



GCSE MARKING SCHEME

DESIGN AND TECHNOLOGY

SUMMER 2014

INTRODUCTION

The marking schemes which follow were those used by WJEC for the Summer 2014 examination in GCSE DESIGN AND TECHNOLOGY. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conferences was to ensure that the marking schemes were interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conferences, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about these marking schemes.

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GCSE DESIGN & TECHNOLOGY – FOOD TECHNOLOGY
Mark Scheme – Summer 2014

Question			On paper	Question Totals	Running TOTAL
1	a	No answer or the answer does not state a suitable cooking method for the meal.	0		
		Appropriate answer given microwave or oven.	1	1	
	b	No answer or the answer does not relate to why the chicken breast fillet meal is sold in a sectioned plastic tray.	0		
		Appropriate reason identified To stop all the foods mixing. To keep the presentation neat. So gravy does not make foods soggy. Buyer does not like all the foods. Developed response To keep all of the different foods from mixing and ruining the presentation of the meal. (2)	1 1 2	2	
	c	No answer or the answer does not refer to safety point related to the product.	0	1	
		Correct safety point identified. <ul style="list-style-type: none"> • Correct storage of the meal – in fridge. • Contains chicken which is a high risk food. • Could contain small bones from the chicken. • Sell by date. • Product not heated for sufficient time. 	1		
		No answer or an answer that does not explain how the safety point identified could be harmful to the consumer. A simple answer related to the safety point specified can be awarded 1 mark. <ul style="list-style-type: none"> • Chicken needs to be stored at correct temperature/chilled. • Could swallow small bones. • Product must be cooked thoroughly so it is safe to eat. • Product cooked to correct time or could make consumer ill. 	0 1	2	

Question				On paper	Question Totals	Running TOTAL
			An elaborated response can be awarded 2 marks. <ul style="list-style-type: none"> • Chicken is a high risk food if not stored at correct temperature it could result in harmful bacterial growth. • Small bones could be undetected and swallowed which could cause a person to choke. • Product must be cooked thoroughly so it is safe to eat and avoid giving the consumer food poisoning. 	2		
	d		No answer or the answer does not relate to the including of mashed potato.	0		
			Credit each correct reason. Potato goes well with other foods in meal. Mashed potato provides a starchy food/source of carbohydrates/energy. Mashed potato adds bulk/filling to the meal. Mashed potato provides a different texture/flavour/taste to the meal. Mashed potato could absorb gravy/soak up gravy.	1 + 1	2	
	e	(i)	No answer or the answer does not relate to the target audience.	0		
			Correct target audience identified adults/teenagers/elderly people/professional people/single person/students. Explanation Who do not have the time to cook a balanced meal. Who are looking for a meal with no preparation needed. Who are unable to prepare a meal for themselves. Who are lacking the skills or equipment pieces to produce a meal like this.	1	2	
		(ii)	No answer or the answer does not refer to the size of the chicken breast meal.	0	2	
			Limited response	1		

Question				On paper	Question Totals	Running TOTAL
		<p>The size must be single/individual portion. The size must be suitable for a main meal. Suitable size so it's filling.</p> <p>Developed response The size must be big enough to satisfy an adult and not leave them hungry.</p>	2			
f	(i)	No answer or the answer does not relate to the product characteristic which achieved the highest marks.	0	1		
	(ii)	<p>Correct response Moist chicken pieces</p> <p>Correct % shown 72%</p> <p>No workings shown</p>	1	2		
		<p>Correct % and workings shown</p> <p>$18 \div 25 \times 100$ and correct answer 72%</p> <p>Or alternative suitable calculation</p>	2			
				15	15	15

Question				On paper	Question Totals	Running TOTAL
2	a	(i)	No answer or incorrect responses	0	3	
			Correct responses Reuse – when a product stops being useful the materials are used for another purpose. Repair – when a product stops working it is mended. Recycle – when a product has been used its materials are reprocessed for use in a new product.	1 1 1		
		(ii)	No answer or the answer does not refer to how food waste could be used if not suitable to be reused in the making of a product.	0	2	
			Simple explanation Food can be recycled in a compost heap Make soup. Be put into a council food bin. Pig swill	1		
			Developed response Food can be recycled in a compost heap this can be used to produce fertiliser for the garden.	2		
	b		No answer or incorrect response Award each correct response True False	0 0		
	c		No answer or the answer does not relate to the impact made to the environment by consumers choosing to buy mashed potato.	0	3	
			Award basic response has gone through many different stages of processing. Award response with some detail. Has gone through many different stages of processing like washing/peeling/chopping/cooking/freeze drying and packaging. Award a very detailed response. Has gone through many different stages of processing like washing, peeling, chopping etc. these use more energy (gas/electric/fossil fuels) in the processing which has an impact on the ozone layer. Packaging – recyclable/landfill – CO2 emissions.	1 2 3		
					10	25

Question				On paper	Question Totals	Running TOTAL
3	a	i	No answer or incorrect response Jamie Oliver	0 1	1	2
		ii	No answer or incorrect response Delia Smith	0 1	1	
	b		No answer or answer does not describe the difference between the methods and techniques used by Jamie Oliver and Delia Smith.	0	8	
			<p>Difference between methods and techniques</p> <p>Jamie Oliver</p> <ul style="list-style-type: none"> • Believes good food can produced in a short period of time – 30 minute meals is an example of this. • To be successful you need to be organized and willing to use shortcuts sometimes if cooking in a short period of time. • Encourages the putting together of home cooked meals using simple techniques rather than ‘chefy’. • No always a strong believer in measuring all ingredients accurately – often just a splosh. • Not always a ‘traditionalist’ more of a throw it all in person. <p>Delia Smith</p> <ul style="list-style-type: none"> • Very traditionalist/home style skills and recipes. • Follow recipes accurately and is well prepared for the making of them. • Likes ingredients to be weighted out accurately and will measure even smallest ingredients. • Will use shortcuts when making dishes as her how to cheat at cooking programs reveals. • Methods use can be very simple and basic-how to boil an egg. 			

Question		On paper	Question Totals	Running TOTAL
	<p>Similarities they share</p> <ul style="list-style-type: none"> • Both have strong views on cooking meals from scratch and using local/seasonal produce. • Both use fresh ingredients grown in own gardens and encourages others to grow their own to use in recipes. • Believe using freshest ingredients will give you a more successful outcome. <p>No answer or no relevant description of the designer's range of work. Award 0 marks</p> <p>Some simple description of the work of the chef. Little if any understanding of its main features. QWC is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling. Award 1 or 2 marks</p> <p>Description of the work of the chef/designer. Some understanding of its main features. QWC is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. Award 3 or 4 marks</p> <p>Description of the work of the chef/designer. Understanding shown of its main features with some appropriate examples provided. QWC is good presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. Award 5 or 6 marks</p> <p>Description of the work of the chef/designer. Clear understanding shown of its main features with fully appropriate examples provided. QWC is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling. Award 7 or 8 marks</p>			
			10	35

Question				On paper	Question Totals	Running TOTAL
4	a	i	No answer or the answer does not identify The correct word to be underlined.	0	1	
			Correct word underlined. Design brief	1		
		ii	No answer or the answer does not identify the correct word to be underlined.	0	1	
			Correct word underlined. Design development	1		
	b		No answer or the answer does not address why designers analyse existing products during the design process.	0	2	
			Correct reasons identified. Award each correct response. To collect information/ideas about the ingredients that have been used to make the product. To find out how the product has been assembled/put together/made. To find out the taste/texture of the product. To gain ideas for a new product/make theirs better and contrast ideas with existing. To find out about other competitors products.	1 + 1		
	c		No answer or the answer does not explain the importance of completing a final evaluation at the end of the design process.	0	3	
			Limited response Gives details regarding the product produced. Basic response To review the successfulness of the product produced and if it fitted the brief/specification set.	1 2		
			Detailed response To review the successfulness of the final outcome. To evaluate the final outcome against the brief and specification written. To identify why the product did not match the specification and if not how to improve it.	3		

Question				On paper	Question Totals	Running TOTAL
4	d		No answer or the answer is not a design that satisfies the brief.	0		
		i	The design shows the product is savoury by the choice of ingredients – cheese, meat, vegetables.	1	1	
			The design does not indicate it is a hand held product.	0		
			The design shows the product is a hand held product by comments or sketch/diagram/size indication.			
			The design does not indicate a suitable wrap has been used.	0		
			The design indicates a suitable wrap has been used by the written labelling/comments.	1		
		ii	The design does not indicate it has a moist filling.	0	2	
			The design has a basic/limited moist filling. Use of cheese, moist fruits like tomatoes/onions. Salad dressing or mayonnaise.	1		
			The design clearly includes a good moist filling. Use of a sauce and combining with other ingredients – fruits/vegetables/coleslaw with mayonnaise.	2		
		iii	The design does not indicate a range of crunchy textures.	0	2	
			The design has a basic/limited range of crunchy textures e.g. crunchy raw carrot, cucumber sticks.	1		
			The design includes a good range of crunchy textures e.g. crunchy apple pieces, crunchy raw white/red cabbage, crunchy carrot and radish pieces, crunchy iceberg lettuce and celery pieces.	2		

Question				On paper	Question Totals	Running TOTAL
			The design does not indicate a range of flavours.	0	2	
			The design has a basic/limited range of flavours – cheese and onion.	1		
			The design has a good range of flavours – cheese, onion, garlic and sundried tomatoes.	2		
			The design does not have a range of colourful foods.	0		
			The design has a basic range of colourful foods – orange carrots, green cucumber.	1		
			The design has a good range of colourful foods – orange carrots, yellow pepper and red tomatoes.	2		
		(iv)	The design does not have or state any protein source.	0	1	
			A good source of protein has been stated.	1		
		(v)	No answer or the answer cannot be understood, no annotation.	0	3	
			Poor response – drawing with no colour/labelling.	1		
			Adequate drawing/labelling, some labelling/annotation.	2		
			Good standard of drawing/labelling with good annotation.	3		
		(vi)	No answer or the answer does not show how the product is assembled and folded.	0	3	
			Poor response very basic drawing/diagram showing how product is assembled and folded.	1		
			Adequate response with some drawings and labelling/written detail showing how product is assembled and folded.	2		
			Good written response with detailed diagrams showing how product is assembled and folded.			
					25	60
					25	

Question				On paper	Question Totals	Running TOTAL
5	a		No answer or incorrect responses.	0	2	
			A single product made for the specific needs of a customer – one off production.	1		
			A specific number of the same food product made as a small scale production system – Batch Production.	1		
	b	i	No answer or answer is incorrect.	0		
			Correct response Deck oven	1		
		ii	No answer or answer is incorrect. Correct response blast chiller	0 1		
		iii	No response or incorrect response relating to the use of the equipment piece when manufacturing food products.	0	2	
			Basic response Has different temperature sections for cooking foods. Don't have to keep opening one main oven door. Can cook many different foods in one go	1		
			Developed response Has different temperature sections for cooking foods therefore can cook many different products at one go. When making small batches of foods they can be easily cooked at same time due to lots of small ovens. When opening oven door it is only for that one particular product therefore other products will not have cooking time interrupted.	2		
	c		No answer or an answer does not relate to term 'scaling up'.	0	2	
			Award simple response Multiplying up ingredients.	1		
			Award developed response Multiplying up ingredients proportionally to produce larger amounts.	2		

Question			On paper	Question Totals	Running TOTAL
	d	No answer or the answer does not relate to a manufacturing specification.	0	2	
		Basic response To let the manufacturer know important details about the product.	1		
		Good response It gives precise details that a food manufacturer will need to be able to produce an exact replica of the final prototype/design.	2		
				10	70

Question				On paper	Question Totals	Running TOTAL
6	a		No answer or answered incorrectly.	0	3	
			Victoria sandwich cake – S R flour	1		
			Éclairs – strong flour/bread	1		
			Mince pies – plain flour	1		
	b	i	No answer or the answer does not relate to the protein source.	0	1	
			Main protein source Cheese			
		ii	No answer or the answer does not relate to the changes to the sandwich to increase the fibre.	0	2	
			Award each correct change 1 mark Change white bread to wholemeal bread/granary bread/brown/seeded.	1		
			Add salad to the sandwich – lettuce and tomatoes/onions. Add vegetables – like chargrilled vegetables.	1		
	c		No answer or the answer does not relate to the browning of the fruit.	0	2	
			Basic response Fruit comes into contact with oxygen/air.	1		
			Developed response Enzymes in the fruit react with the oxygen in the air so surface goes brown named enzyme polyphenoxidase in answer.	2 2		
			No answer or the answer does not relate to method or prevention.	0	1	
			Method of prevention Use of lemon juice/citric acid/cold water/cling film/air-tight container.	1		
	d		No answer or the answer does not relate to a method that extends the shelf life of milk. Correct response Pasteurisation Sterilisation Ultra heat treatment	1		

Question				On paper	Question Totals	Running TOTAL
		No answer or incorrect answer.	0	2		
		Pasteurisation – Basic response The milk is heated to 72°C.	1			
		Developed response The milk is heated to 72°C for 15 seconds. Then cooled rapidly to below 10°C. Pathogenic micro-organisms are destroyed.	2			
		Sterilisation – basic response. Milk is heated for a long period of time at higher temperatures.	1			
		Developed response Milk is heated for a long period of time 40 minutes at 104°C. Destroys nearly all micro-organisms and enzymes.	2			
		UHT – Basic response Uses very high temperatures for short period of time.	1			
		Developed response Milk is heated to 130°C/133°C for 1-5 seconds. Destroys all bacteria.	2			
	e	No answer or incorrect response	0	3		
		Correct response When heated starch granules absorb liquid About 60°C Starch granules absorb liquid about 5x their volume and swell, then burst open about 80°C.	1			
		Starch granules absorb liquid about 5x their volume and swell, then burst open and release starch which thickens the liquid.	2			
		Gelatinisation complete when liquid reaches boiling point 100°C.	3			
				15	15	85

Question			On paper	Question Totals	Running TOTAL
7	a	No answer or the answer does not correctly name the equipment pieces or give a suitable use.	0	6	
		States the correct equipment piece 1 mark. Suggests a suitable use plus 1 mark. Blender/liquidizer – to combine foods together, make them smooth. Piping bag/Piping bag and nozzle – for piping cream/buttercream/to decorate cakes/pipe mashed potato. Juicer/lemon squeezer – extract/squeeze the juice of fruits away from the pips and flesh.			
	b	No answer or the answer does not name any ingredients use to make a bread dough.	0	2	
		Correct ingredient named – credit two. Strong plain flour/Bread flour. Dried yeast/easyblend yeast/fresh yeast Salt Oil/margarine/butter/fat Sugar Water/milk	1 + 1		
	c	i	No answer or the answer does not state missing stages of pasta making. Credit each correct response. Stage 4 – Mix/stir together to form ball of dough. Stage 5 – Knead the dough till smooth and silky.	0	2
			1 1		
		ii	No answer or incorrect response. Correct response either. Egg or water	0	1
			1		
	d	No answer or the answer does not relate to the assembly of the envelope style product. Award each correct stage:- Pastry rolled out to a square. Filling placed in the middle/centre. Edges moistened with water to seal. Opposite corners brought to the middle/or sides/edges folded in. Edges squeezed and pinched to seal and decorate. Award mark for sketches showing process.	0	6	
			1 1 1 1 1 1		

Question				On paper	Question Totals	Running TOTAL
	e	i	No answer or the answer does not relate to one feature being assessed during the visual check.	0	1	
			<p>Award one correct check identified.</p> <p>Appearance/look the same The colour of the chocolate will be checked against a standard colour.</p> <p>The piping of white chocolate will be checked for the same pattern/positioning/thickness of piping.</p> <p>The amount of chocolate filling will be checked to make sure it's not overflowing.</p> <p>The shape of the tart will be checked to ensure it's a round circle.</p> <p>The size of the tart will be checked to make sure they are the same size.</p>	1		
		ii	<p>No answer or the answer does not relate to the importance of the visual check.</p> <p>Basic response So that the products are the same every time/high quality. More desirable to consumer.</p> <p>Developed response So that a consistent standard is met for every product made.</p>	0 1 2	2	
					20	20
						105

