



GCSE MARKING SCHEME

DESIGN & TECHNOLOGY

SUMMER 2013

INTRODUCTION

The marking schemes which follow were those used by WJEC for the Summer 2013 examination in GCSE DESIGN & 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 2013

Question			On paper	Question Totals	Overall Total
1. (a)	No answer or the answer does not give a reason why puff pastry has been used.	0			
	Appropriate reason given: <ul style="list-style-type: none"> • Provides a solid base/top for product. • Has flaky texture suitable for dessert/texture. • Layered pastry fits in with rest of dessert. 	1	1		
(b)	No answer or the answer does not identify why the slices must be refrigerated.	0			
	Appropriate reason identified. Contains milk/cream in the custard.	1	2		
	Developed response. Contains milk/cream in the custard which is a high risk food.	2			
(c)	No answer or the answer does not refer to the scale of production.	0	2		
	Correct scale of production stated. Batch production.	1			
	No answer or the answer does not refer to the explanation of method of production.	1			
	Basic response. Only certain amount of the product required (1).				
	Developed response could include: Many stages of making are carried out by machines (1) which saves time and speeds up manufacturing (2) or Different flavoured custards/toppings can be swapped after each batch (1) so no down times on machines (2).	2			
(d) (i)	No answer or the answer does not relate to the aesthetic appeal.	0	2		
	Product must have a neat layered appearance (1) to make it look interesting/attractive/colourful to the eye (2)	1 +			
	Product must have a decorated/iced and piped top (1) to make it look luxurious/attractive(2).	1			

Question			On paper	Question Totals	Overall Total
(ii)	No answer or the answer does not relate to the function of the slices. Award for a basic response: To be a naughty-but-nice treat or as a sweet treat to form part of a meal/dessert. Award for a developed response: To provide a luxury rich element to a lunch or snack time/afternoon tea opportunity (2)	0 1 2	2		
(iii)	No answer or the answer does not relate to the target audience. Suitable for teenagers/adults/families (1) with a sweet tooth (2) or who enjoy a rich luxury sweet product. Suitable for office workers (1) who require a snack for a morning break/coffee or afternoon tea, or as a sweet end to their lunch (2).	0	2		
(e) (i)	No answer or the answer does not state the correct product characteristic. Correct characteristic stated. Suitable portion size.	0 1	1		
(ii)	No answer or the answer does not relate to the % of scores which were 4 or more. Correct % shown 53.3 or 53%. No workings shown. Correct workings shown $8 \div 15 \times 100$ and correct answer 53.3%	0 1 2	2		
				15	13

Question			On paper	Question Totals	Overall Total
2. (a)	No answer or incorrect responses. Correct responses. True. False.	0 1 1	2		
(b)	No answer or the answer does not name a food product. Appropriate food product named: <ul style="list-style-type: none"> • Shepherd's pie/cottage pie. • Bubble and Squeak/meat or fishcakes/rissoles. • Curry. • Vegetable soup. • Trifle. No answer or incorrect responses. Award for a suitable explanation: <ul style="list-style-type: none"> • Leftover meat/vegetables from a roast. • Can be minced/chopped/sliced up to make product. 	0 1 0 1 1	3		
(c)	No answer or the answer does not explain the meaning of the Red Tractor. Award a basic response: <ul style="list-style-type: none"> • Guarantees where food comes from. Award a developed response: <ul style="list-style-type: none"> • Guarantees food comes from farms/companies that meet high standard of food safety and hygiene. 	0 1 2	2		
(d)	No answer or the answer does not relate to the impact made to the environment by consumers choosing to buy local produce. Award a basic response: <ul style="list-style-type: none"> • Less damage to the environment due to low carbon footprint/food miles. Award response with some detail: <ul style="list-style-type: none"> • Low carbon footprint due to less food transported across the world. Award a very detailed response: <ul style="list-style-type: none"> • Less fossil fuel used/burnt off – less CO₂ • Gas emissions – less contribution to global warming. 	0 1 2 3	3		

Question			On paper	Question Totals	Overall Total
3. (a) (i)	No answer or incorrect response. Jamie Oliver	0 1	2		
(ii)	No answer or incorrect response. Delia Smith	0 1			
(b)	<p>No answer or answer does not describe the influence Jamie Oliver has had on the nation's cooking and eating habits and his opinions in relation to home cooking.</p> <p>Influence on nation's cooking and eating habits</p> <p>Strives to improve unhealthy diets and poor cooking habits in the UK and more recently USA.</p> <p>Campaigns against the use of processed foods in national schools.</p> <p>Initiated a campaign called 'Feed me Better', with the aim to encourage school children to eat less junk food and more healthy foods. This led to the British government making a pledge to also address the issue.</p> <p>Created Jamie's Ministry of Food – TV series which focussed on Rotherham, Yorkshire and aimed to inspire everyday people to cook healthy meals using fresh food and pass their knowledge of a recipe onto family and friends. This Pass It On Campaign gained a following on Facebook which has a group and fan club who record their progress.</p> <ul style="list-style-type: none"> • Mention of books to interest people into cooking. <p>Began a formal campaign to ban unhealthy food in British schools, broadcast as Jamie's School Dinners on TV.</p> <p>His main intention was to bring radical change to the school meals system by showing schools how they could serve healthy, cost-efficient meals that children enjoyed eating. His efforts were rewarded when the subject of school dinners were put on the government's agenda and £280m was pledged by the government to spend on school dinners. This resulted in the types of foods served in schools being changed.</p> <p>In 2012 he was involved in The Big Fish Fight, spending time on a trawler boat to raise awareness about discarding extreme amounts of salt water fish because fishermen are prohibited from keeping any fish other than the stated target of the trawl.</p> <p>Home Cooking</p> <ul style="list-style-type: none"> • Believes good food can be produced in a short period of time – 30 minute meals is an example of this. • Believes good food can be produced at home. • To be successful you need to be organised 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'/rustic. • Strong advocate for cooking meals from scratch and using local organic produce. • Uses fresh ingredients grown in his garden and encourages others to grow their own to use in recipes. • Believes cooking yourself will nourish yourself and your family. 	0	8		

Question			On paper	Question Totals	Overall Total
	<p>First mark description of the range of the work/impact: No answer or no relevant description of the designer's:</p> <ul style="list-style-type: none"> • Range of work. • Some simple description of the work of Jamie Oliver. • Little, if any, understanding of its main features. A little understanding of the influence on chefs is described. • QWC is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling. <p>Award 1 or 2 marks</p> <p>Description of the work of one chef/designer. Some understanding of its main features.</p> <ul style="list-style-type: none"> • Some understanding shown of the influence on other designers. • QWC is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. <p>Award 3 or 4 marks</p> <p>Description of the work of one chef/designer. Understanding shown of its main features.</p> <ul style="list-style-type: none"> • Discussion of the influence on other designers with some appropriate examples provided. • QWC is good presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. <p>Award 5 or 6 marks</p> <p>Description of the work of one chef/designer. Clear understanding shown of its main features.</p> <ul style="list-style-type: none"> • Discussion of the influence on other designers 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. <p>Award 7 or 8 marks</p>	0			
				10	35

Question			On paper	Question Totals	Overall Total
4. (a) (i)	No answer or the answer does not identify an information source. Suitable information source identified. Answers could include:	0	1		
	<ul style="list-style-type: none"> • Recipes books. • T.V. • Leaflets from supermarkets. • Magazines. • Looking at existing products. • Research on the Internet. • Disassembly of products. 	1			
(ii)	No answer or the answer does not state a way of communicating design ideas.	0	2		
	Award each correct answer given one mark: <ul style="list-style-type: none"> • Annotated sketches/diagrams. • Photographs. • Word documents. • Publisher documents. • Model. • Verbally/talking. • Prototyping. • CAD 	2			
(b)	No answer or the answer does not address why modelling is an important part of developing a new food product.	0	2		
	Award a simple response: <ul style="list-style-type: none"> • To test out different flavour combinations/ingredients to see if they work. • To check the product's suitability. 	1			
	Award a developed response: <ul style="list-style-type: none"> • To test out different ingredients in small quantities to see if they work without wasting money are a later stage. • To check the method of combining ingredients is the most suitable for the product being produced. • To check the product's suitability for the target group being aimed at. 	2			
(c)	No answer or the answer does not explain the importance of a manufacturing specification.	0	2		
	Award a simple response: <ul style="list-style-type: none"> • Gives details to make the product/ingredients/components. 	1			
	Award developed response. <ul style="list-style-type: none"> • It includes all the details/important points a manufacturer would need to produce the product in quantity. 	2			

Question			On paper	Question Totals	Overall Total
(d)	(i)	No answer or the answer is not a design that satisfies the brief.	0		
		<ul style="list-style-type: none"> The design shows the product is savoury by the choice of ingredients – cheese, meat, vegetables. 	1	1	
	(ii)	<ul style="list-style-type: none"> The design does not indicate it is a single portion. 	0		
		<ul style="list-style-type: none"> The design shows the product is a single portion by comments or measurements 	1	1	
	(iii)	<ul style="list-style-type: none"> The design has a basic/limited range of flavours – cheese. 	1	3	
		<ul style="list-style-type: none"> The design clearly includes a good combination of flavours, e.g. cheese, onion and mixed herbs. 	2		
		<ul style="list-style-type: none"> The design has an interesting combination of flavours, e.g. mixed cheese – cheddar and mozzarella, sundried tomatoes and olives. 	3		
	(iv)	<ul style="list-style-type: none"> The design has a basic/limited range of textures, e.g. soft. 	1	3	
		<ul style="list-style-type: none"> The design includes a good range of textures, e.g. soft. 	2		
		<ul style="list-style-type: none"> The design includes an interesting range of textures, crumbly pastry base, soft, moist cheese and mushroom filling, juicy olive and tomato topping. 	3		
	(v)	<ul style="list-style-type: none"> The design does not have an attractive appearance. 	0	2	
		<ul style="list-style-type: none"> The design has a basic appearance, for example, glazed or crimped. Basic quiche appearance with no interesting features. 	1		
		<ul style="list-style-type: none"> The design has a colourful, interesting appearance, for example, glazed, crimped edges or attractive design, surface decoration. Open tart design with colourful foods arranged in an interesting manner. 	2		
	(vi)	<ul style="list-style-type: none"> The design does not have, or state, any protein source. 	0	1	
		<ul style="list-style-type: none"> A good source of protein has been stated. 	1	3	
	(vii)	<ul style="list-style-type: none"> The design does not specify suitable materials to make the chosen pastry. 	0		
		<ul style="list-style-type: none"> The design has very limited labelling of pastry ingredients – flour. 	1		
		<ul style="list-style-type: none"> The design has basic labelling of pastry ingredients – flour, margarine. 	2		
		<ul style="list-style-type: none"> The design has a good labelling of ingredients for pastry – plain flour, pinch of salt, hard margarine, water. 	3		

Question			On paper	Question Totals	Overall Total
(viii)	No answer or the answer cannot be understood, no annotation. <ul style="list-style-type: none"> • Poor response – drawing with no colour/labelling/cross-section. • Adequate drawing/labelling, some labelling/annotation. • Good standard of drawing/labelling with good annotation and plan view. • Very good quality drawing/labelling and annotation. Excellent cross-section and plan view. Detailed design comments. 	0	4		
		1			
		2			
		3			
		4			

Question			On paper	Question Totals	Overall Total
5. (a)	(i)	No answer or incorrect response. <ul style="list-style-type: none"> • Correct response • Travelling oven 	0 1	2	
	(ii)	No answer or incorrect response. <ul style="list-style-type: none"> • Computerised scales. • Digital scales. 	0 1		
(b)	No answer or answer is incorrect. Award a suitable advantage: <ul style="list-style-type: none"> • High quality product. • Individual/unique finished product. • Made to customers' requirements. 	0 1	1		
(c)	(i)	No answer or the answer does not identify how the machine speeds up the manufacturing Appropriate response – limited detail. <ul style="list-style-type: none"> • Cuts a large number of biscuits on a continuous process. Appropriate response with good detail. <ul style="list-style-type: none"> • Removes the left-over dough with one action and places back to be re-rolled. 	0 1 2	2	
	(ii)	No answer or answer does not relate to one advantage when using this machine to manufacture biscuits. Award simple response: <ul style="list-style-type: none"> • The biscuits are the same shape/size. Award developed response: <ul style="list-style-type: none"> • The biscuits are exactly the same shape and size this results in a consistent outcome/quality product. 	0 1 2	2	
(d)	No answer or answer does not relate to continuous flow production – quicker/easier/cheaper, etc. Basic response to continuous flow: <ul style="list-style-type: none"> • Computer-controlled production system. • High demand product. Good response: <ul style="list-style-type: none"> • Extends mass production by only producing one particular product 24/7. No answer or the answer does not state a suitable product. Suitable product named: <ul style="list-style-type: none"> • Soft drinks/fizzy. • Milk. • Olive oil. • Breakfast cereals. • Baked beans • Crisps. 	0 1 2 0 1	3		

Question			On paper	Question Totals	Overall Total
6.	(a)	No answer or answered incorrectly. <ul style="list-style-type: none"> • Coeliac. • Vegetarian. • Diabetic. 	0 1 2 2	3	
	(b)	No answer or the answer does not relate to the nutrients. Award a mark for any two of the following nutrients: <ul style="list-style-type: none"> • Fats. • Proteins. • Carbohydrates. • Vitamins (only one to be awarded) • Minerals/calcium/iron (only one to be awarded) 	0 1x1	2	
	(c)	No answer or the answer does not relate to the functions of ingredients. Award each correct response one mark: <ul style="list-style-type: none"> • Margarine – shortening. • Plain flour – bulking. • Cold water – binding. • Eggs – setting. 	0 4	4	
	(d)	No answer or the answer does not relate to the type of food structure or how the structure is achieved. Type of structure: <ul style="list-style-type: none"> • Emulsion (only acceptable answer). How achieved: <ul style="list-style-type: none"> • Oil and vinegar are whisked together (1). • With egg yolk – emulsifying agent (2). 	0 1 2	3	
	(e)	Award correct response for modified starch used in the cup-a-soup. Basic response: <ul style="list-style-type: none"> • So that boiling water can be poured straight on the soup mix. Developed response: <ul style="list-style-type: none"> • Used to thicken the product addition of water/soon as water added/pre-gelatinised. Detailed response: <ul style="list-style-type: none"> • Used to improve the mouth feel (smooth and creamy) and blend uniformly with no lumps (3) 	 1 2 3	3	
				15	85

