduced the concept of DIY computer kits • Kit form computers for home/hobbyist use in 1980 brought the concept of home computers to the mass market • Introduction of the ZX Spectrum programmable computer enabled users to write their own programmes for the first time • Sale of Sinclair Research to Amstrad opened the door to the development of low cost home PCs. <p><u>Linda McCartney</u></p> <ul style="list-style-type: none"> • High profile celebrity/personality totally committed to meat free cooking and eating • Became frustrated by the lack of innovation in meat free alternative meals • Brought forward the concept of meat free alternatives to products that had previously been made from meat eg sausages • Produced a range of frozen meat free food products that would appeal to a wider market than 'traditional' vegetarian fare 			

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			<ul style="list-style-type: none"> Used celebrity name to brand products and forge mass distribution of the meat free food products Convinced major food manufacturers that there was a worthwhile market in meat free food products. 			

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Question	Answer	Marks	Guidance
(b)	<p><u>Reasons why the product chosen has been influential:</u></p> <p><u>Juicy Salif (1) Lemon squeezer</u></p> <ul style="list-style-type: none"> Has been recognised as a key/best selling product in the Alessi range of kitchenware Has enabled Alessi to become associated with original/novel design for household objects Designed as form over function so the product looks/styled on a squid but functions poorly as a lemon squeezer. Distinctive design has been recognised by inclusion in the collection of the Museum of Modern Art, New York Has spawned imitators who seek to bring distinctive design to mundane kitchen items. <p><u>Floral furnishing fabric</u></p> <ul style="list-style-type: none"> Laura Ashley has become a 'household name' for soft furnishings and clothing items with an overall design of small flowers on a muted background In its heyday the style of the design was copied widely on clothing and home furnishings produced by competitors Product still a best seller in Laura Ashley retail outlets Product still popular with customers of a certain age/socio-economic profile. <p><u>Corporate identity for V&A</u></p> <ul style="list-style-type: none"> It has given the V&A a distinctive image It is still in use/has not been replaced since it was introduced in 1989 It has been applied to a wide range of goods and items produced by the V&A Other graphic designers have tried to adopt a similar simplistic style for corporate image work. 	4	<p>Content of answer refers to creditable points about the influence of the Iconic Product. These may be discrete points referring to different aspects of the Iconic Product, or they may be linked points that discuss, explain, exemplify, qualify or describe one aspect of the impact or influence.</p> <p>Answers must relate to what (1) was so different about the Iconic Product and or why (1) the Iconic Product has been so influential.</p> <p>Answer should focus on why the product has been influential and not be a description of what it is.</p> <p>Quality of written communication is not assessed in this part of Question 4.</p> <p>This can be a different Iconic Product to that of the Trendsetter chosen in part (a).</p> <p>There is no credit for mention of the Trendsetter by name or the name of the Iconic Product, as these are given in the question.</p> <p>Some answers may provide more than two creditable points for each or either reason. Credit the points wherever they are presented.</p>

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			<u>ZX Spectrum programmable computer</u> <ul style="list-style-type: none"> • It was one of the first small size home computers • Its initial low cost attracted many people to try out the concept of home computing for the first time • Its simplicity of circuitry design gave people the opportunity to learn about computer programming • It opened up a consumer market, paving the way for Amstrad and other home computer manufacturers. <u>Linda McCartney Frozen Vegetarian Sausages</u> <ul style="list-style-type: none"> • Gave vegetarians a tasty alternative to foods traditionally associated with vegetarian cooking • Demonstrated that there was a mass market for meat free food products • The size of the market established by Linda McCartney Frozen Vegetarian Sausages encouraged other food manufacturers and retailers to develop their own meat free food products • Paved the way for a wider range of non-meat food products. 		

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Question		Answer	Marks	Guidance
5	(a)	<p>Specification</p> <p>Specification that may be incomplete or repeated from the question(1)</p> <p>Vague/generic specification that gives limited design requirements(2)</p> <p>Adequate specification that gives some key design requirements (3)</p> <p>Detailed specification gives key design requirements (4)</p>	4	<p><u>Generic design specification points could include:</u></p> <ul style="list-style-type: none"> • Must be safe to use • Easy to produce • Efficient use of materials • Environmentally sound • Costed/priced to sell at a profit. <p><u>Detailed design specification points could include:</u></p> <p><u>Kitchen scissors/Philippe Starck</u></p> <ul style="list-style-type: none"> • Handle:blade ratio sufficient to allow ease of use when cutting • Made of material that can be sterilised. <p><u>Summer clothing/Laura Ashley</u></p> <ul style="list-style-type: none"> • To made in lightweight fabric • Fabric must be washable. <p><u>Signage/Alan Fletcher</u></p> <ul style="list-style-type: none"> • Must be easy to read from a distance • Colour of text must stand out from background. <p><u>Programmable device that switches off lights/Sir Clive Sinclair</u></p> <ul style="list-style-type: none"> • Must be simple to make • Must be easy for users programme. <p><u>Frozen Meal/Linda McCartney</u></p> <ul style="list-style-type: none"> • Must look appetising to attract customers • All ingredients must be acceptable to customers who do not eat meat/vegetarians.