Question				On paper	Question Totals	Running TOTAL
8	a		No answer or the answer does not relate to the abbreviated term for each statement.	0	3	
			Award each correct statement and term matched: Computers controlling machinery – CAM. Using computers to present information – ICT. Using computers to develop ideas - CAD.	1 1 1		
	b	i	No response or the answer does not relate to the meaning of the term flow chart.	0	2	
			Basic response A plan that shows steps for making. Step by step guide. Developed response A flow chart is a diagrammatical way to show a plan of work/series of events. Symbols showing the steps in the making process with points where decisions need to be made.	1 2		
		ii	No answer or an answer does not relate to the meanings of the symbols.	0	3	
			Award each correct symbol identified. Terminator – start or end of system. Decision – a question with a yes or no answer. Process – the instruction/action/activity to be carried out.	1 1 1		
		iii	No answer or the answers does not relate to why flow charts are used by manufacturers when making products. Basic response Allows manufacturers to set up a production line. To make sure products are made correctly. Developed response Allows manufacturers to set up a production line which result in a good quality safe product.	0 1 2	2	

Question				On paper	Question Totals	Running TOTAL
	iv	No answer or the answer does relate the importance of feedback happening straight away. Basic response So problems can be fixed easily.	0	2		
		Developed response So problems that occur can be fixed quickly so that ingredients are not wasted.	2			
		So problems that occur can be fixed quickly and the manufacturer does not wasted time and money.	2			
	c	No answer or the answer does not relate to the meaning of quality control.	0		3	
		Basic response Standards/checks set by manufacturer Steps taken to check product at various stages.	1			
		Satisfactory response When checks/standards are put into place during the making of the product.	2			
		Developed response When standards are put into place by manufacturers during the making of a product and they are checked regularly to ensure the standards are being met.	3			
				15	15	120

**GCSE DESIGN & TECHNOLOGY – GRAPHIC PRODUCTS
Mark Scheme – Summer 2014**

Question				On paper	Question Totals	Overall TOTAL
1	a	i	No answer or answers that do not match the mark scheme.	0		
			Different size containers for different size drinks, different food stuffs.	1		
		ii	No answer or answers that do not match the mark scheme.	0		
			Polyethelyne or Polythene only appropriate answer ,	1		
	b	i	No answer or answers that do not match the mark scheme.	0		
			Basic statements about: HOLDING JUICE OR DRINKS.	1		
			Appropriate description of purpose with appropriate detail: LARGE ENOUGH TO HOLD CORRECT SIZE OF DRINKS WITHOUT LEAKING, POURS EASILY, KEEPS THE DRINKS FRESH.	2		
		ii	No answer or answers that do not match the mark scheme.	0		
			Basic statements about: TAMPER FREE PACKAGING. KEEPING DRINKS FRESH.	1		
			Appropriate description of purpose with appropriate detail: CHILD PROOF CAPS, FOIL SEALS, TAMPER FREE PACKAGE, KEEPING DRINKS FRESH UNTIL USE BY DATES, PACKAGING FREE FROM SHARP EDGES AND COMPONENTS TO INJURE CONSUMER.	2		
	c	i	No answer or answers that do not match the mark scheme.	0		
			Basic statements about: SAVING THE PLANET OR TREES	1		
			Appropriate description of sustainable issues with appropriate detail: LOW CARBON CHOICE SUSTAINING BIODIVERSITY, MAKING ETHICAL CHOICES, ENVIRONMENTAL BENIFITS	2		
		ii	No answer or the answer does not match mark scheme.	0		
			Basic statements about: HELPS SELL DRINKS BECAUSE CUSTOMERS LIKE TO SEE THAT SORT OF LOGO	1		
			Appropriate description of aesthetics with appropriate detail: APPEALS TO AN ETHICAL TARGET AUDIENCE. PROVES THE COMPANY HAVE A STRONG ENVIRONMENTAL ETHIC,	2		
	d		No answer or answers that do not match the mark scheme.	0		
			Answers that lack detail about the following;	1		
			PACKAGES DESIGNED TO STORE FOOD WITHOUT REFRIGERATION ALSO CONTAIN A THIN LAYER OF ALUMINIUM FOIL. THIS PROTECTS THE PRODUCT FROM OXYGEN, FLAVOURS AND LIGHT.	2		
	e	i	No answer or answers that do not match the mark scheme.	0		
			A, D and E In any order	1		
		ii	No answer or answers that do not match the mark scheme.	0		
			Answer that is 1,500L without working – can be awarded 1 mark. Incorrect answers that have evidence of some of the correct workings out can be awarded 1 mark.	1		
			Answer that is correct and shows appropriate working – can be awarded 2 marks. Workings out may differ from those shown. 45% - 15% = 30% 30/100 x 5000 = 1,500	2		
					15	15

Question				On paper	Question Totals	Overall TOTAL
2	a	i	No answer or answers that do not match the mark scheme.	0		
			One mark for each correct answer in correct order REPAIR REDUCE RETHINK	1 or 2 or 3		
		ii	No answer or answers that do not match the mark scheme	0		
			Appropriate statement but lacking detail AWARD 1 mark E.g Looks at how designers can redesign or change design products in a sustainable way. Appropriate statement well detailed. AWARD 2 marks Helps designers look at the social and environmental impacts of everyday items and products they are designing through their life cycle. Aims to help people to rethink their consumption in order to create a more sustainable world.	1 Or 2		
	b	i	No answer or answers that do not match the mark scheme.	0		
			Only app. answer – PP8888-1:2007 (FIRST BOX)	1		
		ii	No answer or answers that do not match the mark scheme.	0		
			An answer that shows some understanding AWARDED 1 mark Sets standards and Technical specs for products in Britain.	1		
	C		No answer or answers that do not match the mark scheme.	0		
			A simple answer that is unexplained can be AWARDED 1 mark. To analyse the life of a product. An answer that shows some understanding and description AWARDED 2 marks. Analyse the environmental impact of a product and how we can make it less by changing parts of its production. Could include a partially explained LCA. A full answer that explains and shows understanding AWARDED 3 marks. Could mention cradle to grave, where the materials come from and how the product is disposed of. Should include a fully explained LCA. Life cycle assessment is the most reliable method to verify environmental impacts of products. It provides designers, regulators and engineers with valuable information for exploring decisions in each life stage of materials, buildings, services and infrastructure. LCA identifies environmental hot spots in products and materials and establishes the benchmark against which improvements can be measured. LCA is also used in new product research and development, when environmental footprint is important to the future marketing or cost structure of a product. The benefit to LCA is simple: reliable, transparent data for both manufacturers and consumers, enabling better decisions.	1 Or 2 Or 3	10	25

Question			On paper	Question Totals	Overall TOTAL
3	a	No answer or answers that do not match the mark scheme.	0		
		1 ST BOX - Neville Brody	1		
		2 ND BOX - David Carson	1		
	b	FIRST MARK THE DESCRIPTION OF THE DESIGNERS WORK AND HOW THEY COMPARE.			
		No answer or no relevant description of the designer's range of work.	0		
		Limited description of the work of one designer. Award 1 mark	1		
		Limited description of the work of the two designers. Award 2 marks	2		
		Description of the work of both, and a basic comparison of their work. Award 3 marks	3		
		Good description of the work of the two, but with a limited comparison. Award 4 marks	4		
		Excellent detailed description of the work of both designers, with a detailed comparison of how their work differs. Award 5 marks	5		
		THEN MARK THE WRITTEN COMMUNICATION			
		No answer or no relevant description of the difference in the designer's work	0		
		Poor written communication, with many errors. Award 1 mark	1		
		Satisfactory written communication, with some errors. Award 2 marks	2		
		Excellent written communication, with only one or two errors. Award 3 marks	3		

Question			On paper	Question Totals	Overall TOTAL
4	a	No answer or answers that do not match the mark scheme.	0		
		Only acceptable answer – 1. Design Specification	1		
		3. Making	1		
	ii	No answer or answers that do not match the mark scheme.	0		
		A simple answer that is unexplained can be: AWARD 1 mark. Designers will know what people will want. An answer that shows some understanding and description. AWARD 2 marks E.g. A target audience gives detailed information to guide a designer into thinking about the criteria that people he is designing for will find important. A TA can be used to help test and evaluate the design.	1 Or 2		
	iii	No answer or the answer does not explain how the two are linked.			
		A simple answer that mentions only one aspect 1 mark Allows the designer to do more. Or basic statements that relate to accuracy and speed.	1 2		
		An answer that is full and contains two or more aspects 2 or 3 marks Candidates need to show that they understand how new and smart technologies allow the designer to be more ambitious in their approach to a problem. It allows designers to pack products with innovation pushing boundaries.	3		
	b	i			
		The logo is not a symbol or does not use the Fli-Hi name. The logo is appropriate for the brief. But might include misspelled FLI-HI. Or is poorly drawn. Uses the Fli-Hi name but does not portray air travel.	0 1		
		The logo is appropriate for the brief and fully meeting the specification. Portraying air travel. And is well drawn.	2		
		The logo uses more than 3 colours. Uses bios or highlighters. The logo uses 3 colours or less.	0 1		
ALL OUTCOMES SHOULD REFLECT A PRODUCT YOU COULD EXPECT TO SEE COMERCIALY.					
	c	i			
		No solution presented.	0		
		A basic solution presented that may or may not work with limited detail.	1 2		
		A solution presented that is likely to work but with errors or that lacks innovation.	3		
		An innovative solution that will work with some or minor inaccuracies or lacking small details.	4		
		A solution that is will work well and is fully detailed and innovative in its approach.			
		ii			
		The design does not show an opening or closing mech. The design includes a mech. but is unclear or will not work.	0 1		
		The design does show an opening or closing mech. That may work or have some difficulties.	2		
		The design does show an opening or closing mech. that will work without issues.	3		
		The design does show an opening or closing mech. that will work without issues and is fully detailed.	4		
		iii			
		Sizes should be 3-10mm bigger than products sizes of 150x100mm Only acceptable sizes are within the range of 153-160mm x 103-110mm. Depth should be within a reasonable estimate 50-75mm guide.			
		The design does not show sizes or not all are not accurate.	0		
		The design shows some accurate sizes but no materials or vice versa.	1 2		
		The design shows most or all sizes with some accuracy and correct choices for materials.	3		
		The design shows all sizes with no errors or inaccuracies. And appropriate materials.			
		iv			
		The design does not show position of logo.	0		
		The design shows a logo but is in an unsuitable place.	1		
		The design shows clearly the position of the logo in a relevant place.	2		
		v			
		No answer or the answer cannot be understood.	0		
		Drawing skills are adequate and understandable, application of colour is only adequate.	1		
		Good quality drawing skills and application of colour.	2		
				25	60

Question				On paper	Question Totals	Section TOTAL
5	a	i	No answer or answers that do not match the mark scheme.	0		
			Only acceptable answer – ON PRESS	1		
		ii	No answer or answers that do not match the mark scheme.	0		
			Only acc answer – DIE CUT OR DIE CUTTING	1		
		iii	No answer or answers that do not match the mark scheme.	0		
			Only acceptable answer - FINISHING	1		
	b	i	No answer or answers that do not match the mark scheme.	0		
			Offset Lithography – Ans could include- NEWSPAPERS, MAGAZINES, POSTERS, LEAFLETS AND BROCHURES.	1		
			Flexography – Ans could include- PLASTIC BAGS, DISPOSABLE CUPS, SOME WALLPAPER.	1		
	c	i	No answer or answers that do not match the mark scheme.	0		
			A simple answer that is unexplained can be AWARD 1 mark . E.g arranging the pages of a document.	1		
			An answer that shows some understanding and description AWARD 2 marks . It consists in the arrangement of the printed product's pages on the printer's sheet, in order to obtain faster printing, simplified binding and reduced paper waste. Correct imposition minimizes printing time by maximizing the number of pages per impression, reducing cost of press time and materials. To achieve this, the printed sheet must be filled as fully as possible.	2		
			No answer or answers that do not match the mark scheme.	0		
			A simple answer that is basic and only mentions one of the following can be AWARDED 1 MARK .	1	10	70
			An answer that shows understanding and mentions 2 of the following AWARDED 2 MARKS .	2		
			An answer that shows understanding and mentions 2 of the following AWARDED 3 MARKS . Candidates could mention Binding, Trimming, Cutting, Die cutting, Embossing, Debossing, Encapsulating, Folding. UV spot varnishing. Any quality control checks, Stitching, Gluing, Assembling.	3		

Question				On paper	Question Totals	Section TOTAL
6	a	i	No answer or answers that do not match the mark scheme.	0		
			Only acc. answer – A4 Purple A3 Pink	1		
		ii	No answer or answers that do not match the mark scheme.	0		
			S = Square / Squared M = Metre	1 1		
	b	i	No answer or answers that do not match the mark scheme.	0		
			See Diagram X HEIGHT CAP HEIGHT	1 1		
	b	ii	No answer or answers that do not match the mark scheme.	0		
			1 – SANS SERIF 2 – SCRIPT 3 - OLDSTYLE	1 1 1		
	c	i	No answer or answers that do not match the mark scheme.	0		
			Only Acc answer - MONOCHROME	1		
		ii	No answer or answers that do not match the mark scheme.	0		
			A simple answer that lacks detail 1 Mark E.g How much pure colour is included in a colour. or how vivid, bright or dull a colour is.	1		
			An answer that gives some of the detail below 2 Marks E.g Saturation affects how a colour will appear, a fully saturated colour contains more pure colour so will look more vivid. Colours that contain less pure colour are less saturated and look duller or washed out.	2		
			Saturation is usually one property of three when used to determine a certain colour and measured as percentage value. Saturation defines a range from pure colour. A pure colour is fully saturated. Saturation influences the grade of purity or vividness of a colour/image. A de-saturated image is said to be dull, less colourful or washed out but can also make the impression of being softer.			
		iii	No answer or answers that do not match the mark scheme.	0		
			A simple answer that lacks detail 1 Mark eg - RGB Red Green Blue CMYK Cyan Magenta Yellow Key	1		
			An answer that gives some of the detail below 2 Marks Should mention monitor displays colours in RGB. Printable Graphics deal in CMYK and need to be converted from RGB to CMYK to print.	2		
			An answer that is full 3 Marks. May mention that RGB is an additive colour scheme and CMYK is a subtractive scheme.	3		
					15	85