Question			On paper	Question Totals	Overall Total
7. (a)	<p>No answer or the answer does not correctly name the equipment pieces or give a suitable use. States the correct equipment piece 1 mark. Suggests a suitable use plus 1 mark.</p> <ul style="list-style-type: none"> • mixing/plastic bowl – to combine/mix ingredients together. • Palette knife – for spreading/lifting foods on and off baking tray/to smooth tops. • Flour shaker/dredger – to lightly coat/dust surface. 	0	6		
(b) (i)	<p>No answer or the answer does not name an equipment piece. Correct response. Award 1 mark.</p> <ul style="list-style-type: none"> • Food processor/food mixer. 	0	1		
(ii)	<p>No answer or the answer does not relate to a quality assurance visual check. Award one of the following checks:</p> <ul style="list-style-type: none"> • Degree of browning/golden colour/colour of crumble top. • Even/accurate pastry edge. • Even distribution of crumble top. 	0	1		
(c)	<p>No answer or the answer does not state explanation of pictures.</p>	0	6		
(i)	<ul style="list-style-type: none"> • Pastry is being unrolled so that it fits/rests on the flan dish (1). • This makes it easier to line the dish accurately (2). 	2			
(ii)	<ul style="list-style-type: none"> • The pastry is being lowered and guided into the base of the flan dish (1). • This stops it from tearing/not being large enough to fit the dish (2). • Carefully lowering pastry and pushing into base reduces risk of shrinkage in cooked pastry case(2). 	2			
(iii)	<ul style="list-style-type: none"> • Greaseproof paper and baking beans/dried peas/have been added to the pastry case (1). • This gives the case its structure/shape (2). • Helps to keep sides from collapsing (2). • This stops it from rising/lets steam escape and prevents crust from bubbling (2). 	2			

Question			On paper	Question Totals	Overall Total
(iv)	No answer or the answer does not relate to the requiring of a pastry case to be baked blind.	0	2		
	Award a simple response: • To prevent a soggy base.	1			
	Award a developed response: • As no further cooking required after filling has been added.	2			
(v)	No answer or answer does not relate to a dish that makes use of baking blind.	0	1		
	Award correct response: • Lemon meringue pie. • Quiche. • Egg custard, • Pastry flan case/tartlets with fruit.				
(d) (i)	No answer or incorrect answer.	0	1		
	Correct method identified: • Whisking.	1			
(ii)	No answer or incorrect answer.	0	2		
	Award correct response: • Air is incorporated when the eggs and sugar are being whisked/combined (1) (air is trapped – thick and creamy). • When sieving flour into mixture (2).	2			

Question			On paper	Question Totals	Overall Total
8.	(a)	No answer or the answer does not relate to the correct word.	0	2	
		Award each correct statement:	1+1		
		<ul style="list-style-type: none"> • Costings. • True. 			
	(b) (i)	No response or the answer does not relate to food manufacturers using computers instead of workers.	0	2	
		Award 1 mark for each basic response:	1		
		<ul style="list-style-type: none"> • Computers can run all day. • Reduces labour costs. • Reduced human error. • More hygienic. 			
	(ii)	No answer or answer does not relate to changes and monitoring.	0		
		Weighing ingredients for the sponge top	2	2	
		<ul style="list-style-type: none"> • Weight (1). • Weight changes in the ingredients (2). 		+	2
		Baking of the Bakewell tarts	2		
		<ul style="list-style-type: none"> • Temperature (1). • Temperature changes in the over (2). 			
	(c)	No answer or the answer does not relate to the input stage of a system.	0	1	
		Award each correct response.	1	2	
		<ul style="list-style-type: none"> • Equipment/machinery • Workers. 	+		
			1		
(d) (i)	No answer or the answer does not relate to the meaning of CIM.	0	1		
	<ul style="list-style-type: none"> • Exchange of information/feedback. • Correct meaning identified. • Computer Integrated Manufacture. 	1			
(ii)	No answer or the answer does not relate to the advantages of using CIM.	0	1		
	<ul style="list-style-type: none"> • Brings together all aspects of the process. • Co-ordinates all aspects from material ordering through to final product. 	1			
		2			
(e)	No answer or the answer does not relate to the advantages of using barcodes.	0	2		
	Award each correct explained advantage:	1			
	<ul style="list-style-type: none"> • Identifies cost of the product. • It is a valuable tool for gathering information as it monitors sales and stock through the scanning of the products barcode when being sold. 	2			
				15	120

GCSE DESIGN & TECHNOLOGY – GRAPHIC PRODUCTS
Mark Scheme – Summer 2013

Question			On paper	Question Totals	Overall TOTAL
1.	(a)	No answer or answers that do not match the mark scheme.	0		
		Appropriate answer but lacking detail E.g. Because it is LIGHT/ HOLDS LOTS OF ITEMS,	1		
		Appropriate answer with appropriate detail. Statement about one of the following with qualification. E.G HOLDS ITEMS SECURELY, FITS ON A COUNTER TOP, IS LIGHT ENOUGH TO BE HELD SO MERCHANDISE CAN BE SOLD BY VOLUNTEERS, LARGE ENOUGH FOR A SECURE MONEY BOX.	2		
	(b)	(i)	No answer or answers that do not match the mark scheme.	0	
			Basic statements about: SALE OF ITEMS, COLLECT MONEY.	1	
			Appropriate description of function with appropriate detail: LARGE ENOUGH TO HOLD ITEMS WITHOUT SPILLING OVER AND CONTAIN SPACE FOR SAFE COLLECTION OF MONEY.	2	
	(ii)	(ii)	No answer or answers that do not match the mark scheme.	0	
			Basic statements about: MONEY FALLING OUT, CHARITY ITEMS STAYING IN BOX.	1	
			Appropriate description of security with appropriate detail: GLUE LESS STRUCTURE CAN, HOLD HEAVY CHANGE SECURELY.	2	
	(iii)	(iii)	No answer or the answer does not match mark scheme.	0	
			Basic statements about: LOOKS, SHAPE, FORM, LOGO	1	
			Appropriate description of aesthetics with appropriate detail: DRAW ATTENTION TO BOX, CONVEY MESSAGE OF CHARITY, MAKE PEOPLE FEEL THEY WANT TO DONATE, HAVE ENOUGH SURFACE AREA TO ADVERTISE MESSAGE OF THE CHARITY	2	

Question			On paper	Question Totals	Overall TOTAL	
	(c)	Any answer other than BATCH PRODUCTION	0			
		Scale of Prod - BATCH PRODUCTION	1			
		Non answer or answer that states Because it's the best.	0			
		Reason - NATIONAL CHARITY THOUSANDS OF BOXES NEEDED	1			
	(d)	(i)	No answer or answers that do not match the mark scheme.	0		
			FOLDED EDGES, NO SHARP EDGES, APPROPRIATE MATERIAL	1		
			EDGES ARE FOLDED TO MAKE THE STRUCTURE STRONGER	2		
	(e)	(i)	No answer or answers that do not match the mark scheme	0		
			Only acceptable answer - £8,500 £10,000 - £1,500	1		
		(ii)	No answer or answers that do not match the mark scheme	0		
			Answer that is 9.5% without working – can be awarded 1 mark.	1		
			Answer that is correct and shows appropriate working – can be awarded 2 marks. $3,000 / 31,500 * 100 = 9.5\%$	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 any order. RECYCLE. REFUSE. REPAIR.	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 the products impact on the environment.	1 Or		
			Appropriate statement well detailed. AWARD 2 marks. E.g. Helps the designer thinking about sustainable issues in terms of the whole product throughout its life cycle, or By looking again at aspects of the product to reduce the environmental impact at each stage. Extracting materials. Processing. Transport. Use. Disposal.	2		
	(b)	(i)	No answer or answers that do not match the mark scheme.	0		
			Only app. answer – British Standards Institution. Institution for British Standards or B.S.I or Institute will gain no marks.	1		
			Only app. answer – European Committee for Standardisation. Committee for European Standards or C.E.N will gain no marks. Europaisches Komitt Fur Normung. Comit Europeen De Normalisation.	1		
		(ii)	No answer or answers that do not match the mark scheme.	0		

Question				On paper	Question Totals	Overall TOTAL
		<p>A simple answer that is unexplained can be AWARDED 1 mark. Sets standards for products in Europe.</p> <p>An answer that shows some understanding and description. AWARDED 2 marks. Sets standards and Technical specs for products in Europe.</p>	1 Or 2			
		<p>A full answer that explains and shows understanding. AWARDED 3 marks. Candidate must show they understand that the CEN works alongside other standardisation organisations to ensure a common purpose and directives are achieved. Through its services it provides a platform for the development of European Standards and other technical specifications. Candidates should mention other organisations to gain 3 marks, e.g. ISO</p>	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		
		NIKE ADVERT – Neville Brody.	1		
		RAY GUN IMAGE – David Carson.	1		
	(b)	<p>FIRST MARK DESCRIPTION OF THE RANGE OF THE WORK.</p> <p>No answer or no relevant description of the designer’s range of work.</p> <p>Some simple description of the work of the designer. Little, if any, understanding of its main features. Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling. Award 1 mark.</p> <p>Description of the work of the designer. Some understanding of its main features. Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. Award 2 marks.</p> <p>Description of the work of the designer. Understanding shown of its main features. Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. Award 3 marks.</p> <p>Description of the work of one designer. Clear understanding shown of its main features. Quality of Written Communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling. Award 4 marks.</p>	0 1 or 2 3 or 4		
		THEN MARK DESCRIPTION OF THE INFLUENCE/INNOVATIONS OF THE DESIGNER.			
		No answer or no relevant description of the influence of designer’s work.	0		

Question			On paper	Question Totals	Overall TOTAL
		<p>A little understanding of the innovations introduced during career. Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling. Award 1 mark.</p>	1	8	
		<p>Some understanding shown of the innovations introduced during career. Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. Award 2 marks.</p>	2		
		<p>Discussion of the influence on other designers with some appropriate examples of the innovations introduced Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. Award 3 marks.</p>	3		
		<p>Discussion of the innovations introduced with fully appropriate examples provided. Quality of Written Communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling. Award 4 marks.</p>	4		
				10	35

Question				On paper	Question Totals	Overall TOTAL
4.	(a)		No answer or answers that do not match the mark scheme.	0		
			Only acceptable answer – Design Development or development or developing ideas.	1		
	(b)	(i)	No answer or answers that do not match the mark scheme.	0		
			A simple answer that is unexplained can be AWARD 1 mark. Make a list of things the design should have.	1		
		An answer that shows some understanding and description. AWARD 2 marks. E.g. A design specification gives detailed information to guide a designer into thinking about criteria regarding what is being designed, or	Or 2			
		A specification is used to help generate, test and evaluate design ideas. The specification should be referred to throughout the project.				
(ii)	No answer or the answer does not explain how the two are linked.					
	A simple answer that mentions only one aspect 1 mark. Gives him a list to test the design against.	1				
	An answer that is full and contains two or more aspects 2 marks. Candidates need to show that they understand how the Design Spec. and the Evaluation are linked. That the Spec. is a list of things that can be measured or tested, or A Spec. containing measurable criteria makes evaluating a product easier.	Or 2				
	(c)	(i)	No answer or answers that do not match the mark scheme.	0		
			The logo is not a symbol or does not use the initial's T.W's.	0		
			The logo appropriate for the brief.	1		
			The logo appropriate for the brief and fully meeting the specification.	2		

Question			On paper	Question Totals	Overall TOTAL
		The logo uses less than 3 or more than 3 colours.	0		
		The logo uses 3 colours.	1		
		Poor quality drawing skills, hard to understand.	0		
		Drawing skills are adequate	1		
		Good quality drawing skills and application of colour.	2		
	(ii)	The design does not show position of T.W's logo.	0		
		The design shows clearly the position of the logo with the initials T.W's fully visible.	1		
		The design does not show a method for holding cards.	0		
		The design includes a method but is unclear or will not work.	1		
		The design does show a method that will work.	2		
		The design does show a method that will work and is fully detailed.	3		
		The design does not show sizes or are inappropriate.	0		
		The design shows some sizes but not all are not accurate.	1		
		The design shows all sizes and all are accurate and are appropriate to the design.	2		
		Nothing drawn.	0		
		Logo drawn on folder but no colour used.	1		
		Logo drawn with some embellishment. (No colour) Logo with colour no embellishment.	2		
		Logo drawn with embellishment and colour.	3		
		The design does not show a locking mech.	0		
		The design includes a locking mech. but is unclear or will not work.	1		
		The design does show a locking mech. that will work.	2		
		The design does show a locking mech. that will work and is fully detailed.	3		
		No answer or the answer cannot be understood.	0		
		Poor quality drawing skills, hard to understand, annotation unclear	1		
		Drawing skills are adequate and understandable, application of colour adequate.	2		
		Good quality drawing skills and application of colour.	3		
				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 answers – First Blank – ON PRESS. Second Blank - FINISHING.	1 1		
	(ii)		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. An answer that shows understanding and mentions 2 of the following AWARDED 2 marks. Candidates could mention TYPESETTING, COLOUR SEPARATION, IMPOSITION.	1 2		
	(b)	No answer or answers that do not match the mark scheme. IMPOSITION – Arranging the pages of a document. COLOUR SEPARATION – Splitting the artwork into their component hues. UV VARNISHING – This process involves adding a liquid.	0 1 1 1			
	(c)	(i)	No answer or answers that do not match the mark scheme. Only acc. answer - Offset Lithography or lithography.	0 1		
		(ii)	No answer or answers that do not match the mark scheme. Advertising, Leaflets ,Catalogue, Greeting cards, Posters, some magazines newspapers and Business cards.	0 1 1		
					10	70

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 - Laminating.	1		
		(ii)	No answer or answers that do not match the mark scheme.	0		
			FIRST BLANK – Wet End.	1		
			SECOND BLANK – Drier Section or Drier.	1		
			THIRD BLANK – Calendar Section or Calendar.	1		
		(iii)	No answer or answers that do not match the mark scheme.	0		
			A simple answer that lacks detail.	1		
			1 Mark E.g Smoothes paper or changes thickness.	Or		
			An answer that gives some of the detail below.	2		
2 Marks E.g Continue to remove water, smooth surface of paper, texture the paper using felt.	Or					
An answer that is full and gives most of the detail below.	3					
		3 Marks E.g The still wet web of paper is transferred from the wire of the wet end and carried onto the felt and presses. Continue to remove water from the PULP, Smooth the surface of paper running the entire length of the machine, Texture of the paper will depend on felt used.				
(b)	(i)	No answer or answers that do not match the mark scheme.	0			
		1 – ASCENDER.	1			
		2 – DECENDER.	1			
		3 - SERIF.	1			
	No answer or answers that do not match the mark scheme.	0				
(ii)	Leading.	1				

Question			On paper	Question Totals	Section TOTAL
	(c)	No answer or answers that do not match the mark scheme.	0		
	(i)	1 ST COLOUR WHEEL – Analogue or harmony.	1		
		2 nd COLOUR WHEEL – Triadic or Tri-colour.	1		
	(ii)	No answer or answers that do not match the mark scheme.	0		
		One mark for each explanation. If a colour is made lighter by adding WHITE, the result is called a TINT .	1		
		And if GREY is added, the result is a different tone . NO MARKS FOR ADDING BLACK THIS IS A SHADE.	1		
				15	85