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Question		Answer	Marks	Guidance
	(b)	<u>Initial ideas that meet the specification</u>	5	<p>When awarding marks for addressing the specification points marks can be awarded in (b) and (c) irrespective of the quality of the candidates specification points</p> <p>A note about notes and labels: One word labels can identify and name, features on a sketch: eg base, aluminium, pattern, seam.</p> <p>Two and three word labels can qualify the feature: eg stainless steel tube, stable base.</p> <p>Notes are complete statements that can explain, justify, exemplify and quantify the feature: eg black polyester with white rayon stitching.</p> <p>Dimensions on a drawing and weights or quantities of ingredients come under the heading of notes.</p> <p>Different ideas refers to</p> <ol style="list-style-type: none"> 1. whole solutions or parts of a solution 2. conceptually different thinking 3. not just variations on a theme. <p>Addressing specification points</p> <ol style="list-style-type: none"> 1. may be explicitly evidenced in the notes 2. implicitly evidenced in the idea 3. the two specification points need to be evidenced only once each, in any of the notes or the ideas. <p>Creative approach to designing is judged in the context of an examination situation with strictly limited time. Do the ideas impress you enough for just ten minutes work from a 15 year old?</p>
		Only one sketched solution with no accompanying notes (1)		
		One sketched solution with notes OR Two or more solutions with no notes (2)		
		Two or more sketched solutions with notes (3)		
		A range of different ideas that address at least two specification points (4)		
		A creative approach to designing (5)		

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Question	Answer	Marks	Guidance
(c)	<p><u>Development of ideas – must reflect the original design need/product focus:</u></p> <p>One solution may be presented in more than one view: top and front, inside and outside.</p> <p>One sketched solution showing an idea from the initial ideas with some development – no notes (1)</p> <p>One developed idea with notes (2)</p> <p>Development of an idea evidenced with supporting sketches and/or notes (3)</p> <p>Development of an idea with notes that link to at least two specification points (4)</p> <p>A range of developments of the idea with notes that link to at least three specification points (5)</p>	5	<p>In this part, candidates must address the requirements of the “design need in the situation” If both requirements of the design need are not met the maximum available is three marks.</p> <p>Example 1: Both “Philippe Starck” and the “kitchen scissors” must be considered.</p> <p>Example 2: An “item of summer clothing” and “the style of Laura Ashley Floral furnishing fabric” must be considered</p> <p>Example 3: The “Alan Fletcher corporate identity style for the V&A” and ‘A name sign for the front of your school or college’ must be considered.</p> <p>Example 4: The “device that switches off lights when a room is not in use” and the fact that it is “programmable” must be considered.</p> <p>Example 5: The “frozen meal” and “style of Linda McCartney” must be considered.</p> <p>Where there are no creditable specification points in 5a maximum available is two marks.</p> <p>To move beyond two marks there must be evidence on the page of developmental activity/decision making.</p>

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(d)	<p>Final proposal: look at the information and drawing on the page for 5d, and any detail from 5c: A simple solution with limited detail/notes (1)</p> <p>Details of one or more bullet points from the list of materials/parts/sizes/tools/etc. (1)</p> <p>Look at the writing on the page for 5d:</p> <p>Notes and associated sketches showing how the design meets spec point 1 (1) e.g The scissors have rubber handles to allow the user to grip and use them comfortably.</p> <p>Notes and associated sketches showing how the design meets spec point 2 (1) eg The summer dress has a repeat print pattern of sunflowers to reflect both the season and Laura Ashley's style.</p> <p>Notes and associated sketches showing how the design meets spec point 3 (1) e.g The sign has a sans serif font to allow it to be read and recognised easily from a distance.</p> <p>Notes and associated sketches showing how the design meets spec point 4 (1)</p> <p>eg The frozen lasagne meal includes quorn mince and vegetables in a tomato based sauce as a filling making it suitable for vegetarians.</p>	6	<p>Candidates should show relevant details for manufacture:</p> <ul style="list-style-type: none"> • materials/ingredients/components • sizes/dimensions/quantities • methods/joining/mixing techniques • tools/equipment. <p>for the award of the 6th mark.</p> <p>Accept justified points related to the candidates' own specification, even if not rewarded in 5(a), and/or any points given to the candidates in the design need of the actual question.</p> <p>If solution in 5(d) has no relationship with 5(c) then only award a maximum of 4 marks for the justifications of how the idea meets their specification.</p>