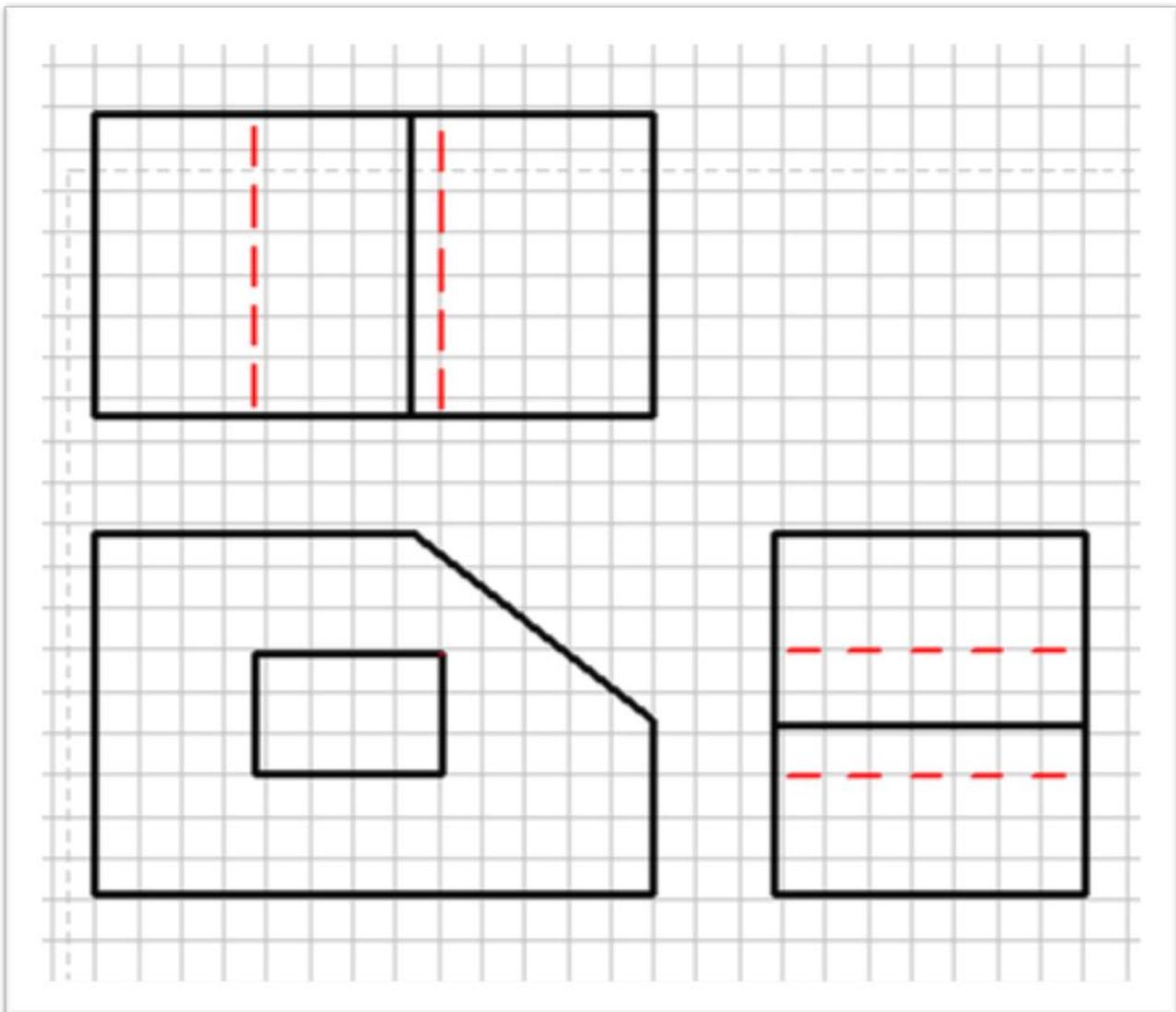
Question			On paper	Question Totals	Section TOTAL
7	a	No answer or answers that do not match the mark scheme.	0		
		Only acceptable answers for 1 each mark are FIRST BLANK – Hardest SECOND BLANK – HB THIRD - SOFTTEST	1 1 1		
	b	No answer or answers that do not match the mark scheme or just 90, or just 30 or just 60.	0		
		Only acceptable answers First Blank – 45 45/45 45/90 Second Blank – 30/60 30/60/90	1 1		
	c				
	i	No answer or answers that do not match the mark scheme.	0		
		SCORING & FOLDING - Score each fold line, Using a bone folder or similar: Fold scored lines:	1 1		
	ii	No answer or answers that do not match the mark scheme. Scissors,	0		
		1 Mark Each for Cutting mat, Sharp knife, Scalpel, or other variation of craft knife, Safety Rule, Steel Rule, Metal Rule, Ruler.	1 1 1		
	iii	No answer or answers that do not match the mark scheme.	0		
		Simple Answer lacks detail AWARD 1 MARK E.g. Templates help the designer draw a variety of shapes and sizes quickly and accurately.	1 2		
	d	No answer or answers that do not match the mark scheme	0		
		Consideration should be given to the following- (1 mark for each) <ul style="list-style-type: none"> • Where possible the design itself will prevent any hazards. • Additional Protection Devices, e.g., Guards with access points, non-material barriers such as light curtains, sensing mats etc. should be used. • Any residual risk which cannot be dealt with by the above methods must be contained by Personal Protective Equipment and/or Training. • Adequate lighting should be provided. • Controls and control systems must be safe and reliable. • Machines must not be capable of starting up unexpectedly and should have one or more emergency stop devices fitted. • Machines must be stable and capable of withstanding stresses. They must have no exposed edges or surfaces likely to cause injury. 	1 Or 2 Or 3 Or 4		
	e	No answer or answers that do not match the mark scheme	0		
		Basic answer limited understanding 1 MARK CROP TOOL – REMOVE UNWANTED PARTS OF AN IMAGE. CLONE TOOL – COPY PARTS OF AN IMAGE.	1 1		
	i	FULL ANSWER FULL UNDERSTANDING 2 MARKS CROP TOOL - The crop tool allows you to select an area of an image and discard everything outside this area. Although cropping reduces the dimensions of an image, it is not the same as resizing. Whereas resizing reduces or enlarges the entire image and everything in it, cropping does not alter the size of the image content at all.	2		
	ii	CLONE TOOL - The clone tool, is used in digital image editing to replace information for one part of a picture with information from another part. If a part of an image is removed simply by cutting it out, then a hole is left in the background. The Clone tool can fill in this hole convincingly with a copy of the existing background.	2		
				20	105

Question				On paper	Question Totals	Section TOTAL
8	a	i	No answer or answers that do not match the mark scheme.	0		
			1 ST BLANK – VECTOR DRAWING	1		
			2 ND BLANK – IMAGE MANIPULATION	1		
			3 RD Blank – PAGE LAYOUT	1		
		ii	No answer or answers that do not match the mark scheme.	0		
			Only acceptable answer - HTML	1		
	b		No answer or answers that do not match the mark scheme.	0		
			A simple answer that is unexplained can be AWARD 1 mark . E.g Printing on both sides of paper.	1		
			An answer that shows some understanding and description AWARD 2 marks . Duplex printing is a feature of computer printers that allows the automatic printing of a sheet of paper on both sides. Print devices without this capability can only print on a single side of paper, Duplex print devices, depending on options, software, and printer settings, can print single-sided page to single-sided page or double-sided page to double-sided page.	2		
	c	i	No answer or answers that do not match the mark scheme.	0		
			VIEWS			
			NO LINES CORRECT	AWARD 0 marks	0	
			Correct Plan View	AWARD 1 mark	1	
			Correct End View	AWARD 1 mark	1	
			Attempt at drawing the lines on both views but with a few errors			
			AWARD 1 mark			
			SEE ATTACHED SHEET			
		ii	No answer or answers that do not match the mark scheme.	0		
			Basic Sketch with inaccuracies or missing details.	1		
			Correct Symbol accurate in every way or Sketch that contains all components and lines SEE ATTACHED SHEET.	2		
	d		No answer or answers that do not match the mark scheme.	0		
			No part of the drawing correct	AWARD 0 MARKS		
			Small elements of the drawing correct may be Incomplete.	AWARD 1 MARK		
			Drawing looks like the shape but lines do not go back to the VP or –			
			Drawing resembles solution but with some obvious errors.	AWARD 2 MARKS		
			Drawing looks like the finished solution but with a few r errors.	AWARD 3 MARKS		
			Drawing looks like finished solution but with 1 or 2 minor errors.	AWARD 4 MARKS		
			Drawing correct in all aspects.	AWARD 5 MARKS		
					15	120

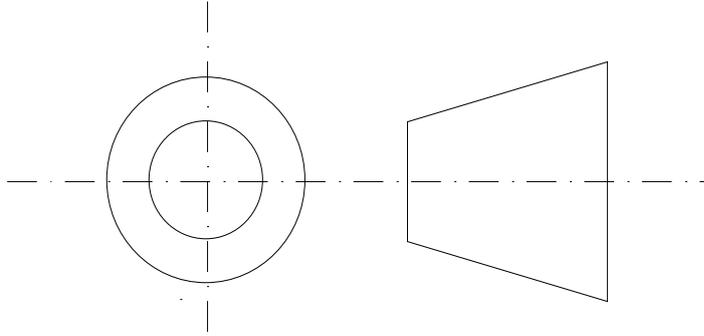
Question 6 (b) (i)



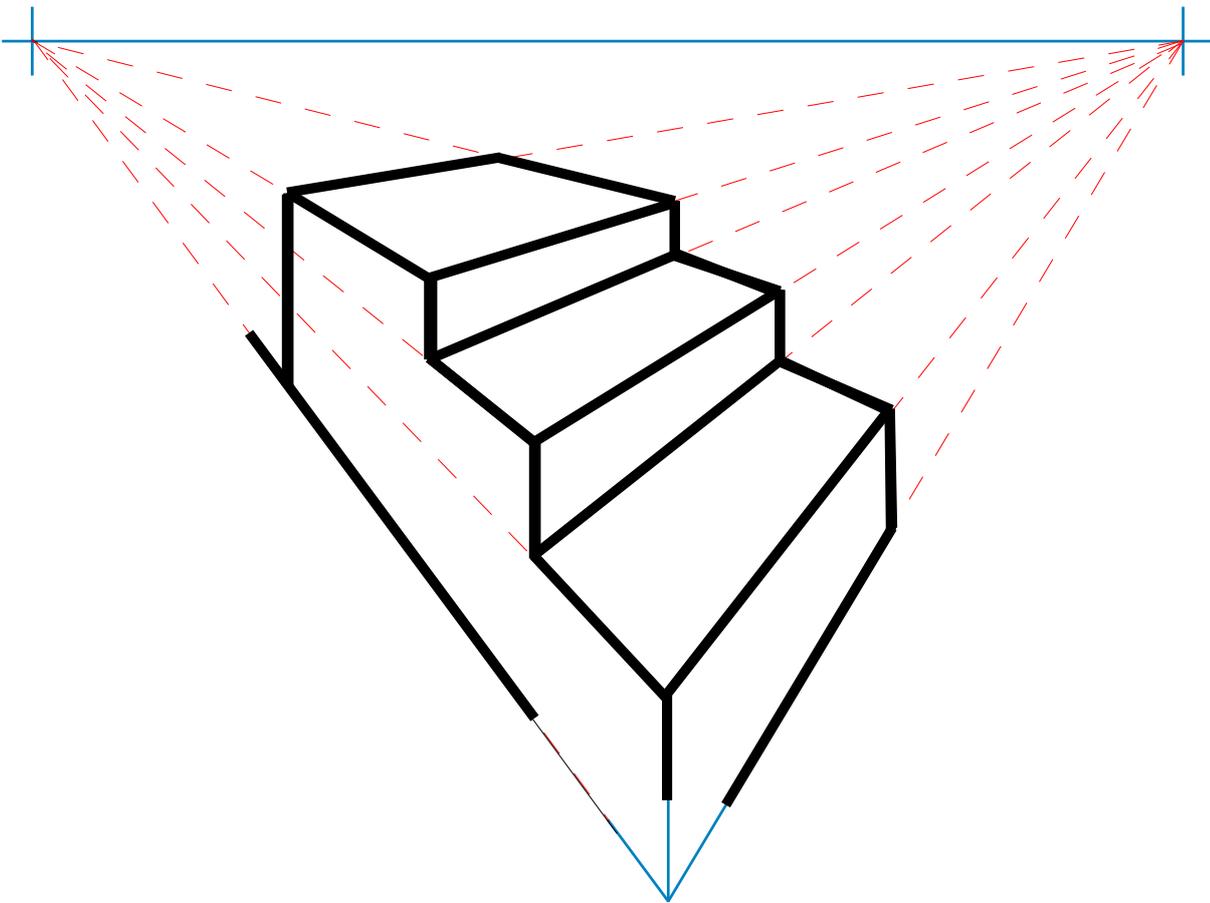
Question 8 Solutions.



Symbol



Question 8 (d)



GCSE DESIGN & TECHNOLOGY – RESISTANT MATERIALS
Mark Scheme – Summer 2014

Question			On paper	Question Totals	Overall TOTAL
1. a	No answer or an inappropriate answer.	0	2	2	2
	One word answers Strong, hard, cheap, sturdy.				
i	<p>AWARD 1 mark for each appropriate reason E.g. Light and durable material.</p> <p>Aluminium – answers related to: Good strength/weight ratio. Resistant to corrosion. Resistant to wear. Can be extruded into round section/easy to mould. Footplate can be cast.</p>	2x1			
ii	<p>AWARD 1 mark for each appropriate reason E.g. Is a hardwearing material which will last a long time.</p> <p>Nylon – answers related to: Is able to be moulded into shape. Will 'cushion' the ride/make the ride more comfortable. Inexpensive to replace. Available in a range of colours to enhance the look of the scooter. Resistant to chemicals and high temperatures.</p>	2x1	2	4	4
b	No answer or incorrect answer.	0	1	5	5
	<p>Only acceptable answer:</p> <p>BATCH PRODUCTION</p>				
c i	No answer or an inappropriate answer.	0	2	7	7
	<p>Appropriate specification point but lacking detail AWARD 1 mark e.g. The scooter should have a brake to slow it down. Appropriate statement well detailed. AWARD 2 marks e.g. The scooter should have an efficient brake that allows the rider to control the speed of the scooter efficiently.</p> <p>Safety – answers related to: All materials and components should be sturdy and durable. Grip on handlebars ensures good steering control. Smooth edges on all parts to prevent injury – scooter is to be folded and carried.</p>	1 or 2			
ii	<p>No answer or an inappropriate answer. Appropriate specification point but lacking detail. AWARD 1 mark E.g should be suitable size for people of different heights. Appropriate statement well detailed. AWARD 2 marks E.g. Anthropometric data could be used to ensure the scooter is suitable size for people of different heights.</p> <p>Size Data – answers related to: Adjustable height of handlebars.</p>	1 or 2	2	9	9

Question			On paper	Question Totals	Overall TOTAL
	Length of deck is considered. Diameter of wheels.				
d i	No answer or incorrect answer.	0	1	10	10
ii	Only acceptable answer – May. No answer or answers that do not match the mark scheme. Answer that is 25% without workings – can be awarded 1 mark. Total no.sold = 300+500+800 = 1600 Total RED sold = 100+100+200 = 400 % of RED = 400/1600 = 25%	1 0 1 or 2	2	12	12
e	No answer or an inappropriate answer.	0	3	15	15
	Appropriate explanation but lacking detail. AWARD 1 mark E.g. It is cheaper to manufacture the scooter in China. Appropriate explanation, includes some detail. AWARD 2 marks E.g. it is cheaper to manufacture the scooter in China because of lower production costs and lower wages being paid to factory workers. Appropriate explanation, well detailed. AWARD 3 marks E.g. Factors such as the lower cost of production and the lower average wage necessary to pay the workforce mean that it is very attractive for manufacturers to move their factories to countries such as China. Consider: Low labour wages. Lower production costs. Flexibility of workforce. Lower energy costs. Financial incentives offered to set up manufacturing in China. Ease of communication makes global manufacturing possible. Manufacturing resources/capability.	1 or 2 or 3			
				15	15

Question			On paper	Question Totals	Overall TOTAL
2. a	No answer or an incorrect answer.	0	2	2	17
	Repair	1			
	Reuse	1			
b	No answer or an incorrect answer.	0	2	4	19
	Steel, Iron	1			
	Polypropylene	1			
c	No answers or inappropriate answers.	0	2	6	21
	2. Identify who could be harmed	1			
	5. Review the results of the Risk Assessment	1			
d	No answers or an incorrect answer.	0	2	8	23
	CYCLE ANALYSIS.				
e	No answer or an inappropriate answer. (The BSI tests products)	0	2	10	25
	Appropriate explanation but lacking detail. AWARD 1 mark.	1			
	E.g. The BSI sets standards for products.	or			
	Appropriate reason, well detailed. AWARD 2 marks	2			
	E.g. The BSI sets out standards for manufacturers to follow in the designing and manufacturing of their products.				
	BSI standardises products – interchangeability of parts.				
	Certification marks such as the 'Kite' mark ensure buyers that the product is of a reasonable quality.				
	Safety considerations.				
				10	25