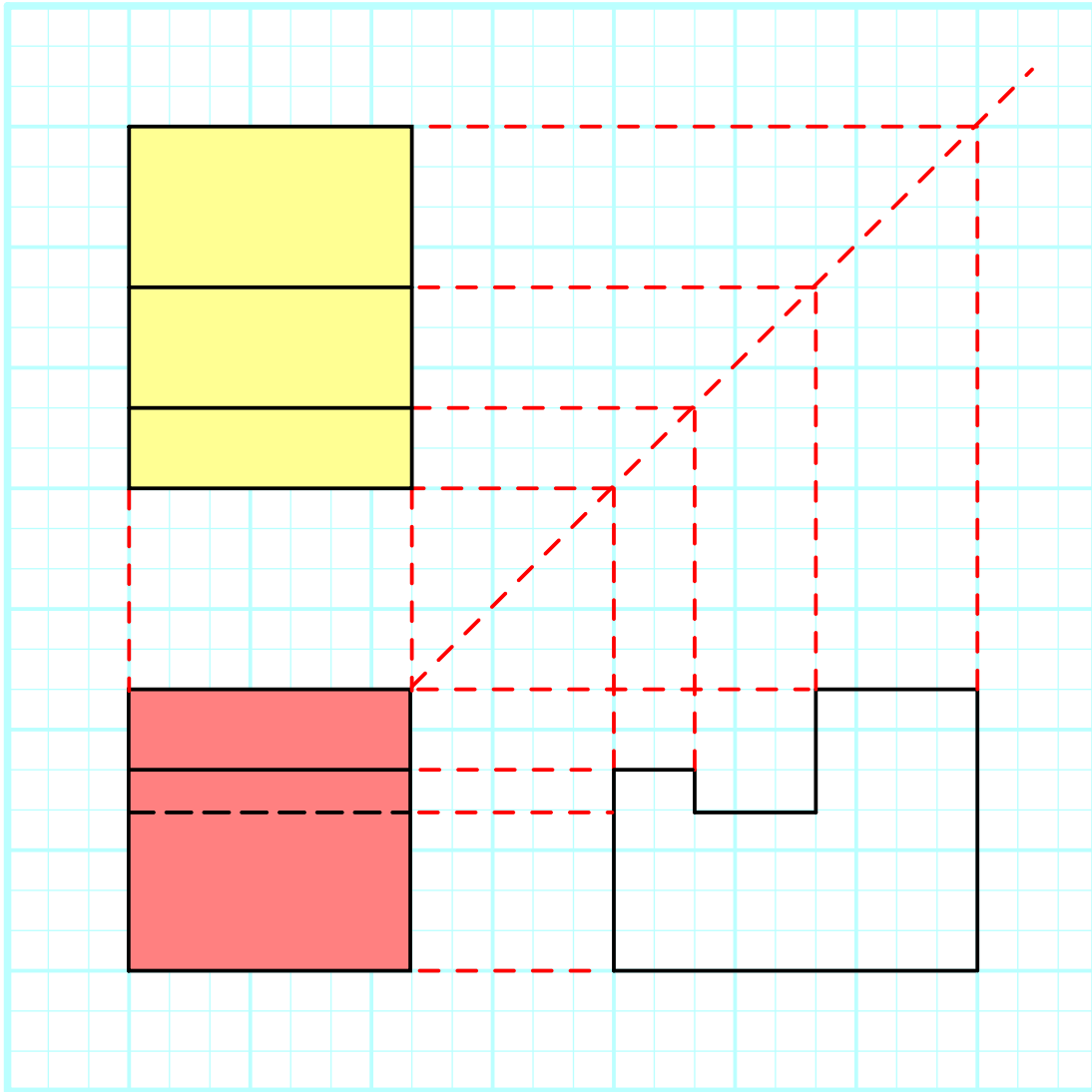
Question				On paper	Question Totals	Section TOTAL
7.	(a)	(i)	No answer or answers that do not match the mark scheme. Only acceptable answers for 1 each mark are 0.8, 0.5, 0.3, B.M.	0 4		
	(b)	(i)	No answer or answers that do not match the mark scheme. Only acceptable answer – T square -Tee square.	0 1		
		(ii)	No answer or answers that do not match the mark scheme. E.g. Templates help the designer draw a variety of shapes and sizes quickly and accurately.	0 1		
	(c)		No answer or answers that do not match the mark scheme. Consideration should be given to the following- (1 mark for each) <ul style="list-style-type: none"> Workers can inhale chemical vapours from spraying, absorb the chemical by skin contact or inject the chemical with high pressure spray painting equipment. Before work begins, spray painters should read the Material Safety of the chemical they'll be using then wear the appropriate personal protective equipment such as safety glasses, a respirator, gloves or coveralls to protect themselves against its hazards. Proper ventilation is important when working with paint coatings, a spray booth should be used to remove spray paint vapours and debris from a worker's breathing zone. Many coatings contain flammable substances that are aerosolized when sprayed through powered equipment and without proper ventilation, such as in a spray booth, these vapours can build up and create an explosion and fire danger. Simple answer – dangerous fumes, next to an open window etc. 	0 1 Or 2 Or 3 Or 4		

Question			On paper	Question Totals	Section TOTAL
	(d)	No answer or answers that do not match the mark scheme.	0		
		Basic answer limited understanding.			
		RESOLUTION – Detail of an image/clarity.	1		
		ROLLOVER LINK – Button on webpage. Any reference to a link to another page or changing an image.	1		
		FULL ANSWER FULL UNDERSTANDING 2 MARKS.	2		
		RESOLUTION - Image resolution describes the detail an <u>image</u> holds. The term applies to raster <u>digital images</u> , film images, and other types of images. Higher resolution means more image detail.			
		ROLLOVER LINK - Rollover refers to a button created by a web developer or web designer, found within a <u>web page</u> , used to provide interactivity between the user and the page itself. The term rollover in this regard originates from the visual process of "rolling the mouse cursor over the button" causing the button to react.	2		
	(e)	No answer or answers that do not match the mark scheme.	0		
		These operations must be referred to gain marks. Partial 1 mark. Full 2 marks.			
		PRINTING - Set up printer: Insert correct paper (size and weight): Print.	1 or 2		
		CUTTING OUT THE MENU – Use knife, safety rule, cutting mat: or guillotine Cut carefully on cut lines: Remove waste paper. Keeping hands out of the way.	1 or 2		
		SCORING & FOLDING - Score each fold line, with bone folder or similar: Fold scored lines.	1 or 2		
				20	105

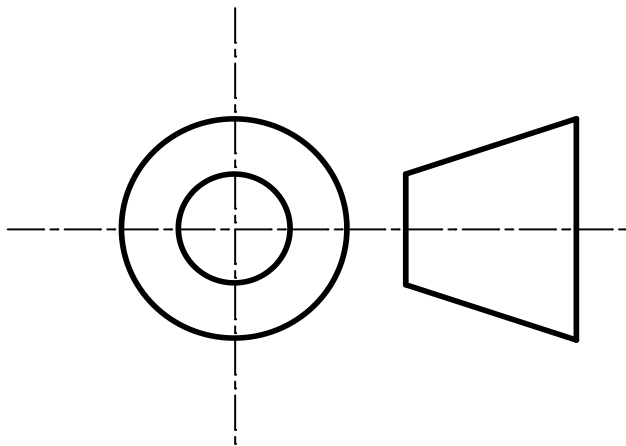
Question				On paper	Question Totals	Section TOTAL
8.	(a)	(i)	No answer or answers that do not match the mark scheme.	0		
			1 ST BLANK – HTML.	1		
			2 ND BLANK – JPEG.	1		
			3 RD Blank - GIF.	1		
		(ii)	No answer or answers that do not match the mark scheme.	0		
			Appropriate statement but lacking detail AWARD 1 mark. To be able to use different work for different uses.	1		
				OR		
			Appropriate statement well detailed AWARD 2 marks. Reasons are:- To be able to publish different items of work on the correct format without loss of clarity, quality, colour or function.	2		
	(b)	(i)	No answer or answers that do not match the mark scheme.	0		
			Plan View			
			Correctly positioned and accurately drawn.	2		
			Correctly positioned and inaccurately drawn.	1		
			Incorrectly positioned and accurately drawn.	1		
			Incorrectly positioned and inaccurately drawn.	0		
			End View			
			Correctly positioned and accurately drawn.	2		
			Correctly positioned and inaccurately drawn.	1		
			Incorrectly positioned and accurately drawn.	1		
			Incorrectly positioned and inaccurately drawn.	0		
			CONSTRUCTION			
			No or unsuitable construction lines	0		
			Correct construction lines partly drawn.	1		
			All construction lines drawn correctly	2		

Question				On paper	Question Totals	Section TOTAL
		(ii)	SHADING. NO Shading or incorrectly shaded. Shading correct on ONE view. Shading correct on TWO views. n.b. Colour must be orange or yellow. SEE ATTACHED SHEET.	0 1 2		
		(iii)	No answer or answers that do not match the mark scheme.	0		
			Symbol correctly sketched or partial sketch Correct symbol (SEE ATTACHED SHEET).	1 2	2	
						15
						120

Question 8 Solutions.



Symbol



DAVID CARSON

His Work.

- He is best known for his innovative magazine design, and use of experimental typography.
- He was art director of the magazines Transworld Skateboarding, Beach Culture and Ray Gun.
- His work does not follow "traditional" graphic design standards.
- "The message that the type sends is as important as what it is saying."
- By the late eighties he had developed his signature style, using "dirty" type and non mainstream photographic techniques.
- His work has many layers with text and images overlaid on each other.
- Carson chooses to use type as an expression to communicate the feelings or message of a piece to the viewer on first contact.
- He mixes and matches funky off-beat type faces with traditional ones in order to add texture and diversity into his work.
- Legibility often relies on readers' strict attention.
- He was labeled a terrible graphic designer in the nineties by many traditional designers.
- Carson's work is subjective and driven by intuition and experimenting with ways to communicate in a variety of mediums.
- He is a hands on designer, keeping his studio small and doing much work himself.

His Influence.

- Carson has been one of the greatest influences on modern graphic design in the last twenty five years.
- He is often referred to as the "Father of Grunge" and is the creator of Generation X's new standard for type.
- Carson and his work have been featured in over 180 magazine and newspaper articles around the world, including a feature in Newsweek magazine.
- The End of Print, (forward by David Byrne) is the top selling graphic design book of all time, selling over 200,000 copies, and has been printed in 5 different languages.
- Carson lectures extensively throughout the world.
- He has spoken at over 100 meetings of professional designers.
- He teaches a week long workshop at the school of visual arts in New York each summer.
- His extensive use of combinations of typographic elements and photography has led many designers to completely change their work methods.
- Graphic designers from all around the world base their style on the new "standards" that have distinguished Carson's work.

GCSE DESIGN & TECHNOLOGY – RESISTANT MATERIALS TECHNOLOGY

Mark Scheme – Summer 2013

Question			On paper	Question Totals	Overall Total
1. (a)	<p>No answer or an inappropriate answer. One word answers: strong, hard, cheap. Appropriate reason but lacking detail. Award 1 mark e.g. is a durable and hardwearing material.</p> <p>Appropriate reason well detailed. Award 2 marks e.g. is a tough and durable material which will support the weight of all users without breaking/failing.</p> <p>Stainless steel – answers related to:</p> <ul style="list-style-type: none"> • Resistant to corrosion. • Resistant to wear. • Good strength/weight ratio of tube. • Can be extruded into round section. • Support weight of user. <p>Appropriate statement but lacking detail. Award 1 mark e.g. is a durable and hardwearing material.</p> <p>Appropriate statement well detailed. Award 2 marks e.g. is a durable material which will protect the floor from damage by the chair legs.</p> <p>HDPE – answers related to:</p> <ul style="list-style-type: none"> • Is able to be injection moulded into shape. • Will protect the office floor from being marked. • Inexpensive to replace. • Available in a range of colours to match seat. • Noise reduction. • Grip-prevent movement. 	<p>0 0 1 or 2</p> <p>1 or 2</p>	4	4	4
(b) (i)	<p>No answer or an inappropriate answer. Appropriate specification point but lacking detail. Award 1 mark e.g. the chair must be comfortable to sit on.</p> <p>Appropriate statement well detailed. Award 2 marks e.g. anthropometric data must be considered in order to ensure the chair is comfortable for all shapes and sizes of user.</p> <p>Ergonomics – answers related to:</p> <ul style="list-style-type: none"> • Ease of use. • Interacting with people through the five senses (sight and touch are relevant here) • Comfort. • Safety. • Colour. • Anthropometric considerations 	<p>0 1 or 2</p>	2	6	6

Question			On paper	Question Totals	Overall Total
(ii)	<p>No answer or an inappropriate answer</p> <p>Appropriate specification point but lacking detail. Award 1 mark e.g. the chair must be recyclable.</p> <p>Appropriate statement well detailed. Award 2 marks e.g. all materials used in the construction of the chair should be assessed for their potential to be recycled.</p> <p>Sustainability – answers related to:</p> <ul style="list-style-type: none"> • Recyclability of materials. • Ease of disassembly of chair parts. • Ease of identification of material parts – recycling symbols. • Effect of how product is made – globalisation, effect of transportation. • Production methods used. • Lifespan of product. 	0 1 or 2	2	8	8
(c)	<p>No answer or an inappropriate answer.</p> <p>Appropriate advantage point but lacking detail. Award 1 mark e.g. the seat can be bent to shape.</p> <p>Appropriate advantage well detailed. Award 2 marks e.g. thin sheets of veneer are glued together to produce the tight bend in the seat.</p> <p>Appropriate advantage well detailed. Award 3 marks e.g. a complex but lightweight and strong structure is created due to the seat being constructed by gluing thin sheets of veneer together.</p> <ul style="list-style-type: none"> • The tight bend can be achieved. • Good strength to weight ratio of seat. • Avoids complex wood jointing processes. • Weight of user is spread out along chair seat – no stress points? • Ease of mass manufacturing. • Cost with justification. 	0 1 or 2 or 3	3	11	11

Question			On paper	Question Totals	Overall Total							
(d) (i)	No answer or incorrect answer. Only acceptable answer – 55%	0 1	1	12	12							
(ii)	No answer or answers that do not match the mark scheme. Answer that is £56.00 without workings – can be awarded 1 mark	0 1 or 2 or 3	3	15	15							
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">$15\% = 8.40$ or $0.15x = 8.40$ or $15\% = 8.40$</td> <td style="padding: 5px;">$1\% = 8.40/15$ $= 0.56$</td> <td style="padding: 5px;">$x = 8.40/0.15$</td> <td style="padding: 5px;">$5\% = 2.80$ $10\% = 5.60$</td> </tr> <tr> <td style="padding: 5px;">$100\% = 0.56 \times 100$ $= 56.00(\pounds)$</td> <td style="padding: 5px;">$x = 56.00(\pounds)$</td> <td style="padding: 5px;">$100\% = 56.00(\pounds)$</td> <td></td> </tr> </table>	$15\% = 8.40$ or $0.15x = 8.40$ or $15\% = 8.40$	$1\% = 8.40/15$ $= 0.56$	$x = 8.40/0.15$	$5\% = 2.80$ $10\% = 5.60$	$100\% = 0.56 \times 100$ $= 56.00(\pounds)$	$x = 56.00(\pounds)$	$100\% = 56.00(\pounds)$				
$15\% = 8.40$ or $0.15x = 8.40$ or $15\% = 8.40$	$1\% = 8.40/15$ $= 0.56$	$x = 8.40/0.15$	$5\% = 2.80$ $10\% = 5.60$									
$100\% = 0.56 \times 100$ $= 56.00(\pounds)$	$x = 56.00(\pounds)$	$100\% = 56.00(\pounds)$										
				15	15							