Question			On paper	Question Totals	Overall TOTAL												
3 a i	No answer or an inappropriate answer. LEFT – STARCK RIGHT – LOVEGROVE	0	2	2	27												
ii	Candidates would need to include references to the following in their answers.		8	10	35												
	<p>Differences:</p> <table border="1"> <thead> <tr> <th>Starck</th> <th>Lovegrove</th> </tr> </thead> <tbody> <tr> <td>Much of his early work inspired by fashion and novelty.</td> <td>Uses shape and forms in nature as inspiration.</td> </tr> <tr> <td>Expresses a disdain for only designing for a “design-conscious” elite, some of his products are intended for the mass market.</td> <td>On the whole his products appeal to a narrower more “design-centred” market.</td> </tr> <tr> <td>Self publicist enjoys media attention.</td> <td>More remote, ‘professorial’, prefers to avoid attention.</td> </tr> <tr> <td>His flamboyant and light hearted personality are reflected in the character of much of his work.</td> <td>Considered to be an “industrial” designer, his work is more contemporary and less flamboyant.</td> </tr> <tr> <td>Some of his design work is regarded as being frivolous. Emphasis on the aesthetic.</td> <td>‘Fat-free’ design philosophy. Emphasis on the functional.</td> </tr> </tbody> </table>	Starck	Lovegrove	Much of his early work inspired by fashion and novelty.	Uses shape and forms in nature as inspiration.	Expresses a disdain for only designing for a “design-conscious” elite, some of his products are intended for the mass market.	On the whole his products appeal to a narrower more “design-centred” market.	Self publicist enjoys media attention.	More remote, ‘professorial’, prefers to avoid attention.	His flamboyant and light hearted personality are reflected in the character of much of his work.	Considered to be an “industrial” designer, his work is more contemporary and less flamboyant.	Some of his design work is regarded as being frivolous. Emphasis on the aesthetic.	‘Fat-free’ design philosophy. Emphasis on the functional.				
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Some of his design work is regarded as being frivolous. Emphasis on the aesthetic.	‘Fat-free’ design philosophy. Emphasis on the functional.																
	No answer or no relevant issues described or discussed.	0															
	Some simple description of the differences between the two designers. Little if any, understanding of their work with few if any appropriate examples provided. Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling.	1 or 2															
	Some description of the differences between the two designers. Little understanding of their work with a few appropriate examples provided. Quality of written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling.	3 or 4															
	Description of the differences between the two designers. Some understanding of their work with appropriate examples provided. Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling.	5 or 6															
	Description of the differences between the two designers. Clear understanding shown of their work with fully appropriate examples provided. Quality of Written Communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors.	7 or 8															
	If one designer only is discussed, award maximum 3 marks.																
				10	35												

Question			On paper	Question Totals	Overall TOTAL
4. a	Not attempted	0	2	2	37
(i)	Researching	1			
(ii)	Evaluating	1			
b	No answer or an inappropriate answer.	0	2	4	39
	Material requirements Time considerations Equipment requirements Quality control issues Constraints on manufacture Dimensions Safety considerations	2x1			
c	No answer or an inappropriate answer.	0	3	7	42
	<p>Appropriate explanation but lacking detail. AWARD 1 mark E.g. A list of things that product must do.</p> <p>Appropriate explanation, includes some detail. AWARD 2 marks E.g. A list of requirements that a product must meet in order to be successful.</p> <p>Appropriate explanation, well detailed. AWARD 3 marks. E.g. A list of requirements that a product must meet in order to be successful. It can be used as a checklist when evaluating the performance of the final prototype.</p> <p><i>Consider:</i> List of design factors that the product must satisfy.</p> <p>Summarise the results of all the information that has been gathered during research.</p> <p>Can be used as a checklist when evaluating initial design ideas.</p> <p>Helps to develop a design into a final design proposal.</p> <p>Used to evaluate effectiveness/performance/success of final product.</p>	1 or 2 or 3			

Question			On paper	Question Totals	Overall TOTAL
d i	Details to satisfy specification	0	3	10	45
	No work or does not meet specification in anyway.	0			
	Basic solution that addresses 1 or 2 specification points.	1			
	Feasible solution that addresses some of the specification points (3 specification points).	2			
	Feasible solution that addresses all of the specification points (4 specification points).	3			
ii	Technical details 0 mark no details of construction shown. 1-2 marks basic solution but could work with few technical features and processes shown. 3-4 marks feasible solution that shows some important technical features and processes. 5-6 marks feasible solution, sufficient technical details are listed to manufacture the folding leg mechanism. Clearly communicated with detailed range of sketches and good annotation.	0 1 or 2 3 or 4 5 or 6	6	16	51
iii	Specifying suitable materials, components & processes Up to 3 marks for naming SPECIFIC and relevant material/s, component/s & process/es. Do not accept wood, plastic etc.	1 or 2 or 3			
iv	Specifying 2 important dimensions Up to 2 marks specifying appropriate dimensions related to leg mechanisms and not to the table top. 1 mark per important/appropriate dimension. <i>Reference to 400mm height is acceptable.</i>	1 or 2	2	21	56
vi	Quality of communication 4 Excellent 3 Good 2 Average 1 Below average	1 or 2 or 3 or 4			
				25	60

Question			On paper	Question Totals	Overall TOTAL						
5 a	No answer or an inappropriate answer.	0	4	4	64						
	<table border="1"> <tr> <td>Wood</td> <td>Metal</td> <td>Plastic</td> </tr> <tr> <td>Steam Bending</td> <td>Die Casting</td> <td>Line Bending Blow Moulding</td> </tr> </table> <p>Note: If same process is used more than once, accept only first answer from left.</p>	Wood	Metal	Plastic	Steam Bending	Die Casting	Line Bending Blow Moulding	4x1			
Wood	Metal	Plastic									
Steam Bending	Die Casting	Line Bending Blow Moulding									
b	No answer or an inappropriate answer.	0	1	5	65						
	Only acceptable answer: Veneering										
c	No answer or an inappropriate answer:	0	2	7	67						
	<p>Candidates need to state two appropriate advantages such as:</p> <p>Solid wood effect can be created without having to use solid timber/Improves attractiveness of material.</p> <p>Saves on the expense of using solid natural wood.</p> <p>Preserves resources of natural wood.</p> <p>Recycled material can be used to produce the clipboard.</p> <p>Sheet material is more stable than natural wood.</p> <p>Large sheets of material can be manufactured, saves on jointing widths of natural timber.</p>	2x1									
d	No answer or an inappropriate answer. Do not accept – “products are made just l time”.	0	3	10	70						
	<p>Appropriate explanation but lacking detail. AWARD 1 mark E.g. products are made only when they are required by retailer/consumer.</p> <p>Appropriate explanation, includes some detail. AWARD 2 marks E.g. products are made only when they are required/consumer, in the correct quantity and at the correct time.</p> <p>Appropriate explanation, well detailed. AWARD 3 marks E.g. products are made only when they are required, in the correct quantity and at the correct time. This prevents expensive overproduction on products that do not have customers.</p> <p>Allows products to be tailored to the customer’s needs.</p> <p>Manufacturer does not need to maintain a large amount of stock.</p> <p>Expensive storage of completed products is not necessary.</p> <p>Manufacturers do not need to build up an expensive stock of components.</p>										
				10	70						

Question			On paper	Question Totals	Overall TOTAL
6 a	No answer or an incorrect answer.	0	4	4	74
	Brass Stainless steel Duralumin Bronze	1 1 1 1			
b	No answer or an incorrect answer.	0	4	8	78
	Electrical socket <u>Urea Formaldehyde</u> <u>Thermosetting plastic</u> Mallet <u>Beech</u> <u>Hardwood</u>				
c i	No answer or an inappropriate answer.	0	1	9	79
	Only acceptable answers – BLOCK FITTING or MODESTY FITTING				
ii	No answer or an inappropriate answer. Only acceptable answer – SCAN FITTING	0	1	10	80
iii	No answer or an inappropriate answer. Appropriate reason but lacking detail. AWARD 1 mark E.g. Products that are assembled using KDF's are less expensive. Appropriate reason well detailed. AWARD 2marks E.g. Products that are assembled using KDF's are less expensive as the manufacturer can pass on lower manufacturing costs to the consumer. Products can be transported from shop to home easily. No need to wait for specialist delivery, product can be taken home on the same day as purchase. Consumer can disassemble and reassemble the product if moving home. Allows easier for large products through narrow entrances and up staircases.	0 1 or 2	2	12	82
d i	No answer or an inappropriate answer.	0	1	13	83
ii	Award 1 mark for appropriate answers such as: Nitinol Acrylic Polymorph Thermochromic sheet/pigment Photochromic sheet/link No description or an inappropriate description. Appropriate description but lacking detail. AWARD 1 mark E.g. Photochromic plastic is used in sunglasses. Appropriate reason well detailed. AWARD 2 marks E.g. Photochromic plastic is used in sunglasses and changes colour according to the light available. Note: Award 1 mark for an appropriate application and 1 mark for description of the smart material properties.	1 0	2	15	85
				15	85

Question			On paper	Question Totals	Overall TOTAL
7. a	No answer or an inappropriate answer.	0	2	2	87
	Appropriate items: Safety goggles Safety gloves Apron Face mask Visor Safety/steel toe-capped boots Overalls Any suitable safety item Ear protectors	2x1			
b	No answer or an inappropriate answer.	0	4	6	91
	Jobbers/Twist drill/Drill bit	1			
	Countersink bit	1			
	Holesaw				
	Flat bit				
c	No answer or an inappropriate answer.	0	2	8	93
	CORROSIVE – chemical hazard	1			
	VOLTAGE – electrical hazard	1			
d (i)	No answer or an inappropriate answer.	0	1	9	94
(ii)	Line bender/strip heater	1			
	No answer or an inappropriate answer.	0	5	14	99
	The following points need to be referenced to gain marks: <ul style="list-style-type: none"> Marking out – position of hole centre and marking line to be bent (steel rule, permanent marker, square). Cutting out the 30mm hole (hole saw or series of holes + coping saw + file/laser). Finishing the edges of the acrylic (file, emery, wet & dry). Use of line bender to heat along marked line Bending the acrylic (former). 				
	Note: Step + Equipment required for 1 mark				
	1 mark – very basic understanding.	1			
	2-3 marks – some detail and understanding related to tools, processes.	Or 2			
	4-5 marks – detailed understanding (most of above points referenced), clearly communicated.	Or 3			
		Or 4			
		Or 5			

Question			On paper	Question Totals	Running TOTAL
e (i)	No answer or an inappropriate answer. Do not accept glue gun/glue stick.	0	1	15	100
	PVA /Epoxy resin	1			
(ii)	No answer or an inappropriate answer. The points need to be referenced to gain marks: <ul style="list-style-type: none"> • Marking out – position of the two screws. • Drilling clearance hole in part B. • Drilling pilot hole in part A. • Countersinking part B so that screw heads are flush. • Screwing and gluing parts together. <p>1 mark – very basic understanding.</p> <p>2-3 marks – some detail and understanding related to tools, processes.</p> <p>4-5 marks – detailed understanding (most of above points referenced), clearly communicated.</p>	0	5	20	105
		1 or 2 or 3 or 4 or 5			
				20	105

Question			On paper	Question Totals	Overall TOTAL
	No answer or an incorrect answer.	0	3	3	108
8. a	Teak Oil – Wood Plastic coating – Metal Paint and Primer – Both Rule: Accept only these answers. If more than one box in row is ticked, mark only first answer from left.	1 1 1			
b	No answer or an inappropriate answer.	0	2	5	110
	LEFT – HALVING joint RIGHT – DOVETAIL joint	1 1			
c	No answer or an inappropriate answer.	0	3	8	113
	Appropriate explanation but lacking detail. AWARD 1 mark E.g. Needs to have tapered sides. Appropriate explanation, includes some detail marks. AWARD 2 marks E.g. Sides of the mould need to have tapered sides to allow easy removal of the plastic after moulding. Appropriate explanation, well detailed. AWARD 3 marks E.g. Sides of the mould need to have tapered sides, any corners should be radiused to allow easy removal of the plastic after moulding and prevent splitting. Mould should be made from heat-resistant material. Smooth surface to avoid marks on surface of plastic. Vent holes can be used to improve suction. Height/thickness of mould. Reference to size of mould – if related to machine platten.	1 or 2 or 3			

Question			On paper	Question Totals	Overall TOTAL
d	No answer or an inappropriate answer	0	3	11	116
	<p>Appropriate explanation but lacking detail. AWARD 1 mark E.g. More accurate than drawing by hand.</p> <p>Appropriate explanation, includes some detail. AWARD 2 marks E.g. More accurate than drawing by hand, images can be rendered and dimensioned electronically.</p> <p>Appropriate explanation, well detailed. AWARD 3 marks E.g. More accurate than drawing by hand, images can be rendered and dimensioned electronically. Files can be sent to CAM devices such as lasers, plotters and vinyl cutters for manufacture.</p> <ul style="list-style-type: none"> • More accurate than traditional hand drawn orthographic drawings. • Faster to produce and less labour intensive. • Multiple copies can be stored, printed and shared electronically. • Can be easily edited and design modifications do not generate endless redrawings of the original design. • Drawings can be automatically scaled and re-scaled as necessary. • Can be used directly to generate cutting data for CNC/CAM machines. • Accurate 3D models can be visualised and tested before making in costly materials. • Parts can be modified, deleted or added to the assembled model. 	1 or 2 or 3			

Question			On paper	Question Totals	Running TOTAL
e	No answer or an inappropriate answer.	0	4	15	120
	<p>Marks awarded for discussing relevant factors such as:</p> <ul style="list-style-type: none"> • Methods of producing the mould – manually (coping saw/file) CAM router to ‘mill out’ the mould. • Accuracy of mould. • Suitable materials are referenced for mould. • Runner to ensure pressure/flow of molten metal. • Mould could be 2/3 parts that are clamped/secured together after cavity is formed. • Pewter is heated until molten the poured into Runner. • After leaving to cool and harden the casting is carefully removed from mould and the sprue cut off. • Safety issues are considered. <p>1 mark – very basic understanding (reference few of the points above). 2 marks – more detail (reference to some of the points above). 3 marks – fairly detailed response (reference to many of the points above). 4 marks – detailed response (reference to most of the points above).</p>	1 or 2 or 3 or 4			
				15	120

GCSE DESIGN & TECHNOLOGY – SYSTEMS AND CONTROL
Mark Scheme – Summer 2014

Q	Part	Answer	Marks	Total	Spec Contents	
Q.1	(a)	(i)	Full answer should reflect a typical specification point e.g. Console has brightly coloured casing and LCD display. Control/button are positioned appropriately and are recognisable.	2 marks	2	Product Analysis
			Limited answer e.g. coloured plastic body, Looks modern and cool.	1 mark		
			One word responses like coloured.	0 marks		
		(ii)	Must be pocket size and able to fit into the users pockets with keys attached.	2 marks	2	Dev, Plan, Com (b)
		Small in size/hand held.	1 mark			
		One word answers like small.	0 marks			
		(iii)	Product must be a small, compact keyring and feature a game/entertainment.	2 marks	2	Product Analysis
		Answers could relate to – hold keys/store safely and securely. Be a novelty/retro product.				
		Must hold keys securely, or must entertain user.	1 mark			
			One word responses like a gadget.	0 marks		
	(b)	(i)	Batch Production	1 mark	1	Dev, Plan, Com (a)
				In appropriate or incorrect answer.		
		(ii)	A clear and detailed answer	2 marks	2	
			The console keyring is available in three different colours to appeal to more users/consumers/purchasers.			
			There are 3 different games, so each colour represents the difference game that each keyring features.			
			A less clear or less detailed response. To sell more.	1 mark		
			Because people like different colours.			
			In appropriate or incorrect answer.	0 marks		

Q	Part	Answer	Marks	Total	Spec Contents
	(c)	<p>A clear and detailed answer with reasons.</p> <p>Designers would need to consider the way that the electronic system is powered, e.g. battery, rechargeable cell, solar cell.</p> <p>Designers would consider the materials carefully. Reuse or use recycled materials instead of using new materials and reducing resources.</p> <p>Designers could ensure that the materials and components used in the product can be reused and recycled at the end of the product life cycle.</p>	3 marks	3	Product Analysis
		<p>A clear but less detailed response.</p> <p>Designers should use materials that re reused or have been recycled from other products.</p>	2 marks		
		<p>An unclear or less detailed response. A response which contains some truth.</p>	1 marks		
		<p>Use an energy efficient system.</p>			
		<p>One word response like reliable, good quality.</p>	0 marks		
	(d) (i)	<p>Shipping</p> <p>10% blank, incorrect answer</p>	1 mark 0 marks	1	Product Analysis
	(ii)	<p>The correct answer with evidence of calculation $16\% \text{ of } \pounds 8.99 - 1.4384, \times 800 = \pounds 1150.72$ Or $800 \times \pounds 8.99 = 7192. 16\% \text{ of } 7192 = \pounds 1150.72$</p> <p>Correct answers no calculation, some workings incorrect answer.</p> <p>Blank, incorrect workings and incorrect answer.</p>	2 marks 1 mark 0 marks	2	
Q1	All	<p>Unexpected answers – candidates may respond in a way that is unexpected or does not fit with the markings scheme. Examiners to follow code of practise and contact team leader.</p>			
				15	