Question			On paper	Question Totals	Overall Total
2. (a)	<p>No answer or an inappropriate answer.</p> <p>REFUSE Appropriate explanation but lacking detail. Award 1 mark e.g. consider if it is really necessary to make the product.</p> <p>Appropriate explanation well detailed. Award 2 marks e.g. consider if it is really necessary to use a material or make a product if it is not sustainable to do so.</p> <p>Refuse to make the product unless it is designed and made to be long-lasting. Refuse to make the product if anyone will be exploited during its making.</p> <p>No answer or an inappropriate answer.</p> <p>RETHINK Appropriate explanation but lacking detail. Award 1 mark e.g. consider if there is a better way to make a product.</p> <p>Appropriate explanation well detailed. Award 2 marks e.g. consider if there is a more sustainable method of making a product so that less damage is caused to the environment.</p> <ul style="list-style-type: none"> • Is the product energy efficient? • Could the product be manufactured more efficiently? • Has the product been designed for disassembly? 	0 1 or 2 0 1 or 2 0 1 or 2	4	4	19
(b)	<p>No answer or an inappropriate answer.</p> <p>Substances + No answer or an inappropriate answer.</p> <p>No answer or an inappropriate answer + Hazardous control of Substances Hazardous to Health.</p> <p>No marks for the use of the term 'harmful'.</p>	0 1 1 2	2	6	21
(c)	<p>No answers underlined.</p> <p>Oil underlined.</p> <p>Gas underlined.</p> <p>4 or 5 answers are underlined – no marks.</p>	0 1 1	2	8	23

Question			On paper	Question Totals	Overall Total
(d)	<p>No answer or an inappropriate answer.</p> <p>Appropriate reason but lacking detail. Award 1 mark e.g. they cause pollution to the environment.</p> <p>Appropriate reason, well detailed. Award 2 marks e.g. non-renewable energy sources such as oil and gas caused pollution during all stages of their extraction, transportation and use.</p> <ul style="list-style-type: none"> • Effects of oil, gas, coal production on the environment. • pollution – during extraction, use and waste products. • Transportation – effect on the environment – shipping, road transport, oil pipelines, open-cast coal mining. • Global warming – carbon emission. 	0	2	10	25
				10	25

Question			On paper	Question Totals	Overall Total	
3. (a)	(i)	No answer or an inappropriate answer JUICER – STARCK. BICYCLE – LOVEGROVE.	0 1 1	2	2	27
	(ii)	Candidates would need to include references to the following in their answers. Philippe Starck – range of work: <ul style="list-style-type: none"> • There are few areas of design he has not explored: from furniture to mail-order homes, motorbikes to mega-yachts, and even artistic direction for space-travel projects, to name a few. • Responsible for the creation of a wide variety of objects in the O.W.O. Series, noodles for Panzani, boats for Beneteau, miner-water bottles for Glacier, kitchen appliances for Alessi, toothbrushes for Fluocaril, luggage for Vuitton, 'Urban Fittings' for Decaux, office furniture for Vitra, as well as vehicles, computers, doorknobs, spectacle frames, etc. Philippe Starck – ideas: <ul style="list-style-type: none"> • Much of his work produced in the 1980s and 1990s was influenced by fashion and novelty. It has been referred to by some as being 'overdesigned'. • Philippe Starck believed in the green long before ecology became fashionable, out of respect for the planet's future. • Concept of 'democratic design' – increase the quality objects at lower prices so that more people can enjoy the best – he was a lone voice at a time when design was turned exclusively towards an elite. No answer or no relevant issues described or discussed.	8	10	35	
		Note – if both designers are described, mark the first answer only. <ul style="list-style-type: none"> • Some simple description of the range of work. • Little, if any, understanding of the ideas Starck introduced to product design. • Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling. 	0 1 2 3			

Question			On paper	Question Totals	Overall Total
	<ul style="list-style-type: none"> • Some description of the range of work. • Little understanding of the ideas Starck has introduced to product design. • Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. 	4			
		5			
		6			
	<ul style="list-style-type: none"> • Description of the range of work, with some understanding of the ideas Starck has introduced to product design. 	7			
	<ul style="list-style-type: none"> • Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. 	8			
				10	35

Question			On paper	Question Totals	Overall Total
4. (a)	Not attempted	0	3	3	38
	Brief → A list of features essential to the design Development → A short statement of the design problem Specification → Improving on the best design idea	1 1 1			
(b)	No answer or an inappropriate answer. Candidates need to state two appropriate activities such as: <ul style="list-style-type: none"> • Looking at existing products. • Questionnaire – interviewing users, potential customers. • Interviewing an expert/specialist. • Finding important factual information. • Collecting relevant data. • Researching relevant Anthropometric data. 	0 2x1	2	5	40
(c)	No answer or an inappropriate answer. Do not accept one word answers – quick, etc. Appropriate reason but lacking detail. Award 1 mark e.g. the product can be seen from all angles. Appropriate reason, well detailed. Award 2 marks e.g. the product can be visualised before making in costly materials. <ul style="list-style-type: none"> • Accurate 3D models can be stored and retrieved easily. • Parts can be modified, deleted or added to the assembled model. • Engineers, designers and technicians can share the design data in computerised manufacturing management systems. • Accurate, scaled and dimensioned engineering drawings can be generated directly from the model. • 3D model data can be converted into machine code for production on CNC machines. • Models can be re-worked and modified easily to aid product development 	0	2	7	42
(d) (i)	Details to satisfy specification No work or does not meet specification in any way. Basic solution that addresses one two specification points. Feasible solution that addresses some of the specification points. (3 specification points). Feasible solution that addresses all of the specification points. (4 specification points).	0 0 1 2 3	3	13	48

Question			On paper	Question Totals	Overall Total
(ii)	<p>Technical details.</p> <p>0 mark no details of construction shown.</p> <p>1-2 marks basic solution but could work with few technical features and processes shown.</p> <p>3-4 marks feasible solution that shows some important technical features and processes.</p> <p>5-6 marks feasible solution, sufficient technical details are listed to manufacture the stand. Clearly communicated with detailed range of sketches and good annotation.</p>	<p>0</p> <p>1</p> <p>or</p> <p>2</p> <p>or</p> <p>3</p> <p>or</p> <p>4</p> <p>or</p> <p>5</p> <p>or</p> <p>6</p>			
(iii)	<p>Specifying suitable materials, components & processes.</p> <p>Up to 3 marks for naming SPECIFIC and relevant material(s), component(s) & process(es). Do not accept wood, plastic, etc.</p>	<p>1</p> <p>Or</p> <p>2</p> <p>or</p> <p>1</p>	3	16	51
(iv)	<p>Specifying 2 important dimensions.</p> <p>Up to 2 marks specifying appropriate dimensions. 1 mark per important/appropriate dimension.</p>	<p>1</p> <p>Or</p> <p>2</p>	2	18	53
(v)	<p>Details to satisfy specification.</p> <p>Up to 3 marks for clearly referenced specification points.</p>	<p>1</p> <p>or</p> <p>2</p> <p>or</p> <p>1</p>			
(vi)	<p>Quality of communication.</p> <p>4 Excellent. 3 Good. 2 Average. 1 Below average.</p>	<p>1</p> <p>or</p> <p>2</p> <p>or</p> <p>1</p> <p>or</p> <p>2</p> <p>or</p> <p>3</p> <p>or</p> <p>4</p>	4	25	60
				25	60

Question			On paper	Question Totals	Overall Total
5. (a)	<p>No answer or an inappropriate answer.</p> <p>INJECTION MOULDING.</p> <p>PRESSING.</p> <p>FORGING.</p>	<p>0</p> <p>1</p> <p>1</p> <p>1</p>	<p>3</p>	<p>3</p>	<p>63</p>
(b)	<p>No answer or an inappropriate answer.</p> <p>Appropriate explanation but lacking detail. Award 1 mark e.g. a small or specific amount of products are made.</p> <p>Appropriate explanation, includes some detail. Award 2 mark e.g. batch production is a production method that produces a small or specific amount of identical products.</p> <p>Appropriate explanation, well detailed. Award 3 mark e.g. batch production is a production method that produces a specific or small amount of identical products. Batches can be repeated at any time to make more of the same product.</p>	<p>0</p> <p>1</p> <p>or</p> <p>2</p> <p>or</p> <p>3</p>	<p>3</p>	<p>6</p>	<p>66</p>
(c)	<p>No answer or an inappropriate answer.</p> <p>Appropriate advantage but lacking detail. Award 1 mark e.g. the process is suitable for making very large products.</p> <p>Appropriate advantage, well detailed. Award 2 marks e.g. very large shapes can be produced so the process is ideal for making large items such as traffic cones and storage tanks.</p> <ul style="list-style-type: none"> • Little pressure is required. • Moulds can have different surface textures. • Very little waste, which can be recycled. • Identical products can be made. • Different colours can be produced. <p>Appropriate disadvantage but lacking detail. Award 1 mark e.g. it takes a long time to make one product.</p> <p>Appropriate disadvantage, well detailed. Award 2 marks e.g. slow production time compared to other plastic moulding processes. This is due to the time required to heat and cool the mould.</p> <ul style="list-style-type: none"> • Only makes simple shapes, more complex sections cannot be produced. • High cost production process due to the time involved to make a product. • The exact amount of thermoplastic is needed every time. 	<p>0</p> <p>1</p> <p>or</p> <p>2</p> <p>1</p> <p>or</p> <p>2</p>	<p>4</p>	<p>10</p>	<p>70</p>
				<p>10</p>	<p>70</p>

Question			On paper	Question Totals	Overall Total
6. (a)	<p>Thermoplastic.</p> <p>HIPS.</p> <p>Polypropylene.</p> <p>Nylon.</p> <p>Note: If same material is entered in both columns – Award no mark for that specific material only.</p>	<p>Thermosetting.</p> <p>Melamine Formaldehyde.</p>	4x1	4	74
(b)	<p>No answer or an inappropriate answer.</p> <p>Teak – Garden bench. Candidates need to state two appropriate properties such as:</p> <ul style="list-style-type: none"> • Durable timber – resistant to abrasive wear. • Moisture resistant – contains natural oils. • Resistant to insect attack. • Straight grain. • Works well. • Attractive hardwood. <p>DO NOT ACCEPT STRONG.</p> <p>ABS – Bicycle helmet. Candidates need to state two appropriate properties such as:</p> <ul style="list-style-type: none"> • Tough. • Impact resistant. • Light in weight. • Scratch resistant. • Chemical resistant. • Good finish. • Self-coloured. <p>DO NOT ACCEPT STRONG.</p> <p>Duralumin – Bicycle sprocket Candidates need to state two appropriate properties such as:</p> <ul style="list-style-type: none"> • Good strength-to-weight ratio. • Malleable • Ductile. • Work hardens. • Machines well. • Corrosion Resistant. • Durability - DO NOT ACCEPT STRONG. 	0	6	10	80
(c) (i)	<p>No answer or an inappropriate answer. Only acceptable answer – BALL CATCH.</p>		0 1	2	12
(ii)	<p>No answer or an inappropriate answer. Only acceptable answer – SPRING CATCH.</p>		0 1		82

Question			On paper	Question Totals	Overall Total
(d) (i)	No answer or an inappropriate answer.	0	1	13	83
	<ul style="list-style-type: none"> • Aircrafts • Boats • Bicycles • Cars • Canoes • Surfboards • Flat roofs <p>Products that are reinforced with Carbon Fibre or Kevlar are not acceptable.</p>	1			
(ii)	Glass-Reinforced Plastic (GRP) is made up of Glass Fibres/Strands/Matting/Particles embedded in a Polyester/Epoxy resin .	1 1	2	15	85
				15	85

Question			On paper	Question Totals	Overall Total
7. (a)	No answer or an inappropriate answer. SCRIBER. MICROMETER. SLIDING BEVEL. DIVIDERS.	0 4x4	4	4	89
(b)	No answer or an inappropriate answer. Candidates need to state two appropriate safety precautions such as: <ul style="list-style-type: none"> • The tool rest must be as close to the work as possible. • Turning speed should be calculated according to the diameter of the work. • Larger diameter = slower speed. • Smaller diameter = higher speed. • Removing corners from square pieces of timber. • Worked secured firmly in chuck/faceplate. • Safety glasses. • Loose clothing (sleeves, ties) should be avoided. • Dust. Award each topic only once.	0 2x1	2	6	91
(c)	No answer or an inappropriate answer. TOXIC – chemical hazard. FLAMMABLE – fire hazard.	0 1 1	2	9	93
(d) (i)	No answer or an inappropriate answer. Brazing, welding, soldering (hard or silver).	0 1	1	10	94
(ii)	No answer or an inappropriate answer. The following points need to be referenced to gain marks: <ul style="list-style-type: none"> • Clean surface of steel. • Offer up pieces. • Apply flux. • Apply heat to dull red/red hot. • Apply solder/brazing rod. • Allow to cool. 1 mark – very basic understanding. 2-3 marks – some detail and understanding related to tools, processes. 4-5 marks – detailed understanding (most of above points referenced) clearly communicated.	0 1 or 2 or 3 or 4 or 5	5		99

Question			On paper	Question Totals	Overall Total
(e)	<p>No answer or an inappropriate answer. Marks awarded for sketching and annotating a design for a suitable jig that:</p> <ul style="list-style-type: none"> • Holding dowel in place – groove or a stop. • Cutting dowel to length with tenon saw – reference to dimension. • Guiding tenon saw – slot, stop, guide. • Holding jig securely. <p>1 mark – very basic understanding.</p> <p>2-3 marks – some detail and understanding related to cutting dowel to length, guiding tenon saw and holding jig securely during cutting.</p> <p>4 marks – good understanding related to cutting dowel to length, guiding tenon saw and holding jig securely during cutting.</p> <p>1-2 marks – quality of communication.</p> <p>0 marks – poor quality communication skills.</p> <p>1 mark – basic drawing that shows some details.</p> <p>2 marks – good quality drawing showing most details clearly.</p>	<p>0</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	6	20	105
				20	105

Question			On paper	Question Totals	Overall Total
8. (a)	No answer or an inappropriate answer. Permanent. Temporary. Pop riveting. Self-tapping screws. Brazing. Epoxy resin. Note: If same method is entered in both columns – Award no mark for that specific method only.	0	4	4	109
(b)	No answer or an inappropriate answer. Appropriate explanation but lacking detail. Award 1 mark e.g. gives a better grip. Appropriate explanation, well detailed. Award 2 marks e.g. the user is able to gain an improved grip on the pliers which are less likely to slip in the user's hand. <ul style="list-style-type: none"> • Ergonomics – comfort of user. • Pliers can be used repeatedly without causing discomfort. • Helps prevent corrosion. • Electrical insulation. • Easier identification/colour-coding of tool is possible. • Heat Resistant. 	0 1 or 2	2	6	111
(c)	No answer or an inappropriate answer. Marks awarded for explaining the main operations: <ul style="list-style-type: none"> • Material placed on bed of laser. • Laser focused to thickness of material. • Settings applied – high speed/low power for engraving (black), low speed/high power for cutting (red). • Settings sent from PC to laser. • Reference to extraction (extraction turned on or can be automatic). • Engraving operation carried out first followed by cutting operation. • Work removed from laser. <p> 1 mark – very basic understanding (reference to 1 or 2 of the points above). 2 marks – more detail (reference to 3 or 4 of the points above) 3 marks – fairly detailed response (reference to 5 or 6 of the points above). 4 marks – detailed response (reference to all of the points above). </p>	0	4	10	115

Question			On paper	Question Totals	Overall Total
(d)	No answer or an inappropriate answer. Do not accept one word answers such as easier, cheaper, etc.	0	2	12	117
	Appropriate benefit but lacking detail. e.g. CAM is a very accurate process.	1			
	Appropriate benefit, well detailed. e.g. CAM is an accurate process which can be repeated to produce a large number of identical products. <ul style="list-style-type: none"> • Small margins of error if programmed properly. • Less labour-intensive and will save on employment costs in the long run. • Machines can work continuously. • Manufacture can take place with minimum supervision and can be done during unsocial work hours. • Can release staff from mundane types of work to be used in more demanding/interesting parts of product manufacture. • Machining routines and outcomes can be evaluated with virtual machining on screen. 	2			
(e)	No answer or an inappropriate answer. If a candidates does not mention advantaged and disadvantages, award no marks. The answer needs to show that the candidate has knowledge of the advantages and disadvantages of Rapid prototyping. Continuous writing is required.	0	3	15	120
	Advantages <ul style="list-style-type: none"> • Allows the designer to see and handle a product in real life before production begins. • Decreases the product development time. • Costly production mistakes can be avoided as problems can be identified early in the design process. • Minimise changes to the produce once manufacturing has started. 				
	Disadvantages <ul style="list-style-type: none"> • Costly specialist machinery. • Need for highly skilled staff. A simple answer that makes reference to one advantage and one disadvantage.	1			
	Or A detailed answer but makes reference to one advantage or disadvantage. A more detailed answer that makes reference to one advantage and one disadvantage.	2			
	A detailed answer that makes reference to more than one advantage and one disadvantage (two advantages and one disadvantage OR one advantage or two disadvantages).	3			
				15	120

GCSE DESIGN & TECHNOLOGY – SYSTEMS AND CONTROL

Mark Scheme – Summer 2013

Q.	Part	Answer	Marks	Total	Spec Content
1	(a) (i)	Full answer should reflect a typical specification point e.g. Should be powered by 4 rechargeable AA batteries which are more sustainable than mains. \Components for control system could be reused, reclaimed from another product.	2 marks	2	Product Analysis
		Limited answer e.g. battery powered and mains, plastic body.	1 mark		
		One word responses like batteries, plastics.	0 marks		
	(ii)	Must staple up to 12 sheets automatically showing the mechanical system inside.	2 marks	2	Dev, Plan, Com (b)
		Staple sheets together.	1 mark		
		One word answers like staple.	0 marks		
	(iii)	Product must be small, compact and modern design. Answers could relate to - Sleek shape, transparent to see workings, interesting colour scheme.	2 marks	2	Product Analysis
		Looks modern and cool.	1 mark		
		One word responses like a gadget.	0 marks		
		(b) (i)	To appeal to people who study or work in an office environment.	1 mark	1
Inappropriate answer, e.g. Everyone, anyone			0 marks		
(ii)		It looks like a fun product and would staple paper automatic so better than a manual stapler.	2 marks	2	Product Analysis
		It staples paper automatically.	1 marks		
		One word response like better.	0 marks		
(c)	Make sure that the user cannot fit their fingers where paper is stapled, smooth edges and no detachable small parts. Designer responsibility.	3 marks	3	Product Analysis	
	Must be safe for the use without getting hurt or injured. (but no explanation of how).	2 marks			
	Less clear e.g. safe to use.	1 mark			
	One word answers, inappropriate answers.	0 marks			

Q.	Part	Answer	Marks	Total	Spec Content
	(d) (i)	July	1 mark	1	Dev, Plan, Com (a)
	(ii)	18/100= 0.18 *10=£1.80. Step 2 is £1.80 *3000= £5400 Some workings, step 1 only, final answer wrong / answer only.	2 marks 1 mark	2	Product Analysis
1	All	Unexpected answers – candidates may respond in a way that is unexpected or does not fit with the marking scheme. Examiners to follow code of practise and contact team leader.			
				15	

Q.	Part	Answer	Marks	Total	Spec Content
2	(a)	Glass bottle Bank. Can be placed in an aluminium recycling facility.	1 mark x 2	2	Overarching principles
	(b)	Reuse. Rethink. Reduce. Refuse. Recycle.	1 mark x 5	5	Overarching principles
	(c)	Clear and detailed response containing factors relating to encourage or force or a balance of both e.g. New Government policies on refuse collection to fortnightly, Recent carrier bag 5p charge, promotional campaigns on television, Primary school visits etc. Reasonable response with some detail. Reduce as less points are relative e.g. People are encouraged to recycle rubbish using media 1 mark, and there are laws passed to charge for polythene bags 1 mark. Limited or basic response lacking any clear detail. Inappropriate answer, one word answer, no answer.	3 marks 2 marks 1 mark 0 marks	3	Overarching principles
2	All	Unexpected answers – Possibly a wide range of responses for C.			
				10/25	

Q.	Part	Answer	Marks	Total	Spec Content	
3	(a) (i)	Names of designers Company - Jonathan Ive - Apple, Miyamoto - Nintendo.	2x1 marks	2	Other designers /practitioners	
	(ii)	Shigeru Miyamoto				Other designers / practitioners
		<ul style="list-style-type: none"> • DESCRIPTION OF WORK: • When the Nintendo Company began branching out, Miyamoto helped design the company's first original coin-operated arcade game Sheriff. • Was told to redesign unsold Radar Scope units into a new arcade game. • Came up with Donkey Kong. • Developed Mario and platform games. • Super Mario and Mario Bros. • Made games for the first Nintendo 64. • Mario series spin-offs like Mario Kart 64 and Mario Party. • Game cube, Game boy and DS games. • IMPACT OF WORK: • Miyamoto is seen as the leader of the development of handheld gaming. • Pioneer of platform games systems. • Lifetime achievement awards winner at Game Developer Choice Awards 2007. • Voted Ultimate development Hero. • Provoked competitors like Sony to follow his style / concepts. 				
		No response or inappropriate answer.	0 mark			
		Some simple description of the work of the designer. Little, if any, understanding of its main features. Little, if any, understanding of the influence on other designers is shown.	1 mark			Other designers / practitioners
		Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling.				
	Some description of the work of the designer. Little understanding of its main features. A little understanding of the influence on other designers is described.	2 marks		Other designers / practitioners		
	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 the designer. Some understanding of its main features. Some understanding shown of the influence on other designers.	3 or 4		Other designers / practitioners		
	Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling.					

Q.	Part	Answer	Marks	Total	Spec Content
		<p>Description of the work of the designer. Understanding shown of its main features. Discussion of the influence on other designers or products some appropriate examples provided.</p> <p>Quality of Written Communication is very good, presenting appropriate material in a coherent and logical manner, very few errors of grammar, punctuation and spelling.</p>	5 or 6		Other designers / practitioners
		<p>Description of the work of the designer. Clear understanding shown of its main features. Discussion of the influence on other designers or products with fully appropriate examples provided.</p> <p>Quality of Written Communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling.</p> <p>Note – If a candidate writes about the wrong designer and the level of communication is acceptable, award up to 2 marks.</p>	7 or 8		Other designers / practitioners
				10/35	

Q.	Part	Answer	Marks	Total	Spec Content
4	(a)	Design stages correctly positioned in table: Brief and Specification. Initial Ideas. Development. Final Idea.	4x1 mark	4	Design Process
		No answer or inappropriate answer.	0 marks		
	(b) (i)	Name of an appropriate programme, e.g. Yenka, PIC logicator, Pro Desktop.	1 mark	1	Design Process
		No answer or Responses related to ICT, e.g. Excel.	0 marks		
	(ii)	Clear response to test a design idea, to check if a circuit works, to design and simulate on screen, to test and modify ideas, model the physical shape of cases, etc.	2 marks	2	Design Process
		Weaker responses may not be as detailed, or cover enough factors.	1 marks		
		Poor response / no clarity, no answer or inappropriate answer.	0 marks		
				7/42	
	(c) (i)	Appropriate sign for the entrance.	1 mark	1	Design Question
		Inappropriate sign or no answer.	0 marks		
	(ii)	Accurate and clear sketching of the external features of the design including all the specification points.	3 marks	3	
		Clear sketching meeting some details of the specification.	2 marks		
		Limited information meeting some of the specification points.	1 mark		
		No answer or inappropriate answer.	0 marks		
(iii)	Block diagram with three main boxes, Input, Process, and Output. Components named in relevant box e.g. LDR, switch, comparator or PIC, Lights or LED's and buzzer or piezo.	3 x 1 mark	3	Design Question	
	Unexpected answers might appear here. No answer or inappropriate answer.	0 marks			

Q.	Part	Answer	Marks	Total	Spec Content
	(iv)	Fully labelled circuit diagram of a system that will work. Symbols and conventions correct and accurate. Comprehensive details of a PIC, Comparator circuit. Look at sensing p.d., control / process and outputs.	[up to 4/5 marks]	5	Design Question
		Labelled circuit diagram that shows some conventions and components correct, some use of suitable components but may not function fully.	[up to 2/3 mark]		
		Labelled circuit diagram with several errors or details missing. One or two components or conventions correct.	[up to 1 mark]		
		No answer or inappropriate answer.	0 marks		
	(v)	Clear details of an appropriate method for clamping the device to the post. e.g. Clamp mechanism, adjustable strap, and jubilee clip type fitting, etc.	2 marks	2	
		Some details of an appropriate method for clamping the device to the post.	1 mark		
		No answer or inappropriate answer.	0 marks		
	(vi)	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 one material 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	

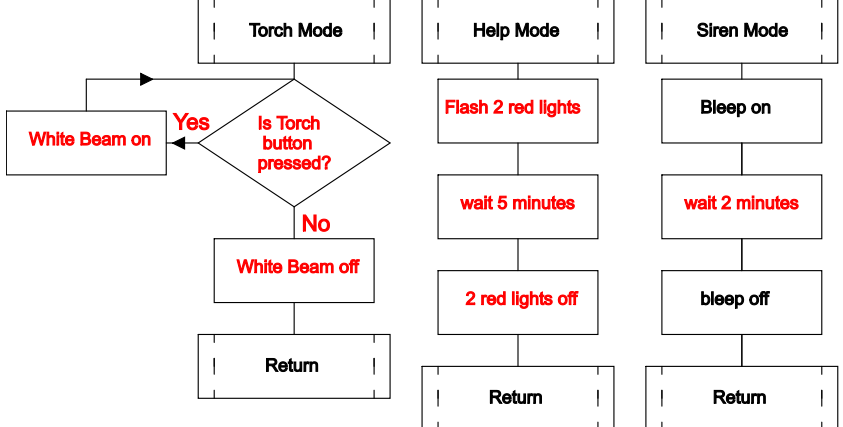
Q.	Part	Answer	Marks	Total	Spec Content
5	(a)	Correct order: One off production. Continuous Flow production. Batch production. Mass production.	4x1 mark	4	Commercial Manufacturin g Practices (a)
	(b)	Automated production provides many advantages – full responses like: Machines can operate quicker than humans improving efficiency, Less mistakes are made.	2 marks	4	Commercial Manufacturin g Practices(a)
	(i)	Once set up the line is cheaper to run than paying workers. Clear and detailed response. Less clear - Making sure they are high quality. No answer or inappropriate answer.	1 mark 0 marks		
	(ii)	Clear and detailed response. Less clear - Making sure they are high quality. No answer or inappropriate answer.	2 marks 1 mark 0 marks		
		Note – Do not reward for repeated answers.			
	(c)	Clear and detailed response related to Moore’s Law which relates to the amount of transistors on an IC doubling every two years. Some understanding of Moore’s Law e.g. Small chips are mounted to the top of a pcb. No answer or inappropriate answer.	2 marks 1 mark 0 marks	2	Commercial Manufacturin g Practices(a)
				10/70	

Q.	Part	Answer	Marks	Total	Spec Content	
6	(a) (i)	Bevel gears.	1 mark	1	Materials and components (b) Mechanisms	
		No answer or inappropriate answer.	0 marks			
	(ii)	1:2 or 2:1	1 mark	1	Materials and components (b) Mechanisms	
		No answer or inappropriate answer.	0 mark			
	(iii)	Mechanical Advantage (MA) = $\frac{\text{Load}}{\text{Effort}}$ $80/40=2$, Effort $2m/2 = 1m$	2 marks	2	Materials and components (b) Mechanisms	
			Correct answer but no workings or correct workings but wrong answer. Some workings, wrong answer, correct answer only.			1 mark
			No answer or inappropriate answer.			0 mark
	(iv)	$VR = RV \text{ of driver} \cdot \text{diam} = RV \text{ of driven} \cdot \text{diam}$ $80 \cdot 30 = ? \cdot 20$ $2400/20 = 120\text{rpm}$	2 marks	2	Materials and components (b) Mechanisms	
Correct answer but no workings or correct workings but wrong answer. Some workings, wrong answer, correct answer only.			1 mark			
No answer or inappropriate answer.			0 mark			
	(b) (i)	22000 or 22K, 47000 or 47K 33.	1 mark 1 mark 1 mark	3	Materials and components (a) Electronics	

Q.	Part	Answer	Marks	Total	Spec Content																																				
	(c)	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Symbols for variable resistors. </div>	3x1 marks	3	Materials and components (a) Electronics																																				
	(d) (i)	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">AND</th> <th colspan="3">NAND</th> </tr> <tr> <th>A</th> <th>B</th> <th>Y</th> <th>A</th> <th>B</th> <th>Y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table> <p>Note: Accept truth table for AND or NAND gate as shown above.</p>	AND			NAND			A	B	Y	A	B	Y	0	0	0	0	0	1	1	0	0	1	0	1	0	1	0	0	1	1	1	1	1	1	1	0	1 mark 1 mark 1 mark	3	Materials and components (b) Mechanisms
AND			NAND																																						
A	B	Y	A	B	Y																																				
0	0	0	0	0	1																																				
1	0	0	1	0	1																																				
0	1	0	0	1	1																																				
1	1	1	1	1	0																																				
		No answer / incorrect.	0 marks																																						
				15/8																																					