Q	Part	Answer	Marks	Total	Spec Contents
2	(a)	Recyclable material. (Recycle or Recycling can be accepted)	1 mark	1	Overarching principles
		Incorrect or blank.	0 marks		
	(b) (i)	One of the correct Rs e.g. Reduce	1 mark	5	Overarching principles
	(ii)	A clear and detailed reason relating to the R named. E.g. The new torch has been redesigned to use less material as it is smaller in size. A less clear or less detailed response relating to the named R. The new torch is smaller. No response/inappropriate response. One word E.g. better, cheaper, smaller.	2 marks 1 mark 0 mark		
	(iii)	One of the correct Rs. e.g. Rethink Incorrect R or blank	1 mark 0 marks	1	
	(iv)	A clear and detailed reason relating to the R named. E.g. The new bicycle lights uses solar energy to power the light instead of batteries. A less clear or less detailed response relating to the named R. New light is greener or environmentally better. In appropriate answer, one word answer, no answer.	2 marks 1 mark 0 marks		
	(c)	Made from durable materials that are hard wearing, parts are serviceable or replaceable, good quality materials and manufacturing methods used, product not easily damaged, built to last. Clear and detailed response E.g. Products that have a better build quality will be made to higher standards with superior or high quality materials and manufacturing method sand will last longer preventing waste.	3 marks	3	

Q	Part	Answer	Marks	Total	Spec Contents
		<p>Less developed/less clear responses.</p> <p>e.g. Consumers would buy a product that was better for the environment or had a longer life expectancy.</p> <p>Poor responses with some truth.</p> <p>e.g. buy ones that are greener.</p>	<p>2 marks</p> <p>1 mark</p>		
Q2	All	Unexpected answers – Possibly a wide range of responses for C.			
				10/25	

Q	Part	Answer	Marks	Total	Spec Contents
4.	(a)	Correct statement underlined. A statement describing the problem at the start of the project.	1 mark	1	Design Process
		No answer or inappropriate answer	0 marks		
	(b)	A clear and detailed response. e.g. To understand how the product is made or functions and take ideas for their product.	2 marks	2	Design Process
		A weaker/less clear response. e.g. To see how the product works.	1 mark		
		No answer or Responses related to ICT. e.g. Excel	0 marks		
	(c)	A clear and detailed response. Symbol is British Standards Institution kitemark meaning that the product complies with the standards set out and is safe to use.	2 marks	2	Design Process
		Weaker responses may not be as detailed, or cover enough factors. British Standards kitemark.... Or....To make sure products are up to a safe standard. (The words Kite Mark are not crucial)	1 mark		
		Poor response/no clarity, no answer or inappropriate answer.	0 marks		
	(d)	A clear and detailed response. Designers test the prototype on users to see if it meets all their needs and wants. If not then the prototype can be modified or developed.	2 marks	2	
		A less clear or detailed response. Designers want to know if the user is happy with it.	1 mark		
		No answer or inappropriate answer.	0 marks		
				7/42	

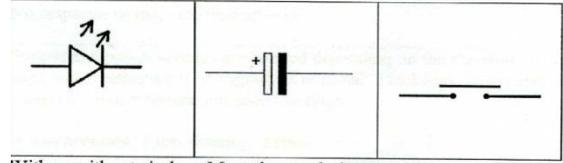
Q	Part	Answer	Marks	Total	Spec Contents
	(e) (i)	<p>Accurate and clear sketching of the external features of the design including all the specification points, and fitting to the door.</p> <ul style="list-style-type: none"> • A warning device that meets the specification: • be battery powered and create a light and sound when triggered; • keep the light and sound 'on' until reset by the supervisor; • made from suitable materials/fit securely to a wooden doorframe; • include a method of resetting the device by the supervisor only. <p>No answer or inappropriate answer.</p>	<p>4 marks</p> <p>4 x 1 mark</p> <p>0 marks</p>	4	Design Question
	(ii)	<p>Block diagram with three main boxes, Input, Process, and Output.</p> <p>Components named in relevant box e.g. LDR, switch, comparator or PIC, Lights or LEDs and buzzer or piezo. Unexpected answers might appear here.</p> <p>No answer or inappropriate answer.</p>	<p>3 x 1 mark</p> <p>0 marks</p>	3	Design Question
	(iii)	<p>Fully labelled circuit diagram of a system that will work. Symbols and conventions correct and accurate. Comprehensive details of a PIC, Thyristor latch system. Look at sensing p.d., control/process and outputs.</p> <p>Labelled circuit diagram that shows some conventions and components correct some use of suitable components but may not function fully.</p> <p>Labelled circuit diagram with several errors of details missing; One to two components or conventions correct.</p> <p>No answer or inappropriate answer.</p>	<p>[up to 4/5 marks]</p> <p>[up to 2/3 marks]</p> <p>[up to 1 mark]</p> <p>0 marks</p>	5	Design Question
	(iv)	<p>Clear details of an appropriate method of triggering and resetting the device e.g. mechanical switch, movement sensor/mercury switch, LDR or pressure pad near door to trigger. On latching, device can be reset with a ptm switch, code keypad, key switch etc.</p> <p>Some details of an appropriate method.</p> <p>No answer or inappropriate answer.</p>	<p>2 marks</p> <p>1 marks</p> <p>0 marks</p>	2	

Q	Part	Answer	Marks	Total	Spec Contents
	(v)	Two or more dimensions given. Main material/s named. High quality sketching, communication. Conventions used.	4 marks	4	Design Question
		At least one dimension given or more materials named. Sketching, communication and Conventions generally accurate.	3 marks		
		Lacks appropriate dimensions and/or materials. Some errors, basic levels of sketching and communication.	2 marks		
		No specific/appropriate dimensions or materials. Offered, weak quality sketching and communication.	1 mark		
		No answer or inappropriate answer.	0 marks		
				18/60	

Q	Part	Answer	Marks	Total	Spec Contents
5.	(a)	<p>Fluxing – The PCB first enters the fluxing zone, where a fluxer applies flux to the underside of the board. Three types of fluxers are used: spray fluxers, foam fluxers, and rotary fluxers.</p> <p>A good response – The PCBs are cleaned in this fixing stage.</p> <p>A weaker description, very basic response – fluxing stage</p> <p>No answer or inappropriate answer.</p> <p>Heating or Pre Heating – Once fluxed, the PCB enters the preheating zone. The preheating zone consists of convection heaters which blow hot air onto the PCB to increase its temperature. For thicker or densely populated PCBs an upper preheater might be used. The upper preheater is usually an infrared heater</p> <p>A good response – The pcbs and components are heated in preparation for soldering.</p> <p>A weaker description, very basic response or just the name – heating stage.</p> <p>No answer or inappropriate answer.</p> <p>Solder Wave/Soldering – The tank of molten solder has a pattern of standing waves (or, in some cases, intermittent waves) on its surface. When the PCB is moved over this tank, the solder waves contact the bottom of the board, and stick to the solder pads and component leads via surface tension. Precise control wave height is required to ensure solder is applied to all areas but does not splash to the top of the board or other undesired areas.</p> <p>A good response – The heated pcb travels above the solder wave, with sold joining the components to the PCB.</p> <p>A weaker description, very basic response or just the name – soldering.</p> <p>No answer or inappropriate answer.</p>	<p>2 marks</p> <p>1 mark</p> <p>0 marks</p> <p>2 marks</p> <p>1 mark</p> <p>0 marks</p> <p>2 marks</p> <p>1 mark</p> <p>0 marks</p>	6	Commercial Manufacturing Practices (a)

Q	Part	Answer	Marks	Total	Spec Contents
	(b)	<p>Quality control relates to ensuring that products are accurate and functional and meet the requirements of the set standard. Monitoring allow flaws or problems to be solved as they occur preventing unsuccessful products or large amounts or rejects.</p> <p>Clear and detailed response.</p> <p>Less clear – Making sure they are high quality.</p> <p>No answer or inappropriate answer.</p>	<p>2 marks</p> <p>1 mark</p> <p>0 mark</p>	2	Commercial Manufacturing Practices (a)
	(c)	<p>Automated production provides many advantages – full responses like:</p> <p>Machines can operate quicker than humans improving efficiency,</p> <p>Fewer mistakes are made.</p> <p>Once set up the line is cheaper to run than paying workers.</p> <p>Less clear – Making sure they are high quality.</p> <p>No answer or inappropriate answer.</p>	<p>2 marks</p> <p>1 mark</p> <p>0 marks</p>	2	Commercial Manufacturing Practices (a)
				10/70	

Q	Part	Answer	Marks	Total	Spec Contents
6	(a) (i)	Circled crank and slider.	1 mark	1	Materials and components (b) Mechanisms
		No answer or inappropriate answer.	0 marks		
	(ii)	Rotary	1 mark	2	Materials and components (b) Mechanisms
		Reciprocating or Reciprocating Rotary	1 mark 0 mark		
	(b) (i)	True	1 mark	2	Materials and components (b) Mechanisms
		False	1 mark		
	(ii)	No answer or inappropriate answer.	0 mark		
	(ii)	RV Calculation: Step 1 20*20=10*?, 400/10=40rpm, Step 2 40*36=1440, 1440/18= 80 rpm This can be calculated using velocity ratio method. VR calculation: 1:2*1:2, 1:4, 20 * 4= 80rpm Correct answer with evidence of all workings. Incorrect answer, but evidence of all working correct/correct answer with some workings. Correct answer but no workings or correct workings but wrong answer. Some workings wrong answer, correct answer only. No answer or inappropriate answer.	3 marks 2 marks 1 mark 1 mark 0 mark	3	

Q	Part	Answer	Marks	Total	Spec Contents															
	(c) (i)	Joint C or C	1 mark		Material and components (a) Electronics															
	(ii)	Soldering iron has heated the resistor leg only and not the pcb, so solder has collected in a ball onto the leg without attaching to the PCB. A full response describing the reason as above. A limited or less developed response e.g. only solder on the resistor and not PCB.	2 marks 1 mark	2																
	(d)	 <p>With or without circle. Must show polarity</p>	3x1 marks 3 x 1 marks	3	Materials and components (a) Electronics															
	(e)	<table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>Y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <p>Table completed correctly Incorrect or blank.</p>	A	B	Y	0	0	0	1	0	1	0	1	1	1	1	1	1 mark	1	Materials and components (b) Mechanisms
A	B	Y																		
0	0	0																		
1	0	1																		
0	1	1																		
1	1	1																		
				15/85																

Q	Part	Answer	Marks	Total	Spec Contents
7.	(a) (i)	Soldering iron, wire strippers, multimeter	3 x 1 mark	3	Tools, Equipment & Making
	(b)	Wear safety goggles. Wear safety goggles to operate the machine the symbol is featured on. No response or incorrect response (do not accept 1 word response i.e. goggles)	1 mark 1 mark	1	Tools, Equipment & Making
		Hazardous material or substance. Harmful material or substance. No answer or inappropriate answer. (do not accept one word response like dangerous)	1 mark 1 mark 0 marks	1	Tools, Equipment & Making
	(c) (i)	MDF or medium density fibreboard Lime. Jelutong. No answer or inappropriate answer.	1 mark 0 marks	1	Tools Equipment & Making
	(ii)	1. Marking out – Measure using tape/rule, mark using pencil and trisquare. No response or inappropriate answer. (do not credit poorly worded responses that are unclear, or one which fails to name materials, i.e. tape, pencil, try square.) 2. Cutting/Shaping – Named hand saw i.e. Tenon, panel, accept bandsaw. MDF shapes cut as desired.marked. (responses may include removing corners) Cut shapes with a tenon saw. No response or inappropriate answer.	1 marks 0 marks 1 mark 0 marks	3	Tools Equipment & Making
		3. Gluing – use PVA to bond layers of MDF together. Cramp, compress or place in a vice. Glue with PVA and place in a vice or g cramp. No response or inappropriate answer.	1 mark 0 marks		
	(iii)	Acrylic No response or inappropriate answer.	1 mark 0 marks	1	

Q	Part	Answer	Marks	Total	Spec Contents
	(d)	Speeds and power settings are needed depending on the material being used and whether a cut or engrave is required. Thickness of material is a reason to change power and speed settings. A less accurate or less developed response. No response or inappropriate answer.	2 marks 1 mark 0 marks	2	
	(e) (i)	Epoxy resin Glue (accept hot glue gun) There may be other responses such as self adhesive foam pads. No response or inappropriate answer. Do not accept glue	1 mark	1	Tools and Equipment & Making
	(ii)	Small hole drilled through the PCB and acrylic body so that the wires can be fed straight through and not around the product. Sketch to support. A full and accurate description. Reasonably clear, lacks some details or no notes some sketches, note no sketches. A less accurate or less developed response, limited. No response or inappropriate answer.	3 marks 3 marks 2 marks 1 mark 0 marks	3	
	(iii)	Detailed advantage – A less skilled worker can easily achieve the shape required by using a jig. Limited machinery or equipment is required for bending the shape because the jig dictates the form. Production is more efficient or quicker because the jig speeds up manufacture. A less accurate or less developed response. It is easier to get the right shape. No response or inappropriate answer. Do not accept one word responses like faster, better, quicker unless they are qualified.	2 marks 2 marks 2 marks 1 mark 0 marks	4	Tools, Equipment & Making
				20/05	

Q	Part	Answer	Marks	Total	Spec Contents
8.	(a) (i)	Yellow button or blue button. Accept remote control or radio signal, infra-red signal from remote.	1 mark	1	Systems and Processes
		No response or inappropriate answer.	0 marks		
	(ii)	Light or motor (accept LED on remote). No response or inappropriate answer.	1 mark 0 marks	1	Systems and Processes
	(iii)	A full and accurate description. A good response like: The courtesy light is included to provide light inside the garage when the door is opened and closed. OR This would be helpful in dark conditions if the door was opened or closed at night. A less accurate or less developed response like: So you can see in the garage. Or light up in the dark No response or inappropriate answer.	2 marks 2 marks 1 mark 0 marks	1	

Q	Part	Answer	Marks	Total	Spec Contents
	(b)	<p>Completed flowchart</p> <pre> graph TD Start([START]) --> Yellow{IS YELLOW BUTTON PRESSED, YES NO} Yellow -- No --> MotorFwd[MOTOR FORWARD] MotorFwd --> MotorStop[MOTOR STOP] MotorStop --> LightOff1[LIGHT OFF] LightOff1 --> Yellow Yellow -- Yes --> LightOn1[Light on] LightOn1 --> MotorFwd1[Motor forward] MotorFwd1 --> Wait5[Wait 5] Wait5 --> MotorStop1[Motor Stop] MotorStop1 --> Wait10[Wait 10] Wait10 --> LightOff2[Light off] LightOff2 --> Blue{IS BLUE BUTTON PRESSED, YES NO} Blue -- No --> MotorBack[MOTOR BACKWARDS or LIGHT ON] MotorBack --> Yellow Blue -- Yes --> LightOn2[Light on] LightOn2 --> MotorBackward[Motor backward] MotorBackward --> Wait5_2[Wait 5] Wait5_2 --> MotorStop2[Motor Stop] MotorStop2 --> Wait10_2[Wait 10] Wait10_2 --> LightOff3[Light off] LightOff3 --> Yellow </pre>	7x1 marks	7	
		Marks reduced x1 as errors appear.			
	(c)	<p>The interrupt is a facility of stopping the door when it is being opened or closed. Typical reasons could be if the door needed to be partially opened, if a car or person was close to the door and would be hit by the door if it opened. It is a panic facility to override other commands. If the door is accidentally opened by mistake, the user can stop it quickly.</p>	2x2 marks	4	
		Allows the user to stop the motor, to stop the door straight away.	1 mark		
		No response or inappropriate answer.	0 mark		
				15/120	

GCSE DESIGN & TECHNOLOGY – TEXTILES TECHNOLOGY
Mark Scheme – Summer 2014

SECTION A

Question				On paper	Question Totals	Running TOTAL
1	a		No answer or an incorrect answer. Only acceptable answer: batch production.	0 1	1	1
	b	(i)	No answer or an answer that does not indicate a reason for the seam – 0 mark.	0		
			Answers that indicate a clear understanding for using a double stitched seam can be awarded a mark based on: two rows of stitching will add strength to the seam; it is a strong method of joining materials and less chance of it becoming undone; will last longer as it is durable.			
			A one mark answer: it has two rows of stitching so it is a very strong method of joining a seam.	1	1	
		(ii)	No answer or an answer that does not indicate a reason for the bound seam. – 0 mark.			
			Answers that indicate a clear understanding for using a bound seam can be awarded a mark based on: it is a neat finish which covers the raw edges; it adds strength to the seam; the products in the bag could be wet, this will help prevent moisture escaping through the seam.			
			A one mark answer: it will cover the raw edges of the seam making the inside look neater.	1	1	
		(iii)	No answer or an answer that does not indicate any reasons for the piping – 0 mark			
			Answers that indicate a clear understanding for using piping in the seams can be awarded one mark for each reason based on: it is an attractive finish that adds detail to the overall look of the bag; it adds strength which will help with wear and tear; it can also help keep the shape of the bag adding strength to the sides.			
			A one mark answer: it will help keep the shape of the toilet bag by strengthening the seams.	1	2	4

Question			On paper	Question Totals	Running TOTAL
(c)	(i)	No answer or one that does not address the main function of the bag – 0 mark	0		
		Answers that indicate an understanding of the function of the bag to hold <i>toiletries in a compact way</i> can be awarded up to 2 marks based on: showing an understanding that the size of the bag needs to be such that it would hold several toiletry items that the user might need to carry when travelling easily; reference could also be made to the pockets on the inside and outside zipped pocket that would hold smaller items securely.			
		A simple statement that reflects an understanding e.g. it meets the specification point because the measurements indicate a reasonable size for a few products of different sizes to be stored inside easily.	1		
		A more developed response worth two marks e.g. it meets the specification point because the overall dimensions (30x18x12) mean it's quite big for a toiletry bag and would hold several items of different sizes easily and it also has pockets for smaller items that could be stored safely.	2	2	
	(ii)	No answer or one that does not address the aesthetic qualities of the bag appealing to a wide range of females.			
		Answers that indicate a very clear understanding of the aesthetic qualities and are fully explained can be awarded up to 2 marks based on: the choice of colours and overall floral design which is quite bold would have universal appeal to females of all ages; most girls and women like flowery designs in the products they purchase/use; the overall design is quite trendy and modern looking which adds to its overall appeal.	1		
		A simple statement but with limited elaboration of the answer can be awarded one mark e.g. the flowery design is quite trendy and colourful which will appeal to a girls/women of all ages.			