Q.	Part	Answer	Marks	Total	Spec Content	
7.	(a) (i)	Breadboard.	1 mark	1	Tools, Equipment & Making	
	(ii)	An appropriate test e.g. removes and places a small voltage with the correct polarity using a battery or power supply unit across the legs to see if the LED will light.	2 marks	2	Tools, Equipment & Making	
		One correct one mark.				
		Power the LED to see if it works, replace the LED with a new one.	1 mark		Tools, Equipment & Making	
		No answer or inappropriate answer.	0 marks			
	(b)	Place in UV box. Develop pcb image. Rinse with water. Place in etching tank.	1 mark 1 mark 1 mark 1 mark	4	Tools, Equipment & Making	
		No response or incorrect response.	0 marks			
	(c)(i)&(ii)	Clear and detailed consideration, e.g. Always keep soldering iron in holder when switched on and not in use. Ensure flex does not contact tip of soldering iron or stand.	2 marks	4	Tools, Equipment & Making	
		Less developed response e.g. be careful not to burn anything / anyone with the tip.	1 mark			
		No response or inappropriate answer.	0 marks			
		Note – repeated answers only accredited once.				
	(d)	Look for 5 steps, e.g. Mark out / measure battery and plan on hips. Ruler, tri square, etc. Heat one side over strip heater until soft. Bend at 95 degrees, remove heat and cool. Repeat for other side. Check battery fits tightly, reheat and adjust if needed.		5	Tools, Equipment & Making	
		Detailed explanation naming all tools, equipment and materials required.	4/5 marks			
		Clear explanation naming most tools, equipment and materials required.	2/3 marks			
		Basic or limited explanation of tools, equipment and materials required.	1 mark			
		No response or inappropriate answer.	0 marks			

Q.	Part	Answer	Marks	Total	Spec Content
	(e)(i)&(ii)	<p>CAM is a reliable process and all products or components will be identical or same standard.</p> <p>CAM is faster than manual worker so production is speeded up / more can be made.</p> <p>Responses to wasting material, working conditions, cost etc.</p> <p>Less clear or inaccurate, e.g. CAM speeds the process up.</p> <p>No response or inappropriate answer e.g. Faster, cheaper, quicker, easier, etc.</p> <p>Note – repeated answers only accredited once.</p>	<p>2 marks</p> <p>1 mark</p> <p>0 marks</p>	4	Tools, Equipment & Making
				20/105	

Q.	Part	Answer	Marks	Total	Spec Content
8.	(a) (i)	Torch mode button Or Siren mode button Or Help button.	1 mark	1	Systems and Processes
	(ii)	Siren, white light beam or flashing red lights.	1 mark	1	Systems and Processes
	(b) (i)	Completed flowchart 	7x1 marks	7	
	(ii)	A macro or sub routine breaks complex flowcharts down into smaller 'chunks' which are controlled by a main programme so it is easier to deal with. Makes system easier to plan. No response or inappropriate answer.	2 marks 1 mark 0 marks	2	
	(c)	PIC can control a variety of inputs and outputs. PIC can be updated if required / new information / upgrade. PIC can be recycled / reused after the useful lifecycle of the light. A detailed and justified response. A PIC is small.....fits in the light.... Less developed answer. It is easy to program. A less detailed and unjustified response. No response or inappropriate answer.	2 marks 1 mark 0 marks	2	
				15/12 0	

GCSE DESIGN & TECHNOLOGY – TEXTILES TECHNOLOGY
Mark Scheme – Summer 2013

SECTION A

Question			On paper	Question totals	Running TOTAL
1.	(a)	No answer or an incorrect answer. Only acceptable answer: girls aged 3-11years	0 1	1	1
	(b)	No answer or an answer that does not make any relevant reference to batch production – 0 mark Answers that indicate a clear understanding of batch production being the most suitable scale of production should awarded up to 2 marks: it is a seasonally produced product (spring/autumn,) clearly not suitable for all year round use; limited market appeal because of the size range it is offered in, the colours available and it is clearly for young girls of school age. A simple response: it is only suitable for use at certain times of the year. A more developed response that clearly explains: the production run would only last a short period of time because it is the type of product which could only be used at certain times of the year.	0 1 2	2	2
	(c)	(i) No answer or one that does not address the function of the jacket - 0 mark Answers that indicate an understanding of the function of the jacket can be awarded up to 2 marks: the main function of the jacket is to protect the user from the elements particularly rain showers; it folds up into a small bag which allows it to be carried inside a school bag for example, in case the child is caught in a rain shower and needs a jacket to keep dry. Appropriate specification point made about the function but lacking in detail appropriate for a design specification, e.g. it must protect the user from rain. A more developed and appropriate specification point made about the function e.g. it must be small enough for a child to carry inside a schoolbag in case they get caught in a rain shower and need a jacket for protection. (ii) No answer or one that does not address the cost of the rain jacket - 0 mark Answers that indicate an understanding of the cost can be awarded up to 2 marks: it is a very affordable price for mothers of young children to pay for a lightweight jacket that has a limited use in terms of the length of time a child could wear it before growing out of it or for how long during the year it would be useful; families may be on a tight budget and therefore the price would appeal. Appropriate specification point made about the cost but lacking in detail appropriate for a design specification e.g. It must be a reasonable price for young mums to be able to afford to buy it. A more developed and appropriate specification point made about the cost e.g. As children grow quickly it must be a reasonable price making it affordable for young families.	0 1 2 1 2	2	2

Question			On paper	Question totals	Running TOTAL
	(iii)	<p>No answer or one that does not address the aesthetic appeal of the rain jacket - 0 mark.</p> <p>Answers that indicate an understanding of the aesthetic appeal of the jacket can be awarded up to 2 marks: available in two attractive colour ways; polka dot print appeals to young girls; frilled edges make it pretty and more 'girly.'</p> <p>Appropriate specification point made about the aesthetic appeal but lacking in detail appropriate for a design specification e.g. The colour scheme must appeal to young girls.</p> <p>A more developed and appropriate specification point made about the aesthetic appeal e.g. the overall colour scheme and print must appeal to young girls who like bright pretty clothing.</p>	0 1 2	2	6
	(d)	<p>No answer or one that does not explain the suitability of the material – 0 mark.</p> <p>Answers that indicate an understanding of the materials' properties should be given credit: polyester is inexpensive; it is showerproof; it is lightweight; close weave will give some protection from wind.</p> <p>A simple response e.g. The material needs to be shower proof which is needed for the jacket.</p> <p>A more developed response e.g. The material for the jacket needs to be lightweight to carry around and shower proof.</p> <p>A more developed response with justification e.g. the material needs to be lightweight as the jacket may be carried around in a bag but also needs to be showerproof to protect the user from the elements when needed.</p>	0 1 2 3	3	3
	(e)	<p>(i) No answer or an incorrect answer – 0 marks Only one acceptable answer: May.</p> <p>(ii) No answer or an incorrect calculation and answer – 0 mark. Award 1 mark for an incorrect answer but method is correct – 1 mark. $\frac{25800}{6}$ Correct answer with correct calculations – 2 marks 4300.</p>	0 1 1 2	1	3
					15
					15

Question				On paper	Question totals	Running TOTAL	
2	(a)	(i)	Incorrect answers or no answers – 0 mark Three acceptable answers: Do not iron. Hand wash. Dry clean only.	0 1 1 1	3	4	
		(ii)	No answer or an answer that does not identify any other relevant information found on labels- 0 mark. Award 1 mark for any one of the following, for example: fibre content; size; additional care such as dry flat; country of origin; conformity to European standards; bar code; safety advice: Fair trade.	0 1			
	(b)		No answer or the answer does not identify the correct word. Only acceptable answer: RETHINK.	0 1	1	1	
	(c)		No answer or an answer that gives no reference to the choice of materials - 0 mark. Answers that indicate an understanding of material choice and address the impact on the environment or relevant facts relating to fabrics that are sustainable for example: renewable sources of fibres – natural/regenerated; use of biodegradable fabrics; potential for fabrics to be recycled or the use of recycled fabrics e.g. Polartec fleece made from plastic bottles and the benefits associated with this practice. Award 1 mark for a simple response e.g. Materials that come from a renewable source such as cotton are more sustainable. Award 2 marks for a developed response e.g. As material choice has the biggest impact on the environment, choosing fabrics that are from renewable sources (or those that have been made from recycled materials) are better because the source of raw fibres will not run out, making them more sustainable.	0 1 2	1 2	2	
	(d)		No answer or an answer that does not make reference to planned obsolescence and the environmental impact - 0 mark Answers that indicate an understanding of planned obsolescence and the environmental impact should be given credit for example: products that have been produced with limited shelf life using cheap materials, poor quality manufacture; demand for/use of raw materials; energy used in the production of disposable products; impact of product disposal/ landfill; fashion industry drive for latest trends/ problems with disposal of discarded products. Award 1 mark for a basic response: valuable raw materials are used on products that have a limited life span. Award 2 marks for a more developed response: valuable raw materials which may not be from a renewable source are used on products that have a limited life span. Award 3 marks for a fully developed answer based on: valuable raw materials that may not be from a renewable source are used on products that have been made with the intention of a limited life span; this puts a strain on the world's resources and also adds to the problems of disposal.	0 1 2 3	3	3	
						10	25

Question				On paper	Question totals	Running TOTAL
3	(a)		No answer or incorrect answers – 0 mark.	0		
		(i)	Only acceptable answers: Vivienne Westwood + Mini-Crini collection.	1		
		(ii)	John Galliano + Les Incroyables.	1	2	2
	(b)		No answer or no relevant issues described or discussed Answers must indicate a general understanding of the similarities in 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.	0		
			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. Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. 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 1 Band 2 Band 3 Band 4		

Question			On paper	Question totals	Running TOTAL
	<p>Answers MUST compare the similarities in their styles and give an indication of 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; neither is afraid to experiment and are known for producing bold designs that may challenge some people's ideas of high fashion. • Both are known for breaking with tradition to produce their own unique styles/collections. • Both designers feature unusual aspects in their designs that have filtered down into mainstream fashion – ripped hems, torn seams; unusual cutting styles (JG jackets worn upside down); accessorising with the unusual: VW (Punk) bicycle chains, spiked dog collars etc. JG smashed magnifying glasses worn as jewellery. • Both have had a huge impact on mainstream fashion: VW the tube skirt and the reinvention of the corset as an outerwear garment; JG the reinvention of the bias cut dress, widely seen throughout contemporary fashion. • Both designers enhance the feminine form in their clothing: JG through very narrow feminine styling which clings to the body and VW the hourglass figure with the cut of her clothing – Mini Crini was conceived to enhance the female form. • Both look to the past for inspiration, but also theatre and cultural influences amongst other things. • 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. JG went to St. Martin's and has had a more formal route into pattern cutting; this is reflected in his techniques. • Tradition British elements feature strongly in VW's work: use of Harris Tweed, tartan whereas JG embraced the style of the Parisian's through his connection with the House of Dior – elegant, feminine, romantic, luxurious fabric such as silk. • 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 JG followed a more traditional route into fashion design and went through college and his talent was 'discovered' following his degree show. 		8	8	
				10	35

Question			On paper	Question totals	Running TOTAL	
4	(a)	No answer or incorrectly placed words – 0 mark. Award up to 3 marks for each acceptable answer which could include: product analysis; disassembly; questionnaire; analysing existing products; shop survey.	0 3	3	3	
	(b)	(i) No answer or an answer that does not relate to the importance of testing materials – 0 mark. Answers that indicate an understanding of the importance of testing materials as part of development which could include: suitability for end purpose with reference to wear and tear tests, washing, flammability etc; strength of seams in certain fabric types. Award one mark for a simple statement for example: The material has to be suitable for its end purpose. Award two marks for a developed response for example: The material has to be suitable for the product it is intended for and must stand up to wear and tear in use.	0 1 2	2		
		(ii) No answer or an answer that does not relate to the purpose of a wearer/user trial – 0 mark. Answers that indicate an understanding of a user/wearer trial should be credited: to check the fit; the drape of the fabrics; wear and tear of the fabric; to check the style/proportions are correct; product functions correctly; to identify faults. Award one mark for a basic response for example: To check that it fits correctly. Award two marks for a more elaborate response for example: To check the fit of the product so that changes can be made if needed.	0 1 2	2	7	
	(c)	(i) No answer or the answer is not a cushion /cover. Award one mark for a design that satisfies the brief.	0 1	1		
		(ii) No answer or a design that is not based on the stained glass window. Answers that clearly show an attempt by the candidate to use and interpret the design of the stain glass window to design an inspirational and unusual shaped cushion & cover should be credited. Note – a square, rectangular or circular shaped cushion can only be awarded a maximum of 3 marks. A weak attempt to show the front and back views of a cushion /cover with weak interpretation of the stain glass window design; lacks imagination or creativity. A satisfactory attempt at presenting the front and back views of a cushion/cover; quite good interpretation of the stain glass window design. Some imagination and creativity in styling. A good attempt at presenting the front and back views of a cushion & cover; good interpretation of the stain glass window design. Imaginative and creative styling. A very good/excellent attempt at presenting the front and back views of a cushion & cover; very good interpretation of the stain glass window design. Very imaginative and creative styling.	0 1 2-3 4 5	5		

Question			On paper	Question totals	Running TOTAL
	(iii)	No answer or a design that is not coloured in. Answers that clearly show an attempt by the candidate to use colour creatively should be credited. A weak/satisfactory attempt at using the colours creatively. A good attempt at using the colours creatively. An excellent attempt at using the colours creatively.	0 1 2 3	3	
	(iv)	No answer or no evidence of a functional/ decorative fastening. 0 - mark. Answers that show a functional fastening should be credited; (<i>Fastenings that clearly would not function cannot be awarded full marks</i>). Fastenings might include for example zips; ties; lacing; buttons; envelope style. A weak attempt at presenting a basic but functional fastening; lacks imagination or decoration. A good attempt at presenting a functional fastening; shows some imaginative and decorative styling. An excellent attempt at presenting a fully functional fastening that is highly imaginative and decorative in its styling.	0 1 2 3	3	
	(v)	No answer or incorrect labelling – 0 mark. Award one mark for each specific style detail, for example: piping; binding; gathers; frills; gathers; tucks; pleats; quilting; couching.	0 1	2	
	(vi)	No answer or the answer cannot be understood, no annotation. Poor quality graphic skills, hard to understand, annotation unclear. Graphic skills are adequate, understandable, limited annotation of important style details/techniques. Good graphic details and image, appropriate styling for a cushion / cover, understandable, good annotation of important style /techniques. Excellent graphic details and image, highly appropriate styling for a cushion/cover, with correct annotation of important style details /techniques.	0 1 2 3 4	4	18
				25	60

SECTION B

Question				On paper	Question totals	Running TOTAL
5	(a)	(i)	No answer or incorrect answer - 0 mark Only acceptable answers: LONDON. PARIS.	0 1 1	2	
		(ii)	No answer or incorrect answer – 0 mark Only acceptable answer: Bespoke clothing is made to specific measurements for an individual customer.	0 1	1	
		(iii)	No answer or incorrect factors – 0 mark Answers that indicate an understanding of term contemporary fashion should be credited: clothing or trends that are currently popular; trends that are worn and appeal to a wide variety of age groups; may also relate to fashion/trends in interior design. Award one mark for a simple statement for example: Refers to clothing that is popular now. Award two marks for a developed response for example: trends or certain styles of clothes that most people currently favour and are widely seen on the high street.	0 1 2	2	5
	(b)	(i)	No answer or does not explain the advantages to manufacturers of using lay plans to plan fabric usage: 0 mark. Answers that indicate an understanding of the advantages of using lay plans should be credited: cuts down costs by reducing fabric waste; reduces labour costs, as it doesn't have to be drawn out by hand; speeds up production as it is sent to the cutting machine automatically; helps calculate fabric usage so correct quantities are ordered. No marks to be awarded for unqualified assertions, e.g. Quicker, faster etc. A simple response for example: It cuts down on waste fabric. A more developed response for example: templates are fitted together more efficiently which reduces waste and saves money.	0 1 2	2	
		(ii)	No answer or an incorrect answer: 0 mark Answers that show an understanding of the main function of the machine and its link to the lay plan should be credited. Answers should be based on: the machine is a fabric cutter, when several plies of fabric have been laid up the computerised system will automatically cut the template pieces out of the fabric according to the instructions that have been received i.e. the lay plan. Award 1 mark for a simple response for example: it cuts the template pieces out of the fabric. Award 2 marks for a developed response for example: it cuts the template pieces out of the fabric according to the lay plan. Award 3 marks for a fully developed response for example: Its main function is to cut out all the template pieces out of multiple layers of fabric accurately according to the instructions that have been fed into it directly from the lay plan.	1 2 3	3	5
					10	70

Question				On paper	Question totals	Running TOTAL
6	(a)	No answer or does not identify the components – 0 mark	0			
		Only acceptable answers: EYELETS. VELCRO. BUTTONS.	1 1 1	3	3	
	(b)	(i) No answer or answers incorrectly placed - 0 mark Award one marks for each correctly placed word in the following order: COTTON; PLANT; ABSORBENCY.	0 1X3	3		
		(ii) No answer or does not explain how the construction improves the functional qualities - 0 mark. Answers that indicate an understanding of how the construction of a pile weave improves functionality should be credited based on: the loops on both sides of the weave increase the surface area of the fabric; as cotton is absorbent it allows more of a surface area to absorb moisture, therefore improves the functionality of the towel. Award one mark for a basic response based on: The pile weave increases the surface area of the towel. Award two marks for a more developed response based on: The pile weave increases the surface area of the towel and allows more moisture to be absorbed when in use.	0 1 2	2	5	
	(c)	No answer or answers are incorrect. Award 1 mark for application of finish; award 1 mark for the function of the finish. ANTI-STATIC: A chemical based product is applied to the fabric (finish) which prevents an electro static charge building up during wear (function). SHRINK RESISTANCE: A chlorine based chemical is applied to the fabric (finish) which prevents fabric shrinking so that it can be machine washed (function).	0 1 1 1 1	2 2	4	

Question			On paper	Question totals	Running TOTAL
	(d)	<p>No answer or the answer does not relate the scales on wool fibres. 0 mark.</p> <p>Award up to three marks for a clear understanding of how the scales on wool fibres have both advantages and disadvantages based on: scales can trap air making them much warmer to wear which is one of the main properties of wool; the scales can become tangled if washed incorrectly causing the fibres to become matted and hard which prevents air being trapped, losing the property of warmth. <i>For 3 marks both advantages and disadvantages have to be addressed.</i></p> <p>Award one mark for a basic response for example: the scales trap warm air making wool warm to wear.</p> <p>Award two marks for a more developed response for example: the scales trap warm air making wool warm to wear but the scales tangle easily and become matted if washed at too high a temperature.</p> <p>A fully developed response – 3 marks.</p> <p>The scales trap air which heats up keeping the wearer warm; but the scales can tangle easily and become matted if washed at too high a temperature, which then prevents air being trapped losing the property of warmth.</p>	0		
			1		
			2		
			3	3	
				15	85

Question			On paper	Question totals	Running TOTAL	
7	(a)		No answer or incorrect name or explanation. Only three acceptable answers in this order:	0		
			• Pinking shears.	1		
			• Temporary method of holding fabrics together before sewing.	1	3	3
			• Sleeve board. •	1		
	(b)	(i)	No answer or an incorrect answer: 0 mark	0		
			Award up to two marks for a clear understanding of making a stencil for screen printing based on: drawing the design on wax paper/card and hand cutting it on a cutting mat using a craft knife; draw design using appropriate software programme, send it to a CAM machine such as a laser cutter to cut it out of acetate/card/paper.			
			Award one mark for a simple answer for example: Cut it out by hand using a craft knife.	1		
			Award 2 marks for a developed answer for example: draw the design onto wax paper or card and hand cut it out on a cutting mat using a craft knife.	2	2	
	(ii)	No answer or an incorrect answer – 0 mark.	0			
		Award up to 3 marks for a logical sequence based on: the stencil is fixed in place laid over the fabric to be printed; the screen is placed on top; the fabric paint/ printing medium is placed along the top inside edge of the screen; using a squeegee the ink is dragged across the screen forcing the ink through the mesh and stencil on to the fabric below.				
		No marks for describing stencilling.				
		A simple explanation lacking detail.	1			
		A reasonable explanation showing the main stages with some detail.	2			
	A fully detailed explanation of all stages.	3	3	5		
(c)	(i)	No answer or an incorrect answer – 0 mark	0			
		Most obvious answer: applique.	1	1		
	(ii)	Answers could include: machine embroidery; fabric felt pens.	1	1		
	(iii)	No answer or answers that do not address quilting- 0 mark.	0			
		Award up to 2 marks for each appropriate reason for the use of quilting based on:				
	1. Quilting is a method of reinforcing a fabric, and in this case would strengthen the product making it more durable and improve functionality.					
	2. Quilting can also be used a decorative feature which would add to the overall design and decoration of the storage tidy.					
	A simple response worth one mark would be: It adds to the overall design/ decoration of the storage tidy.	1	1+1			
	A more developed response worth 2 marks would be: Quilting can be an effective method of adding decoration especially if different stitches or patterns are used.	2	2+2			

Question				On paper	Question totals	Running TOTAL
	(iv)	<p>No answer or methods that do not relate to quilting – 0 mark.</p> <p>Answers that demonstrate an understanding of the main stages needed to prepare and make a quilted panel should be credited up to 6 marks.</p> <p>Stages should be based on: cutting 3 layers of fabric the same size, layering them with the wadding in the middle; pin the layers together then tack through all the layers from the centre out to the edges in a star shape taking care to keep all 3 layers flat; mark out the stitching lines using tailors chalk if needed; attach a quilting guide to the machine to keep lines straight and even; may include using specialist quilting foot; starting in the centre row stitch each lines working out from the centre line ensuring each row is stitched in the same direction.</p> <p><i>Award a maximum of 4 marks for a solely written or sketched response with no annotation.</i></p> <ul style="list-style-type: none">• A simple response – 1-2 marks: simple diagram, limited annotation no logical sequences shown.• Award 3 marks for a slightly more detailed response: one or two diagrams, some annotation with some indication of the sequences.• Award 4-5 marks for a reasonable understanding of the stages needed to quilt a piece of fabric.• Award 6 marks for fully annotated sketches which show a clear understanding of the logical sequence of stages needed to produce a quilted piece of fabric. <p><i>Assess the quality of work as a whole and apply marks for notes and sketches on a 'best fit' approach.</i></p>	0			
			1-2			
			3			
			4-5			
			6	6	12	
					20	105

Question				On paper	Question totals	Running TOTAL
8	(a)	(i)	No answer or the answer is incorrect – 0 mark. Award 1 mark for each correct answer: LASER CUTTER+ CAM; SPREADSHEET+ ICT; DRAWING PROGRAMME + CAD.	0 1	3	
		(ii)	No answer or an incorrect answer – 0 mark. Award 1 mark for each correct answer based on: The ease of finding information that could help you; easy to conduct from home/school; makes finding information faster; easier to compare existing products and find information about them; vast amounts of information instantly available. No marks to be awarded for unqualified assertions, e.g. Quicker, faster etc. Award 1 mark for each acceptable answer for example: there is a vast amount of information readily available without having to leave school/home making it easier.	0 1+1	2	
		(iii)	No answer or an incorrect answer or an answer that does not make reference to the advantages of using ICT in this way– 0 mark. Answers that indicate an understanding should be given credit: The properties of materials can easily be compared when presented in table format which can easily be produced using ICT; this could help with material selection ensuring the most suitable material is identified easily and selected for the new product. No marks to be awarded for unqualified assertions, e.g. Quicker, faster etc. Award 1 mark for each simple statement based on: ICT allows the information about the materials to be presented clearly. Award 2 marks for a more developed response: ICT allows the information on materials to be presented clearly making it easier to compare properties making the selection of materials easier.	0 1 2		7
	(b)	(i)	No answer or an incorrect answer - 0 mark. One possible answer: COMPUTERISED SEWING MACHINE Accept embroidery machine.	0 1		
		(ii)	No answer or an incorrect answer - 0 mark. Answers that indicate an understanding should be given credit based on: CAD can be used to quickly and efficiently to present a range of ideas; designs can be visualised more effectively before they are made; colour ways can be experimented with before manufacture; CAD can be used to develop prints and patterns; can develop ideas that can later be cut/engraved on fabrics by laser cutters; components such as buttons can be designed ready for manufacture later. No marks to be awarded for unqualified assertions, e.g. Quicker, faster etc. Award one mark for each answer that clearly shows an understanding, for example: CAD can be used to develop patterns/prints for use on fabrics/clothing.	0 1+1	2	3

Question			On paper	Question totals	Running TOTAL
(c)	(i)	No answer or an incorrect answer – 0 mark. Award 1 mark for an answer based on: The ginning process removes all plant waste and seeds from the fibres.	0 1	1	
	(ii)	No answer or an incorrect answer - 0 mark. Answers that indicate an understanding should be given credit based on: A flowchart is an organised and logical sequence of instructions/steps needed to make a product that a third party should be able to follow easily. Answers may also make reference to QC. Award 1 mark for a simple response for example: It is a list of instructions that must be followed to make a product.	0 1		
		Award 2 marks for a more developed response for example: It is a logical sequence of instructions that could be followed easily by a third party to make a product.	2	2	
(iii)	No answer or an incorrect answer - 0 mark. Award up to 2 marks for answers that indicate an understanding based on: a return of information within a system (usually at a decision or QC point) that allows changes/modifications to be made, that will then allow production to continue to the required standard. Award 1 mark for a simple response for example: A point in production that allows you to go back a few steps to correct mistakes. Award 2 marks for a more developed response for example: Certain point in a production system that allows you to check quality issues and if necessary to go back a few steps to correct mistakes, which then allows production to continue.	1 2		5	
					15
					120

GCSE DESIGN & TECHNOLOGY – PRODUCT DESIGN
Mark Scheme – Summer 2013

SECTION A

Question			Where appropriate throughout this paper, unsupported one word answers such as, quicker, faster, easier etc. gain no marks		On Paper	Question Totals	Overall Total	
1	(a)	(i)	No answer or the answer does not identify a specific function. Appropriate specification point made about function but lacking in detail appropriate for a Design Specification.	0	2			
			E.g. The mouse should be easy to use.	1				
			E.g. The mouse buttons should be ergonomically designed to ensure they are easy to use.	2				
		(ii)	No answer or the answer does not identify a specific aesthetic feature. Appropriate specification point made about Aesthetics but lacking in detail appropriate for Design Specification.	0				2
			E.g. The mouse must look appealing.	1				
			E.g. The mouse should look sleek and modern to appeal to the modern day user.	2				
		(iii)	No answer or the answer does not identify a specific target market. Appropriate specification point made about Target Market but lacking in detail. Appropriate for a Design Specification.	0				2
			E.g. The mouse must appeal to people who use a computer.	1				
			E.g. The computer mouse should appeal to people who have limited space and would benefit from a cable-less device that saves space..	2				
	(b)	(i)	No answer or inappropriate answer. Batch Production.	0	2			
				1				
		(ii)	No answer or inappropriate answer. A simple answer - can be awarded 1 mark. E.g. It is a strong plastic.	0				
An elaborated answer that explains can be awarded 2 marks. E.g. It's a tough plastic that will not break when dropped.	1							
			<ul style="list-style-type: none"> • Available in many colours. • Good surface finish when used with correct process. • Can be formed into complex shapes. • Very tough plastic. • Hard wearing. 	2				

Question			On Paper	Question Totals	Overall Total
	(iii)	<p>No answer or inappropriate answer. A simple answer - an assentation - can be awarded 1 mark. E.g. Gives a good finish.</p> <p>An elaborated answer that explains can be awarded E.g. The process can create complex shapes which have a good finish.</p> <ul style="list-style-type: none"> • High production rates. • Design flexibility, complex parts produced. • Repeatability within tolerances. • Can process a wide range of materials. • Relatively low labour. • Little to no finishing of parts. • Minimum scrap losses. 	0 1 2	2	
(c)	(i)	<p>No answer or inappropriate answer. December.</p>	0 1		
	(ii)	<p>No answer or an answer that does not state 250 will be awarded 0 marks.</p> <p>Incorrect answer but part of the workings are correct.</p> <p>Answer that is 250 with all the calculations shown and correct.</p> <p>Add up to 6 months (1500) divide by 6 = 250 Answer that is 250 x 23.99 = £5997.50</p>	0 1 2 3	3	
					15
					15

Question			On Paper	Question Totals	Overall Total
2	(a)	<p>No answer or inappropriate answer.</p> <p>REUSE. RECYCLE. RETHINK.</p>	0 1 1 1	3	
	(b)	<p>No answer or inappropriate answer. A simple answer-an assertion-can be awarded 1 mark. E.g. Less material thrown away.</p> <p>An elaborated answer that explains can be awarded 2 marks. E.g. Space for landfill is limited, by recycling we limit the amount of space that is used.</p> <p>A detailed answer that explains can be awarded 3 marks. E.g. Space for landfill is limited, by recycling we limit the amount of space that is used. It also reduces the amount of natural resources that are used to produce new material.</p> <ul style="list-style-type: none"> • Less landfill sites required. • Reduced pollution / waste by not burning them. Less damage to ozone. Layer / greenhouse gases. • Fewer natural resources (oil) required to make new material. • Less environmental damage-oil transport and drilling. • Pollution of the environment. 	0 1 2 3	3	
	(c)	<p>Life Cycle Analysis. No answer or inappropriate answer. A simple answer using a few of the point's below-can be awarded 1 mark.</p> <p>A better answer using several of the point's below-can be awarded 2 marks.</p> <p>A detailed answer that explains most of the points below - can be awarded 3-4marks.</p> <p>It is important to think of LCA because products need to be recycled and reused after use. This will help cut down on unnecessary use of raw materials, processing of raw materials involving wasted time and energy, transportation costs. After the product is finished with it can either be reused or recycled due to careful thought/design at the start.</p> <p>Raw material acquisition-choose different material or less. Processing-ensure miners/farmers get fair wages. Transporting-reduce unnecessary transportation energy. Using-impact during use. Disposal/product (material)-could it be disposed of differently. Carbon footprint.</p>	0 1 2 3-4	4	
				10	25