Question			On paper	Question Totals	Running TOTAL	
		A more developed response which is fully explained can be awarded two marks e.g. the flowery design is quite modern and trendy but the choice of colours – pink, blue and green complement each other making the overall design quite striking and eye-catching which increases its appeal to a wide range of people.	2	2	4	
	(d)	No answer or one that does not explain the advantages of the suitability of the material – 0 mark	0			
		Answers that indicate an understanding of the material's properties should be given credit based on: coated PVC is fully water resistant which will be an advantage for this type of product because it is likely to come into contact with water; it is quite a tough / durable material and will withstand wear and tear – making the product long lasting; 100% proofed nylon for the inside also water resistant as wet items may be placed inside, moisture will be prevented from seeping out which could soak other items if carried in a suitcase; the lining and outer materials can both be wiped clean easily – ease of care.				
		A simple response e.g. both materials are water resistant which is an advantage if the bag comes into contact with water.	1			
		A more developed response with some advantages explained e.g. the bag is likely to come into contact with water as it is a toiletry bag; the outer material – coated PVC is waterproof and will help maintain the appearance of the bag by resisting water, the inner proofed nylon stops moisture escaping.	2			
		A fully developed response with advantages fully explained e.g. the bag is likely to come into contact with water as it is a toiletry bag; the outer material – coated PVC is waterproof and will help maintain the appearance of the bag by resisting water which it could come into contact when in use in a bathroom, whilst the inner proofed nylon stops moisture escaping when products are placed inside. Both materials can be wiped clean easily.	3	3	3	

Question				On paper	Question Totals	Running TOTAL
	(e)	(i)	No answer or an incorrect answer – 0 mark	0		
			Only one acceptable answer: workforce wages	1	1	
		(ii)	No answer or an incorrect calculation and answer – 0mark Award 1 mark for an incorrect answer but method is correct – 1 mark	1		
			Correct answer with calculations – 2 marks $\frac{\pounds 2.80}{\pounds 15.00} \times 100 = 18.67\%$ (accept 19%)	2	2	3
					15	15

Question				On paper	Question Totals	Running TOTAL
2	(a)		Incorrect answers or no answers – 0 mark	0		
		(i)	Three acceptable answers: Sewing machine	1		
		(ii)	Childs toy	1		
		(iii)	Armchair	1	3	3
	(b)	(i)	No answer or answer that does not relate to rethink -0 mark	0		
			Answers that indicate an understanding of applying 'rethink' when making a textile product can be credited with up to 2 marks based on: rethink construction processes to simplify and reduce number of processes; rethink material choices, choose something more sustainable; rethink design – can it be repaired easily? Rethink the style simplifying the pattern pieces so that they fit together better – less waste of material.			
			Award one marks for a simple statement e.g. Choose a more sustainable material choice.	1		
			Award two marks for a developed response e.g. rethink material choices; choose ones that are more sustainable so that the overall environmental impact of the product is less.	2	2	
		(ii)	No answer or the answer does not relate to recycle – 0 mark	0		
			Answers that indicate an understanding of applying 'recycle' when making a textile product can be credited with up to 2 marks based on: disassemble an unwanted product and use the material for a new one; use material that has already been recycled e.g. Polartec fleece made from PET bottles; unpick a knitted product and reknit into a new style; recycle parts from unwanted products.			

Question				On paper	Question Totals	Running TOTAL
		Award one marks for a simple statement e.g. use materials from unwanted products in a new one.	1			
		Award two marks for a developed response e.g. disassemble unwanted products and use the materials creatively to make a completely new design/product which cuts down on the number of products/materials going to waste.	2	2	4	
	(c)	No answer or an answer that does not indicate an understanding of the term carbon footprint. 0-mark	0			
		Answers that indicate an understanding of the energy required to manufacture textile products and its impact on the environment should be credited with up to three marks based on: greenhouse gases produced as a result of manufacturing – use of natural resources and renewable resources; greenhouse gases produced as the transportation of materials and products; impact on disposal . Answers that refer to carbon footprint should be credited.				
		Award 1 mark for a simple response e.g. The CO ₂ emissions (gases) produced as a result of manufacturing textile products is bad for the environment.	1	1		
		Award 2 marks for a more developed response e.g. The CO ₂ emissions (gases) which are produced through the various manufacturing processes associated with textiles contribute to global warming and have a negative effect on the environment.	2	2		
		Award 3 marks for a fully developed response e.g. The CO ₂ emissions (gases) which are produced through the various manufacturing processes associated with textiles contribute to global warming and have a negative effect on the environment. Transportation of materials and finished products also add to this and is often referred to as its carbon footprint.	3	3	3	
					10	25

Question			On paper	Question Totals	Running TOTAL
3	(a)	No answer or incorrect answer -0 marks	0		
		Only acceptable answers: Vivienne Westwood + creator of the 'Red Label' clothing range. Matthew Williamson + Early career associated with retail chain Monsoon/Accessorise	1		
			1	2	2
	(b)	No answer or not relevant issues described or discussed.	0		
		Answers must indicate a general understanding of the main features in each of the designers' work and the main differences in their individual styles. STEP 1: Award one mark for each relevant fact up to 8 marks. STEP 2: Assess QWC as follows: The maximum mark that can be awarded is eight. 1. if QWC band is 4 – move D&T mark up 2 if that is possible. 2. If QWC band is 3 – make no change. 3. If QWC band is 2 – move D&T mark down 1 mark. 4. If QWC band is 1 – move D&T mark down 2 marks.			
		STEP 2: THEN ASSESS THE QUALITY OF WRITTEN COMMUNICATION			
		Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling.	Band 1		
		Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling.	Band 2		
		Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling.	Band 3		
		Quality of Written Communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling.	Band 4		

Question			On paper	Question Totals	Running TOTAL
	<p>Answers MUST describe individual styles and outline the main differences. <u>No marks</u> are awarded for personal details.</p> <ul style="list-style-type: none"> • Both designers have a very strong sense of what is their style; both have a strong signature style and a recognised identity • VW is known for being far more outrageous and shocking whereas MW has a more romantic approach to his creations. • Both are passionate about their designs with the aim that people will like to wear them but perhaps Williamson's creations are more wearable. • VW is known for breaking with tradition to produce her own unique styles/collections. MW does much the same with his signature style. Neither designer adapts their style to fit in with current trends. • VW's designs feature unusual aspects which have filtered down into mainstream fashion – ripped hems, torn seams; unusual cutting styles; accessorising with the unusual: (Punk) bicycle chains, spiked dog collars etc. MW known mainly for his colourful print designs which reflect nature but also for the use of embroidery enhanced by beading etc. This is widely seen on the high street these days. • VW's designs often enhance the female figure through tight fitting clothing – the corset for example and she is known for creating the hourglass figure with the cut of her clothing – Mini Crini was conceived to enhance the female form – her work is all about the clothes. Whereas MW's approach is different – he believes the woman is the statement not the clothes, a free spirit, bohemian. 				

Question				On paper	Question Totals	Running TOTAL
		<ul style="list-style-type: none"> • VW often looks to the past for inspiration, but also theatre and cultural influences amongst other things; MW gains a lot of his inspiration from travel across the globe e.g. Morocco and India colourful landscapes as well as nature and plants. • VW was not formally trained in pattern cutting; she is self-taught and looks back at historical techniques which make the cut of her clothing more inventive. MW went to Central St. Martin's and has had a more formal route into pattern cutting; this is reflected in his work. • Traditional British elements feature strongly in VW's work: use of Harris Tweed, tartan whereas MW uses patterns on his more romantic colourful creations often made from silk or chiffon. • VW first gained notoriety back in the 70's with the introduction of PUNK (very controversial ideas at the time) and its association with the music industry/anti-establishmentarianism; whereas MW followed a more traditional route into fashion design and went through college and his talent was 'discovered' by retail chain Monsoon/Accessorise who gave him his first job as accessories designer following his degree show. • MW is known for bringing colour back into British fashion which has been lacking for many years. 		8	8	
					10	35

Question				On paper	Question Totals	Running TOTAL
4	(a)		No answer or words incorrectly placed – 0 mark Award one mark for each answer: Flowchart Design brief	0 1 1	2	
	(b)	(i)	No answer or an answer that does not describe the importance of detailed research – 0 mark	0		
			Answers that indicate an understanding of the importance of carrying out detailed research before designing and making a new product can be awarded up to two marks based on: detailed research will ensure the designer has all the relevant/necessary information needed to make a successful product; the designer will be made aware of any potential issues which could affect the product and avoid similar mistakes found in other products; helps the designer focus on what are the most important factors to consider; aware of what the client/target market requires.			
			Award one mark for a simple statement for example: Detailed research will give the designer enough information to make a successful product.	1		
			Award two marks for a developed response for example: Detailed research will give the designer all the relevant information needed to make a successful product and it could also identify possible issues which could affect the product.	2	2	
		(ii)	No answer or an answer that does not relate to on-going evaluation – 0 mark	0		
			Answers that indicate an understanding of on-going evaluation should be credited with up to three marks based on: on-going evaluation allows designers to check their work as they progress making sure it meets with the requirements of the specification and brief; it would allow the designer to make changes to improve the design if necessary or to rectify faults; on-going evaluation ensures a successful outcome.			

Question				On paper	Question Totals	Running TOTAL
		Award one mark for a basic response for example: On-going evaluation helps to keep a designer on track with a successful product.	1			
		Award two marks for a more elaborate response for example: On-going evaluation helps a designer to identify the strengths and weaknesses of a design allowing them to make changes to ensure the product will be successful.	2			
		Award three marks for a fully developed response for example: On-going evaluation helps a designer to identify the strengths and weaknesses of a product as it is being made, referring back to the original design intention and also allows them to make changes to improve it if necessary.	3	3	7	

Question				On paper	Question Totals	Running TOTAL
4	(c)	(i)	No answer or the answer would not appeal to teenagers. Award one mark for a design that would appeal to teenagers.	0 1		
		(ii)	No answer or a design that is not an adaptable three piece outfit suitable for summer travel – 0 mark.	0		
			Answers that clearly show an attempt by the candidate to create an adaptable three piece outfit which is suitable for summer travel should be credited. Ideas could show a co-ordinated collection that can be mixed and matched; individual items that can be adapted and worn in a different way; consideration should be given to how items would fit into suitcase i.e. smaller less bulky items; all items must be suitable for summer wear.			
			A weak attempt to show the front and back views of a three piece outfit, some elements indicate an adaptability of style; could be packed into a suitcase for summer travel but overall lacks imagination.	1		
			A satisfactory attempt to show the front and back views of a three piece outfit, some reasonable ideas for adapting the overall style; could pack into a suitcase easily for summer travel; shows some imagination.	2		
			A good attempt to show the front and back views of a three piece outfit, some good ideas for adapting the overall style; could pack into a suitcase easily for summer travel; shows good imagination.	3		
			A very good attempt to show the front and back views of a three piece summer outfit; excellent interpretation of the mood board in terms of print and colour. Highly imaginative and creative styling.	4	4	
		(iii)	No answer or a design that is not inspired by the images of the mood board -0 mark Answers that clearly show an attempt by the candidate to use and interpret the mood board both in terms of print and colour to design an inspirational three piece outfit should be credited.			

Question				On paper	Question Totals	Running TOTAL
			A weak attempt to show the front and back views of the three piece summer outfit with weak interpretation of the mood board with weak use of colour and/or print; lacks imagination or creativity.	1		
			A satisfactory attempt at presenting the front and back of the three piece summer outfit; quite good interpretation of the mood board with satisfactory use of colour and print. Some imagination and creativity.	2		
			A good attempt at presenting the front and back views of the three piece summer outfit; good interpretation of the mood board with good use of colour and print. Shows good imaginative and creative styling.	3		
			An excellent attempt at presenting the front and back views of the three piece summer outfit; excellent interpretation of the mood board in terms of print and colour. Highly imaginative and creative styling.	4	4	
		(iv)	No answer or materials named are unsuitable -0 mark	0		
			Award one mark for each specific named material that is highly suitable for summer wear and ease of use when travelling; for example: cotton; linen; poly cotton; silk; cotton voile; knitted cotton...	1 1	2	
		(v)	No answer or no evidence of specific named details 0-mark	0		
			Award one mark for each specific named style detail for example: named necklines – boat, V neck, sweetheart; types of pocket – patch, welt; trousers style – flared, cropped, capri; shaping – darts, princess line, gathers, tucks; named sleeve style and so on... <i>Note: named style details must be correctly drawn.</i>	1 1 1	3	

Question				On paper	Question Totals	Running TOTAL
	(vi)	No answer or the answer cannot be understood, no annotation. Poor quality graphic skills, hard to understand, annotation unclear.	0			
			1			
		Graphic skills are adequate, understandable, limited annotation of important details.	2			
		Good graphic details and image, appropriate styling, understandable, good annotation of important details.	3			
		Excellent graphic details and image, highly appropriate styling, with correct annotation of important details and techniques.	4	4	18	
					25	60

SECTION B

Question				On paper	Question Totals	Running TOTAL
5	(a)		No answer or incorrect answer 0-mark Only acceptable answer: INDUSTRIAL LOOM	0 1		
	(b)	(i)	No answer or incorrect answers – 0 mark Answers that clearly demonstrate an understanding of both production methods should be credited with up to two marks for each part question based on: MASS PRODUCTION – hundreds of thousands of identical items made <i>continuously</i> over a very long period of time; answer may include reference to production continuously over a 24 hour period; may include reference to simpler types of product. <i>No marks for a description of the type of products being produced.</i> BATCH PRODUCTION – smaller numbers of identical products made over a shorter period of time; answer could refer to seasonal products or designer ranges; answers may refer to slightly more complex products. <i>No marks for a description of the type of products being produced.</i>	0		
			Award one mark for a simple statement for example: mass production refers to very large quantities of identical products being produced.	1		
			Award two marks for a developed response for example: mass production refers to very large quantities of identical products produced over a long periods of time, possible several months/years with no major change in styling.	2	2	
			Award one mark for a simple statement for example: batch production refers to a small number of identical products, possibly only a few hundred being made.	1		
			Award two marks for a developed response for example: batch production refers to smaller numbers of identical products being made, possibly a few hundred or slightly fewer, over a short period of time – perhaps a few weeks or months.	2	2	

Question				On paper	Question Totals	Running TOTAL
		(ii)	No answer or incorrect answer – 0 mark	0		
			Answers that indicate an understanding of the advantages of one-off production for the customer should be credited based on: exclusivity of the design; custom made; could be a statement piece/status symbol for the owner; can have some input into the style of the garment.			
			Award one mark for a simple statement for example: No-one else would have the same outfit.	1		
			Award two marks for a developed response for example: the designer has made the dress just for one specific person and it is unique.	2	2	6

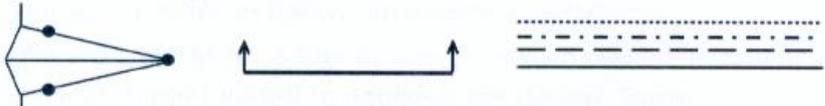
Question				On paper	Question Totals	Running TOTAL
	(c)	No answer or an incorrect answer: 0 mark	0			
		<p>Answers that show an understanding of the information found on a manufacturing specification and its importance to the manufacturer should be credited. Answers should be based on: tools and equipment needed; details of construction/processes involved; details of materials and components; a flow chart of the stages to make it; QC issues; working drawings with dimensions; timeline/gantt chart.</p> <p>Manufacturer needs to: order materials and components; care labels; organise workforce and machinery; plan future production; be aware of any issues with QC; know specific products details to make it correctly.</p> <p><i>Answers will vary according to the information the candidate provides but the information has to be specific and clearly show the importance to the manufacturer.</i></p>				
		Award 1 mark for a simple response for example: the manufacturer needs to know what machinery is needed to make the item.	1			
		Award 2 marks for a developed response for example: all the tools and equipment needed to make the item are listed so that the manufacturer can organise the factory.	2			
		Award 3 marks for a fully developed response for example: all the tools and equipment needed to manufacture the item is listed which will enable the manufacture to plan ahead and organise this in the factory in time for production to begin.	3	3	3	
					10	70

Question				On paper	Question Totals	Running TOTAL
6	(a)	(i)	No answer or does not identify the correct fibre source – 0 mark	0		
			Only acceptable answers: REGENERATED SYNTHETIC NATURAL SYNTHETIC	1 1 1 1	4	
		(ii)	No answer or an answer that does not apply to blended fibres when making yarns – 0 mark	0		
			Award one mark for a correct answer based on: to reduce the cost of the yarn; to improve the yarn by combining properties from both fibres.	1	1	
		(iii)	No answer or does not name appropriate fibre blend – 0 mark Award one mark for any of the following fibre blends: Polyester and cotton Wool and acrylic	0 1	 1	 6
	(b)	(i)	No answer or the named property is not relevant or appropriate to the product for example: NYLON: durable; strong; poor absorption; resistant to sunlight; lightweight.	1		
			Award one mark for an appropriate and relevant answer for example: it needs to be durable to withstand wear and tear when exposed to the elements.	1	2	
		(ii)	No answer or the named property is not relevant or appropriate to the product shown -0 mark	0		
			Award one mark for a property that is appropriate for the pictured product for example: NEOPRENE: tough; flexible; rubber/padded	1		
			Award one mark for an appropriate and relevant answer for example: neoprene has a flexible and rubbery inner layer which helps protect the product from damage.	1	2	4

Question				On paper	Question Totals	Running TOTAL
	(c)	(i)	No answer or answers are incorrect.	0		
			Award up to two marks for answers that clearly demonstrate an understanding of the term geotextiles based on: geotextiles are bonded or woven materials that have been specially developed for use in civil engineering, road construction and building; also used in agriculture for the protection of crops and help with drainage; geotextiles can be natural or manmade.			
			Award one mark for a basic response for example: these are special textiles which have been produced for use in civil engineering.	1		
			Award two marks for a fully developed response for example: these are bonded or woven materials that have been specifically developed for use in road construction, building and civil engineering.	2	2	
		(ii)	No answer or the answer does not relate to microencapsulation – 0 mark	0		
			Award up to three marks for a clear understanding of the benefits of micro-encapsulation when used in medical textiles based on: this process traps nano-sized particles (of antibacterial or medicinal agents) to fibres or fabrics which are released on contact or through friction; the slow release of various beneficial agents aids the healing process and reduces the need to keep changing dressings; may also reduce the risk of infection.			
			Award one mark for a basic response for example: antibacterial chemicals can be added to bandages to help with healing a wound.	1		

Question				On paper	Question Totals	Running TOTAL
		Award two marks for a more developed response for example: antibacterial chemicals in bandages for example are slowly released which help the healing process and also avoids the need to keep changing dressings.				
		A fully developed response can be awarded three marks for example: Antibacterial or medicinal chemicals encapsulated into bandages for example, are slowly released over time which helps the healing process. It also reduces the need to keep changing dressings which could prevent further infections.	3	3	5	
					15	85

Question				On paper	Question Totals	Running TOTAL
7	(a)	(i)	No answer or incorrect name or explanation.	0		
			Only three acceptable answers in this order: <ul style="list-style-type: none"> • TRUE • FALSE • TRUE 	1 1 1	3	
		(ii)	No answer or an incorrect answer: 0 mark	0		
			Award one mark for answers based on: specialist feet are needed to perform various functions/processes and have to be changed in order to execute the process accurately and correctly. An example would be an invisible zip is extremely difficult to insert without a special foot attached which has been made just for this purpose.			
			Award one mark for a correct answer for example: there are many different feet which are needed for different processes; a special foot is needed to insert a zip correctly.	1	1	
		(iii)	No answer or an incorrect answer - 0 mark	0		
			Award up to 2 marks where candidate demonstrate a clear understanding of the need to change a needle based on: needles vary from very fine which are usually used on very fine/sheer materials up to thicker needles for use on tough/thicker materials as well as specialist needles such as ball point for use on jersey materials. Use of the incorrect type of needle can cause needle damage, faulty stitching or cause needles to break.			
			Award on mark for a simple explanation for example: the wrong sized needle can damage the material.	1		
			Award two marks for a developed response for example: the size of the needle needs to reflect the type or weight of material being used otherwise needle damage could occur.	2	2	6

Question			On paper	Question Totals	Running TOTAL
(b)		No answer or an incorrect answer -0 mark	0		
		Award one mark for each correct answer in this order: 	1 1 1	3	3
(c)	(i)	No answer or answers that do not describe dyeing - 0 mark	0		
		Award up to two marks for answers that demonstrate an understanding of dyeing a product based on: product could be fully immersed in dye in a dye bath or other suitable container using suitable dyes for example Dylon dyes readily available in shops; could be dyed using same dyes in a washing machine; product could be dip dyed for graduated colour, same dyes. Reference may be made to the use of a mordant to fix the colours e.g. salt. Other methods are possible and could include: spray painting, sponge painting, tie and dye.			
		Award one mark for a simple response for example: Fill a tub with a coloured dye, put the t-shirt in making sure it's covered with dye.	1		
		Award two marks for a developed response for example: mix it up the dye including using a mordant to fix colour and fully immerse the T shirt in the dye and leave it soak.	2	2	
	(ii)	No answer or an unsuitable method or does not add decoration – 0 mark	0		
		Award one mark for a suitable method based on: beading/sequins; embroidery stitches both machine and hand; attaching lace or braid; coloured binding. <i>Accept other suitable methods.</i>	1	1	
	(iii)	No answer or an answer that does not refer to attaching a pocket: 0 mark	0		
		Award up to 4 marks for answers that clearly demonstrate an understanding of the method used to attach a patch pocket based on: cut the pocket to required shape; attach interfacing on inside top edge to strengthen it; neaten the top edge of the pocket; fold it down to the inside and stitch across the top; fold in all the sides using correct seam allowance; press it; place it on the Tshirt and stitch close to the edge; reinforce top edge corners of the pocket.			

Question			On paper	Question Totals	Running TOTAL
		<ul style="list-style-type: none"> • A simple response – 1 mark: simple diagram, limited annotation no logical sequences shown. • Award 2 marks for a slightly more detailed response: one or two diagrams, some annotation with some indication of the stages needed to attach a patch pocket. • Award 3 marks for a reasonable understanding of the stages needed to attach a patch pocket. • Award 4 marks for fully annotated sketches which show a clear understanding of the logical sequence of stages needed to attach a patch pocket. <p><i>Assess the quality of work as a whole and apply marks for notes and sketches on a 'best fit' approach.</i></p>	1 2 3 4	4	
	(iv)	No answer or an answer that does not relate to a suitable method for appliqué – 0 mark	0		
		<p>Award up to four marks for a set of instructions which could be followed to attach the appliqué based on: applying interfacing to the back of the coloured materials to be appliquéd; draw the outline of the flowers on the strengthened material pieces (QC point interfacing used to keep material flat, prevent puckering); pin appliqué material in place and stitch (straight) around the first shape, cut away excess material; stitch over the edges of the first shape using a satin stitch taking care around curved edges (QC); repeat the process with other colour piece; trim loose ends (QC).</p> <p>Accept a sequence that relates to use of laser cutter to cut shapes and a suitable method of stitching individual pieces. Use of bondaweb is acceptable to apply shapes in both methods.</p>			

Question				On paper	Question Totals	Running TOTAL
		<ul style="list-style-type: none"> • A simple response – 1mark: limited number of simple steps shown; difficult to follow; no evidence of QC. • Award 2 marks for a slightly more detailed response: one or two logical stages needed to applique the design. Some understanding; limited QC. • Award 3 marks for a set of instructions that show a reasonably good understanding of the stages needed to appliqué the design. Some QC. • Award 4 marks for a well written set of instructions which demonstrate a clear understanding of the logical sequence of stages needed to appliqué the design. QC clearly evident. <p><i>For full marks sequence must be coherent and logical with QC.</i></p>	1			
			2			
			3			
			4	4	11	
					20	105

Question				On paper	Question Totals	Running TOTAL
8	(a)	(i)	No answer or the answer is incorrect – 0 mark	0		
			Only two correct answers: AIDED MANUFACTURE	1		
			INTEGRATED MANUFACTURE	1	2	
		(ii)	No answer or an incorrect answer - 0 mark	0		
			Answers MUST be specific to modelling new ideas . Award 1 mark for <i>each</i> correct answer based on: <ul style="list-style-type: none"> • develop patterns and repeats; • change the scale of a design; • create different texts for embroidery; • manipulate digital images; • draft patterns; • present design ideas; • create and present 3D drawings. No marks to be awarded for unqualified assertions, e.g. quicker, easier, faster etc.	1 1 1	3	
		(iii)	No answer or an incorrect answer – 0 mark	0		
			Answers that indicate an understanding should be given credit based on: access to a wide variety of information readily available; can collate information easily without the need to travel; can gain inspiration through looking at various websites; access to information they may not otherwise know about/ever find out about; can research topics once they have an idea; can contact others to gain information via various applications – email, twitter, facebook, forums for example. No marks to be awarded for unqualified assertions, e.g. Quicker, faster etc.			
			Award 1 mark for each simple statement for example: if they have an initial idea for a possible theme, a wide variety of material to help develop the idea is readily available.	1		
			Award 2 marks for a more developed response for example: if they have an initial idea for a possible theme, a wide variety of material to develop that idea is readily available and can be researched in depth at little expense – no need to travel for further information as some designers do.	2	2	7

Question			On paper	Question Total	Running TOTAL
(b)		No answer or an answer that does not describe the advantage of specialist CAD packages - 0 mark	0		
		Award up to 3 marks for answers based on: it's a professional approach so the designs are clearly shown with all the fine details; ideas can be adapted instantly and evaluated; cuts down on development time rather than hand drawing ideas; once style is agreed colour ways can be presented and selected according to clients preferences instantly; some packages allow layering of colours which can indicate transparent materials; patterned materials can be scanned into the computer and included in the designs; print patterns can be scaled down onto the designs to see how they might work/ amend if necessary; whole virtual collections can be presented for discussion and further development, overall more impressive and realistic. Answers MUST show specific advantages to the designer. No marks to be awarded for unqualified assertions, e.g. Quicker, faster etc.			
		Award 1 mark for each simple statement for example: designs look more realistic which gives clients a better understanding of the ideas.	1		
		Award 2 marks for a more developed response for example: it's a more professional approach to present designs that look more realistic and it gives clients a better understanding of the ideas which might encourage them to buy the collection.	2		
		Award 3 marks for a fully developed response for example: it's a more professional approach to present designs that look more realistic, with all the details included and the ability to offer alternative colour ways; this gives clients a better understanding of the ideas which might encourage them to buy the collection which in turn is beneficial to the designer.	3	3	3

Question				On paper	Question Totals	Running TOTAL
	(c)	(i)	No answer or an incorrect answer – 0 mark	0		
			Award up to three marks for answers based on: intricate and detailed designs can be cut into garment pieces/textile products which cannot be done by hand which in turn offers more scope for design; materials can be engraved, a process not really possible before laser cutters; materials cut on the laser cutter do not fray, so edges do not necessarily need to be neatened; component parts such as buttons or bag handles can be engraved/cut to match designs on other parts of the product much more easily. No marks to be awarded for unqualified assertions, e.g. Quicker, faster, easier etc.	1		
			Award 1 mark a simple response for example: laser cutters offer more opportunities to cut designs out of materials or engrave them which was not possible before.			
			Award 2 marks for a more developed response for example: laser cutters can cut intricate designs out of materials which will not fray as the laser seals the edges; it can also engrave designs on the material which cannot be done by hand.	2		
			Award 3 marks for a fully developed response for example: laser cutters can cut intricate designs out of materials which will not fray as the laser seals the edges; it can also engrave designs on the material. Both processes could not be done successfully by hand so it offers more creative scope for designers.	3	3	
		(ii)	No answer or an incorrect answer - 0 mark	0		
			Award up to two marks for answers based on: only certain types of materials can be cut or engraved – some will burn or melt; shiny metallic materials cannot be used; the laser can leave a black edge on the materials; only flat materials which can be laid flat can be cut; limited to size depending on the size of the machine.			
			Award one mark for a basic response for example: there is a limit to the type of materials that can be cut.	1		
			Award two marks for a developed response for example: not all materials are suitable for use with the laser cutter as some materials such as PVC can burn or melt under the laser's beam.	2	2	5
					15	120

GCSE DESIGN & TECHNOLOGY – PRODUCT DESIGN
Mark Scheme – Summer 2014

Question				On paper	Question Totals	Overall TOTAL	
1	a	i	<p>No answer or the answer does not identify a specific safety. Appropriate specification point made about the safety of the product but lacking in detail appropriate for a Design Specification. E.g. It must have large rubber grips.</p> <p>Appropriate specification point made about the safety of the product with detail appropriate for a Design Specification. e.g. The camera must have large rubber grips so that the child does not drop the camera.</p> <p>Options:</p> <ul style="list-style-type: none"> • ABS casing, strong does not break easily if dropped • Rounded edges • No small, removable parts. 	0 1	2		
		ii	<p>No answer or the answer does not identify a specific function. Appropriate specification point made about the function of the product but lacking in detail appropriate for Design Specification. E.g. It must be able to take digital photographs.</p> <p>Appropriate specification point made about the function of the product with detail appropriate for a Design Specification. E.g. The controls on the camera must be simple to operate making it easy for children to take digital photographs.</p> <p>Options:</p> <ul style="list-style-type: none"> • Take and store digital photographs • Easy to use viewfinders • Play computer games • Easy to use controls • Clear LCD display. 	0 1	2		