Question				On Paper	Question Totals	Overall Total
3	(a)		No answer or inappropriate answer.	0	2	
		(i)	Philippe Starck.	1		
		(ii)	Johnathan Ive.	1		
	(b)		No answer or inappropriate answer. Some description of the work of one designer. Little understanding of its main features. A little understanding of the innovation described. Quality of written communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling.	0		
			Description of the work of one designer. Some understanding of its main features. Some understanding of the innovation. Quality of written communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling.	3 or 4		
			Description of the work of one designer. Understanding shown of its main features. Discussion of the innovation with some appropriate examples provided. Quality of written communication is very good, presenting appropriate material in a coherent and logical manner, very few errors of grammar, punctuation and spelling.	5 or 6		
			Description of the work of one designer. Understanding shown of its main features. Discussion of the innovation with some appropriate examples provided. Quality of written communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling.	7 or 8		

- Philippe Starck is one of the best known contemporary designers in the world.
- He has not only received public acclaim for his amazing building interior designs but has also proved to be an accomplished architect and product designer.
- Much of his work produced in the 1980's and 1990's that was influenced by fashion and novelty.
- It has even been referred to by some as being 'overdesigned'.
- Starck has recently promoted the ethos that honesty and integrity should be at the core of design.
- Products should not be created as 'throw away artefacts' only surviving for as long as they remain in fashion but should ideally have longevity and durability.
- He believes that as the designers we need to be both honest and objective.
- For more than three decades this unique and multifarious creator, designer and artefacts has been part of our daily lives by creating unconventional objects, whose purpose is to be 'good' before being beautiful.
- Several years and several prototypes later he was commissioned to work for President Francois Mitterrand.
- Starck designs his hotels & restaurants in the same way a director makes a film.
- His hotels have become timeless icons and have added a new dimension to global cityscape.
- He develops scenarios that will lift people out of the everyday and into an imaginative and creative mental world.
- Through Philippe Starcks' concept of 'democratic design'-increase the quality objects at lower prices so that more people can enjoy the best-he was a lone voice at a time when design was turned exclusively towards elite.
- There are few areas of design he hasn't explored: from furniture to mail-order homes, motorbikes to mega-yachts and even artistic direction for space-travel projects to name but a few.
- Philippe Starck believed in the green long before ecology became fashionable, out of respect for the planets future.
- Early on, he created the Good Goods Catalogue of non-products for non-consumers in tomorrow's moral market, and set up his own organic food company.
- More recently he developed the revolutionary concept of 'democratic ecology' by creating affordable wind turbines for the home, soon to be followed by solar-powered boats and hydrogen cars.
- Philippe Starck is a tireless and rebellious citizen of the world who considers it his duty to share his ethical and subversive vision of a fairer world.
- He stays turned in to our dreams, desires and needs-sometimes before we get there ourselves-by making his work political and civic act which he accomplishes with love, poetry and humour.

Question			On Paper	Question Totals	Overall Total
4 (a) (i)	No answer or inappropriate answer:	0	3		
	DESIGN BRIEF.	1			
	GENERATE IDEAS. EVALUATION.	1 1			
(b) (i)	Activity for collecting information.		1		
	No answer or inappropriate answer.	1			
	• Internet, Questionnaire, Interview, Market research, Disassembly, existing products.	1			
	(ii) No answer or inappropriate answer.	0	3		
(b) (ii)	A simple answer-an assertion-can be awarded 1 mark	1			
	Because designers need to check if the product works.	2			
	An elaborated answer that explains can be awarded 2 marks.				
	Because the designer needs to check if the product works as the specification stated.	3			
(b) (ii)	A detailed answer that explains can be awarded 3 marks.				
	Because the designer needs to check that the product meets the full specification and satisfies the target market.				
	(c) (i) No answer or inappropriate answer.	0	1		
	Design for a bedroom wall light.	1			
(c) (ii)	No answer or inappropriate answer.	0	3		
	Poor reflection from theme board.	1			
	Adequate reflection with link to bright colours, curved designs, with some comments.	2			
	Good reflection of use of theme board, bright colours, bold design, reflect Starcks work.	3			
(c) (iii)	No answer or inappropriate answer.	0	2		
	A functional solution that just about works.	1			
	A more elegant or discreet solution with full details. e.g. countersink or key slot.	2			
(c) (iv)	No answer or inappropriate answer.	0	3		
	Allows level or intensity to be adjusted.	1			
	Allows level and intensity to be adjusted.	2			
	A detailed answer showing how the level and intensity can be adjusted.				

Question			On Paper	Question Totals	Overall Total
(v)	No answer or inappropriate answer.	0	2		
	One mark will be awarded for each appropriate dimension.	1			
		1			
(vi)	No answer or inappropriate answer.	0	3		
	Basic information for either a material or process.	1			
	Basic information for materials and for processes.	2			
	Detailed information of a number of materials and processes.	3			
(vii)	No answer or the answer is hard to understand, no annotation.	0	4		
	Poor quality graphic skills, difficult to understand, annotation unclear.	1			
	Graphic skills are adequate, understandable, limited annotation.	2			
		3			
	Good graphic details and image, good annotation style details.	4			
	Excellent graphic details and annotation.				
				25	60

Question			On Paper	Question Totals	Overall Total
5 (a)	(i)	No answer or inappropriate answer. One Off Production. Batch Production.	0 1 1	2	
	(ii)	Answers below apply for both check 1 and check 2. No answer or inappropriate answer. A simple answer-an assertion-can be awarded 1 mark. check everything works. An elaborated answer that explains can be awarded 2 marks. Check that all components function effectively so that all products meet the required standards. Quality Control Checks Test a random sample to see if everything fits. Is the correct size and shape. Correct colour. Material checks before manufacture begins. Quality of finish. Mechanical checks (moving parts).	0 1 2	2	
(b)	(i)	No answer or inappropriate answer. Ticking correct box-middle box.	0 1	1	
	(ii)	No answer or inappropriate answer. A simple answer-assertion-can be awarded 1 mark. Allows product to be flat packed. An elaborated answer that explains can be awarded 2 marks. Allows product to be flat packed for easy transport and / or removes the assembly cost from manufacturer.	0 1 2	2	
	(iii)	No answer or inappropriate answer. A simple answer-assertion-can be awarded 1 mark. Qc when you check parts or QA is when you check the processes needed. An elaborated answer that explains can be awarded 2 marks. Qc is when you check parts or QA is when you check the processes needed. Mention both gets 2 marks. A detailed answer that explains can be awarded 3 marks. Quality control is when you carry out checks during the manufacturing process at different stages and QA is when you have checked the processes needed to make the part.	0 1 2 3	3	

Question			On Paper	Question Totals	Overall Total
	<p>Quality Assurance is different to Quality Control.</p> <ul style="list-style-type: none"> • Quality Assurance checks have ensured that the equipment used to manufacture the product, the training of staff, the selection of quality materials and the manufacturing processes are to the highest possible standard. • Quality Assurance also ensures that the customer has his/her say. • Quality Assurance does not check the quality of the final product but the quality of all systems on the production line. Staff training and quality monitoring, If this is to the highest standard the quality of the final product should also be high. • Quality control checks the quality of the product at different stages of production. • Any substandard work is recycled or thrown away. • QC gives the consumer a more reliable product. • There is less chance of a part failing as each component is individually checked. • Maintenance possible due to the bought QC parts. 				

Question			On Paper	Question Totals	Overall Total
6 (a) (i)	No answer or inappropriate answer.	0	4		
	Game controller case ABS THERMOPLASTIC	1			
	Workshop Mallet BEECH	1			
	HARDWOOD	1+1			
	Screwdriver blade STEEL FERROUS METAL				
(ii)	No answer or inappropriate answer.	0	1		
	A simple answer can be awarded 1 mark. EG. It is hard wearing.	1			
	An elaborated answer that explains can be awarded 2 marks. EG. Polypropylene has excellent resistance to fatigue meaning it will last for a considerable period of time.	2			
	<ul style="list-style-type: none"> • Hard wearing. • Self-Finishing. • Available in a wide range of colours. • It is pliable and bendy when heated. • Good resistance to fatigue. • Good impact strength. • Chemical resistant. • Weather resistant. 				
(b)	No answer or inappropriate answer.	0	3		
	Wood to Wood - PVA.	1			
	Plastic to Metal - Epoxy resin.	1			
	Plastic to Plastic - Solvent cement.	1			

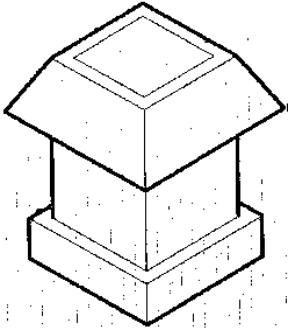
Question			On Paper	Question Totals	Overall Total
(c)	No answer or inappropriate answer.	0	1		
	Thermo Chromic.	1			
(ii)	No answer or inappropriate answer.	0	3		
	A simple answer-an assertion-can be awarded 1 mark It shows that the lid is hot.	1			
	An elaborated answer that explains can be awarded 2 marks. It shows the customer that the content is hot.	2			
	A detailed answer that explains can be awarded 3 marks. It shows the customer that the contents of the cup is hot and to be careful when drinking from it.	3			
(d)	No answer or inappropriate answer.	0	3		
	A simple answer-an assertion-can be awarded 1 mark PET is easy to work with.	1			
	An elaborated answer that explains can be awarded 2 marks. PET is lighter than other plastics making it easier and cheaper to transport.	2			
	A detailed answer that explains can be awarded 3 marks. PET is less expensive to produce and manufacture, which makes the end product cheaper. PET is also lighter than other plastics making it easier and cheaper to transport.	3			
	<ul style="list-style-type: none"> • PET is lighter and therefore easier and cheaper to transport. • PET is less likely to shatter if dropped therefore making it safer. • PET is less expensive to produce and manufacture, makes the end product cheaper. • PET is non-toxic which means it is ideal for food or drink products. 				
				15	25

Question			On Paper	Question Totals	Overall Total
7 (a)	<p>No answer or the answer does not give reason that is appropriate.</p> <p>Craft Knife use: To cut material To cut paper or card by hand.</p> <p>Steel Rule use: GIVEN</p> <p>Engineers Square use: GIVEN</p>	<p>0</p> <p>1</p> <p>2</p> <p>1+1</p> <p>1+1</p>	6		
(b)	<p>No answer or the answer does not give reason that is appropriate.</p> <p>Naming of Hazard Loose clothing Naming of Precaution Wear an apron or roll up sleeves.</p> <p>Naming Hazard Naming Precaution</p> <p>Possible hazards : Loose clothing, fingers in contact with wheel, dust in eyes, dust in lungs, distraction, guard on wheel. And then a suitable linked precaution.</p>	<p>0</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	4		
(c)	<p>No answer or the answer does not give a reason that is appropriate.</p> <p>Written notes: Maximum 3 marks.</p> <p>A simple answer can be awarded 1 mark. (1 point mentioned)</p> <p>An elaborated answer that explains can be awarded 2 marks. (2 points mentioned)</p> <p>A detailed answer that explains can be awarded 3-4 marks.(3 or more points).</p> <ul style="list-style-type: none"> • Cut rough shape out of a solid block or cut out several parts to form basic shape. • Shapes and sand block or parts for finer detail. • Add any specific detail. • Apply Final finish. <p>Graphic Communication</p> <ul style="list-style-type: none"> • Very basic attempt and lacking in a majority of detail. • Basic attempt to the process. 	<p>0</p> <p>1</p> <p>2</p> <p>3-4</p> <p>0</p> <p>1</p>	5		

Question			On Paper	Question Totals	Overall Total
(d) (i)	No answer or the answer does not give a reason that is appropriate.	0	2		
	To move the mould To move the mould to the heated plastic sheet.	1 1			
(ii)	An elaborated answer that explains can be awarded 2 marks. To raise the platen and move the mould up into the heated plastic sheet.	2	3		
	No answer or the answer does not give a reason that is appropriate.	0			
	A simple answer-an assertion-can be awarded 1 mark. (2 points mentioned).	1			
	An elaborated answer that explains can be awarded 2 marks. (3 points mentioned).	2			
	A detailed answer that explains can be awarded 3-4 marks.(4 or more points).	3			
	Webbing happens when : <ul style="list-style-type: none"> • The plastic is stretched too much before being sucked inward onto the (mould). • The plastic is too hot or cold. • When its sucked inward, there's too much plastic area, and it doesn't contract enough, so it has to fold in on itself. • Tight gaps between several moulds. • Not enough air holes to draw in the plastic. • Taper angle is too steep. • Incorrect radius on an edge (radius too small). 				
				20	45

Question			On Paper	Question Totals	Overall Total
8	(a)	(i) No answer or the answer is not appropriate. Computer AIDED MANUFACTURE	0 1+1	2	
		(ii) No answer or the answer does not give a reason that is appropriate. A name of any CAD software that can be linked: <ul style="list-style-type: none"> • 2D Design. • Corel Draw. • Illustrator. • Prodesktop. • Artcam. • Boxford, Denford miller software. • Space Claim. 	0 1	1	
	(b)	No answer or the answer does not give a reason that is appropriate. A simple answer-an assertion-can be awarded 1 mark. Can be seen in 3D. An elaborated answer that explains can be awarded 2 marks. Can be viewed at different angles to see how it would look. No answer or the answer does not give a reason that is appropriate. A simple answer-an assertion-can be awarded 1 mark. An elaborated answer that explains can be awarded 2 marks. <ul style="list-style-type: none"> • See in 3D. • Easily changed / modified / manipulated. • Can change / render in different materials / colours. • Send idea to client easily and quickly (email, memory stick). 	0 1 2 0 1 2	4	

Question		On Paper	Question Totals	Overall Total	Question
(c)	<p>No answer or the answer does not give a reason that is appropriate.</p> <p>A simple answer-an assertion-can be awarded 1 mark. (1 point mentioned).</p> <p>An elaborated answer that explains can be awarded 2 marks. (2 points mentioned).</p> <p>A detailed answer that explains can be awarded 3 marks (3+ points mentioned).</p> <ul style="list-style-type: none"> • The 3D design is exported as a Stereo Lithography file (.stl). • Imported into the rapid prototyping software. • Software converts it into layers of production. • Tool paths are calculated. • Model rises from the machine layer by layer and sets in place. • The injector creates a layer of material to build up the model. • The process is repeated to create the whole relief. • Support material is used to prop up the original model where needed. • Model is completed ready for finishing. 	<p>0</p> <p>1</p> <p>2</p> <p>3</p>	<p>3</p>		

Question			On Paper	Question Totals	Overall Total
(d)	<p>No answer or the answer does not give a reason that is appropriate.</p> <p>Majority correct shape but not drawn to scale.</p> <p>Correct shape but not drawn to scale.</p> <p>Correct shape drawn to scale.</p> <p>Correct shape, drawn to scale and use of weighted lines.</p> <p>Quality of line work – Poor, dark heavy lines. Quality of line work – Nice, clean lines.</p> 	<p>0</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p>	5		



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