Question				On paper	Question Totals	Overall TOTAL
		iii	<p>No answer does not identify a specific product Aesthetic. Appropriate specification point made about the Aesthetics of the product but lacking in detail appropriate for a Design Specification. E.g. It is attractive/interesting shape/child friendly colours</p> <p>Should/must be appropriate specification point made about the Aesthetics of the product with detail appropriate for a Design Specification. E.g. The shape of the camera is attractive and appealing to children.</p> <p>Options:</p> <ul style="list-style-type: none"> • Attractive shape • Attractive colours, two colours available • Well organised user interface • Contrasting colour used for buttons • Decorative pattern on front of camera. 	0 1 2	2	
	b	i	<p>No answer or the answer is not feasible. A simple answer can be awarded 1 mark E.g. The sizes of the human body (must be related to data – human sizes)</p> <p>An elaborated answer that describes – can be awarded 2 marks E.g. Statistical data about the distribution of body dimensions across the population which are used to optimize products.</p>	0 1 2		
		ii	<p>No answer of the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. E.g. human factors, easy to use comfortable.</p> <p>An elaborated answer that explains can be awarded 2 marks. E.g. Designing products that fit the human body so that the buttons are easy to use.</p> <p>A detailed answer that explains can be awarded 3 marks. E.g. When designing the buttons it is important that they are placed in positions that are easily accessible to the user when using the product. The designer will have used anthropometric data to know the optimum size of a child's hand and then positioned the buttons where they can be easily operated.</p>	0 1 2 3	3	

Question				On paper	Question Totals	Overall TOTAL
	c	i	No answer or the answer does not give a reason that is appropriate. July	0 1		
		ii	No answer or an answer that does not state 22.73% will be awarded 0 marks Incorrect answer but part of the workings are correct. Answer that is 22.22% but shows some of the working. (Add up the months). Answer that is 22.22% with all the calculations shown and correct. Add up all 12months = 45,000 Divide Dec sales by total and multiply by 100: (10000/45000) x 100 = 22.22%	0 1 2 3	3	
						15
						15

Question				On paper	Question Totals	Overall TOTAL
2	a	i	Logo A = British Standards Kitemark Logo B = Conformite European symbol	1 1	2	
		ii	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. The product is safe to use. An elaborated answer that explains can be awarded 2 marks. Products are checked or tested by the British Standards Institute to see if they meet agreed standards. Manufacturers who meet the nationally recognised standards set by the BSI are awarded the 'Kitemark' which they can display on their product.	0 1 2	2	
	b	i	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. Waste material is reprocessed/broken down. An elaborated answer that explains can be awarded 2 marks. A waste product is reprocessed and its materials are used for another product.	0 1 2	2	
		ii	Reduce	1	1	
	c	i	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. The winners are the customers as they do not need to buy batteries. An elaborated answer that explains can be awarded 2 marks. The winners are the customers as they do not need to buy batteries and it is made out of silicone so it is durable and will last long time. A detailed answer that explains and mentions both the winner and the loser can be awarded 3 marks. The winners are the customers as they do not need to buy batteries and it is made out of silicone so it is durable and will last long time. The losers are the companies who produce batteries as they would lose sales.	0 1 2 3	3	

Question			On Paper	Question Totals	Overall TOTAL
		<p>Winner is innovative company who designed it. Winner is the consumer as:</p> <ul style="list-style-type: none"> • Once purchased the silicone device needs no power therefore saving money. • It is made out of silicone which is very durable, can be cleaned etc and will last a long time. • No batteries into landfill, therefore good for the environment. <p>Loser is manufacturer of electrical speakers. Loser is the producer of batteries/energy companies:</p> <ul style="list-style-type: none"> • They will lose sales of batteries and energy that they would have otherwise received with powered products. <p>There may be other acceptable answers. If the response only mentions winners or losers, only 2 marks awarded.</p>			
				10	25

Question				On Paper	Question Totals	Overall TOTAL
3	a	i	Philippe Starck.	1	2	
		ii	Jonathan Ive	1		
	b		No answer or no relevant issues described or discussed.	0		
			Some description of the work of each designer. Little understanding of its main features. A little understanding of the impact on the design industry is described.	1 or 2		
			Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling.			
			Description of the work of each designer or excellent description of one designer (3 marks). Some understanding of its main features. Some understanding of the impact on the design industry.	3 or 4		
			Good description of each designer but no comparison (max 4 marks).			
			Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling.			
			Description and comparison of the work of each designer. Understanding shown of its main features with respect to form and function. Discussion of the impact on the industry with some appropriate examples provided.	5 or 6		
			Quality of Written Communication is very good, presenting appropriate material in a coherent and logical manner, very few errors of grammar, punctuation and spelling.			
			Description and comparison of the work of each designer. Clear understanding shown its main features with respect to form and function. Discussion of the impact on the industry with fully appropriate examples provided.	7 or 8		
			Quality of Written Communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling.			
					10	35

Jonathan Ive:

- Principal designer iMac and iPod
- Modern day legend not known by public
- Liked to use translucent colours
- Trend of using two or three main colours
- First designer to use the internal workings of a product as a feature/selling point
- Minimalistic/simplistic forms
- Tropical colours/names – locations
- Metallic forms and shades/chrome
- Elegant form, geometric shapes
- Slim line approach
- Control wheel/touch screen for ease of use
- Interconnectivity of products
- Simplicity if the key not only in his designs but also in the function of his products.

Philippe Starck:

- Starck works independently as a designer – works in collaboration with a number of firms.
- Extensive range of products: Everyday items, furniture, lemon juicer, interiors, vehicles, yacht, hotels turbines.
- Iconic design – sleek lemon juicer ‘Juicy Salif’ – become an affordable cult item
- Pushes the limits of contemporary design
- Creative and imaginative designs – Bold, stand out, flamboyant
- Uses metallic finishes
- High gloss finishes
- Use of transparent materials
- Form of his products were often inspired by natural and everyday objects
- Organised elegantly and rigorously
- Believes creation must improve the lives of as many people as possible
- Ecological implications very important to him.

Question				On paper	Question Totals	Overall TOTAL
4	a	i	Development	1	3	
		ii	Making	1		
		iii	Evaluation	1		
	b	i	<p>No answer or the answer does not give an explanation that is appropriate. A simple answer can be awarded 1 mark. E.g. A list of things that the product must be.</p> <p>An elaborated answer that explains can be awarded 2 marks. E.g. The specification is a list of success criteria that should be referred to throughout the design process to ensure the product is successful.</p> <ul style="list-style-type: none"> List of success criteria Referred to throughout the design process Evaluate the product against the specification. 	0 1 2	2	
		ii	<p>No answer or the answer does not give a description that is appropriate. A simple answer can be awarded 1 mark. E.g. To see how it was made.</p> <p>An elaborated answer that explains can be awarded 2 marks. E.g. It allows you to investigate what materials and components are needed to make the product as well as see how the product was made.</p> <ul style="list-style-type: none"> Identify flaws and areas that could be improved Identify materials that have been used Identify components that have been used Identify how the product has been assembled. 	0 1 2	2	

Question				On Paper	Question Totals	Overall TOTAL
	c	i	<p>No answer of the answer does not include reference to the teenage market A simple answer can be awarded 1 mark. Consideration of colours or style that would be appropriate for teenagers Design shows a ONE UNIT idea</p> <p>An elaborated answer that explains can be awarded 2 marks. Candidate has a combination of the right colours, style, lettering (if any) that would fit in the teenage market. Design shows a one unit design with reference to it being portable.</p>	0 1 1 1 1	4	
		ii	<p>No answer or the answer does not refer to how it can be used with a range of phones. A simple answer can be awarded 1 mark. Some reference to how a range of phones can be used with the accessory</p> <p>An elaborated answer that explains can be awarded 2 marks. Clear details given of how a range of phones can be used interchangeably with the accessory.</p> <ul style="list-style-type: none"> • Docking system • Clip • Other attachments/connecters. 	0 1 2	2	
		iii	<p>No answer or the answer does not refer to ergonomic design features. A simple answer can be awarded 1 mark for each appropriate ergonomic feature.</p> <ul style="list-style-type: none"> • Shape of the accessory • How it fits in the user's hand comfortably • The positioning of the buttons/joystick • Ease of use • Reference to anthropometrics 	0 1 1 1	3	
		iv	<p>Material No answer or the answer is not an appropriate material (plastic, wood, card) A simple answer can be awarded 1 mark. It is made from Acrylic, ABS</p> <p>Process No answer or the answer is not an appropriate process A simple answer can be awarded 1 mark. It can be shaped by heat, pressure, cutting (generalised). Needs to suit the material.</p> <p>An elaborated answer that explains can be awarded 2 marks. It can be shaped by vacuum forming/injection moulding using the correct material.</p>	0 1 0 1 2	2	

Question				On paper	Question Totals	Running TOTAL
		v	No answer or the answer is not an appropriate size. A simple answer can be awarded 1 mark for each appropriate size Sizes must be appropriate to design.	0 1 1 1	3	
		vi	No answer or the answer cannot be understood, no annotation <ul style="list-style-type: none"> • Poor quality drawing skills, hard to understand, annotation unclear • Drawing skills are barely adequate, understandable, line work uneven, corners poor, not accurate, annotation describes drawing • Drawing skills are adequate, understandable, line work even, corners satisfactory, fairly accurate, annotation describes drawing with some comments • Good quality drawing skills, accurate, high quality annotation with good commentary. 	0 1 2 3 4	4	
					25	60

Question				On paper	Question Totals	Overall TOTAL
5	a	i	Screw Hopper Motor Mould One mark for each correctly labelled part.	1 1 1 1	4	
		ii	No answer or the answer does not give an explanation that is appropriate. A simple answer can be awarded 1 mark. Can produce many identical products. An elaborated answer that explains can be awarded 2 marks. Many identical products can be produced because they are moulded using the same mould. <ul style="list-style-type: none"> • Injection moulding is a very accurate method for producing high volumes of identical products. • Very low tolerances can be achieved due to the accuracy of the moulds. • Complex shapes can be formed easily • Production time is decreased • Computer operated – low labour costs. • Repeat use of mould. 	0 1 2	2	
	b		No answer or the answer does not give an explanation that is appropriate. A simple answer – can be awarded 1 mark. Check that the product is accurate An elaborated answer that explains can be awarded 2 marks. Quality control guarantees the accuracy of a product. It is a series of checks carried out during the manufacture. <ul style="list-style-type: none"> • The checks make sure the standards are met • Dimensional accuracy • Material quality • Electrical safety • Flammability tests. 	0 1 2	2	
	c		No answer or the answer does not give an explanation that is appropriate. A simple answer can be awarded 1 mark. Sets minimum and maximum sizes for a product. An elaborated answer that explains can be awarded 2 marks. Tolerances set minimum and maximum measurements that the product must fit within to ensure the quality of a product.	0 1 2	2	
						10
						10

Question				On Paper	Question Totals	Overall TOTAL
6	a	Torch ALUMINIUM Non-Ferrous Metal Display Stands ACRYLIC Thermoplastic	1+1	4		
	b	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. It is a strong, durable plastic. An elaborated answer that explains can be awarded 2 marks. It is durable, weather resistant plastic that will not degrade under the effects of the weather. A detailed answer that explains can be awarded 3 marks. Acrylic is an attractive, self-finishing plastic that is eye catching to potential customers. It is also durable and weather resistant so it is suitable to be used outdoors. <ul style="list-style-type: none"> • Attractive, comes in a range of colours; • Light weight; • Self-finishing; • Transparent/translucent options for use with backlighting; • Non-corrosive; • Weather resistant; • Easily machined with use of CAD/CAM. • Easy to shape. 	0 1 2 3	3		
	c	i	No answer or the answer does not name the correct smart material. Polymorph or Shape Memory Polymer	0 1	1	
		ii	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. It can be moulded into any shape. An elaborated answer that explains can be awarded 2 marks. When heated it can be moulded into any shape then when it cools it will harden to allow testing.	0 1 2	3	

Question			On Paper	Question Totals	Overall TOTAL
		<p>A detailed answer that explains can be awarded 3 marks.</p> <p>When heated it can be moulded into any shape then when it cools it will harden to allow testing. The shape can then be reheated and the shape changed to develop it into the final outcome.</p> <ul style="list-style-type: none"> • When heated in water it can be easily moulded into any shape. • It can be shaped by hand so it is excellent for developing ergonomic shapes. • When it cools, it sets into a very hard, durable plastic shape which can be tested. <p>Following testing the shape can be re-heated and re-moulded into another shape meaning the shape can be developed easily without using additional materials.</p>	3		
d		<p>No answer or the answer does not describe and advantage or disadvantage 0 marks.</p> <p>A simple answer for advantages can be awarded 1 mark.</p> <p>Blue foam is easy to cut and shape.</p> <p>An elaborated answer that explains can be awarded 2 marks.</p> <p>Blue foam is very easy cut and shape into the required shape so that it can then be tested.</p> <p>A simple answer for disadvantage can be awarded 1 mark.</p> <p>It does not feel realistic.</p> <p>An elaborated answer that explains can be awarded 2 marks.</p> <p>Due to the fact that Blue Foam is very light, it does not feel very realistic when being tested.</p> <p>Advantages:</p> <ul style="list-style-type: none"> • Cheap material; • Available in large cross-sections; • Easily cut and shaped; • Quicker to cut; • Easy to work with; • East to test; • Rigid. <p>Disadvantages:</p> <ul style="list-style-type: none"> • Can be difficult to finish/paint; • Is very light so does not provide a realistic feel. • Can be easily damaged. <p>To achieve 4 marks both an advantage and disadvantage must be listed.</p>	0 1 2 1 2	4	
				15	25

Question			On Paper	Question Totals	Overall TOTAL
	d	<p>No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. To see if the product works</p> <p>An elaborated that that explains can be awarded 2 marks. To check if the product performs in the required way, someone could hold/use the product.</p> <p>A detailed answer that explains can be awarded 3 marks. Testing is used to ensure that the quality of the product is suitable for the intended purpose. A range of tests should be carried out to assess the materials, functional and aesthetic qualities of the product.</p> <p>Types of testing:</p> <ul style="list-style-type: none"> • Assess the viability of the prototype • Material tests – strength (tensile/compression) • Functional tests – (ergonomics, electronics) • Aesthetic qualities (visual checks) • Construction (loading) • Consumer groups 	0 1 2 3	3	
				20	45

Question				On Paper	Question Totals	Overall TOTAL
8	a	i	No answer or the answer is not appropriate. Computer AIDED DESIGN	0 1+1	2	
		ii	No answer or the answer does not give an appropriate CAD package. A name of any CAD software that can be linked:- 2D Design Corel Draw Illustrator Prodesktop Creo Pro Artcam Boxford, Denford miller software. Solid works Google Sketch up Spaceclaim Autodesk Inventor	0 1	1	
		iii	No answer or the answer does not give a disadvantage that is appropriate. A simple answer can be awarded 1 mark. Very expensive setup costs. An elaborated answer that describes can be awarded 2 marks. With the increase in CAM to produce prototypes there is a decrease in jobs for traditional craftsmen. <ul style="list-style-type: none"> • Very expensive set up costs • Prototypes can be very expensive to produce. • Reduced human intervention • Reduction in jobs available (traditional crafts) Two disadvantages must be stated to achieve 4 marks.	0 1 2 1 2	4	
	b	i	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. Different colours are used for different operations. An elaborated answer that explains can be awarded 2 marks. Different colours are used to distinguish different settings for the laser cutter. The black line will be set so that the laser will cut through the acrylic and the red line will be set to engrave the wording into the acrylic.	0 1 2	2	

Question				On Paper	Question Totals	Overall TOTAL
	ii	<p>No answer or the answer does not give a reason that is appropriate. 1 mark awarded for each stage of the process that is explained, up to a maximum of 3 marks.</p> <ul style="list-style-type: none"> Place the acrylic on the bed of the laser cutter; Set the height of the laser above the acrylic; Set the datum (start) position for the laser; Load the drawing Set the correct speed and power for material and thickness; Run the laser cutter; Remove the cut-out product. Switch on extraction. 	0 1 1 1	3		
	c	<p>No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. It produces 3D models quickly. An elaborated answer that explains can be awarded 2 marks. Produces detailed and sophisticated models of virtually any shape from a 3D computer model. A detailed answer that explains can be awarded 3 marks. 3D Rapid Prototyping produces detailed and sophisticated models of virtually any shape from a 3D computer model. Models are produced quickly and they are ready for testing. Changes can be made easily to the design and further prototypes created.</p> <ul style="list-style-type: none"> Produces detailed sophisticated models of virtually any shape from a 3D computer model. Much quicker than modelling by hand or using other CAM processes Model is completed ready for finishing. The model can be tested in its intended form. Changes can be made quickly to aid development. The virtual and physical models are almost identical. 	0 1 2 3	3		
					15	60



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