



GCSE MARKING SCHEME

DESIGN AND TECHNOLOGY

SUMMER 2015

INTRODUCTION

The marking schemes which follow were those used by WJEC for the 2015 examination in GCSE DESIGN AND TECHNOLOGY. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conferences was to ensure that the marking schemes were interpreted and applied in the same way by all examiners.

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

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

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GCSE DESIGN & TECHNOLOGY - FOOD TECHNOLOGY

SUMMER 2015 MARK SCHEME

SECTION A

Question			On paper	Question Totals	Running Total
1 (a)	No answer or the answer does not give an explanation for the wrap being used.	0			
	Correct one mark responses for this question could include: <ul style="list-style-type: none"> • To hold all the filling ingredients in/keep it all together. • To improve the overall texture of the product. • To provide additional colour for the product. 	1	1		
(b)	No answer or the answer does not relate to why the vegetarian wrap has been cut in half and presented this way in the packaging.	0	2		
	Correct one mark responses for this question could include: <ul style="list-style-type: none"> • So the consumer can see inside the product. • So the consumer can see what they are buying. • So the consumer can see if they like the look of the product. • So the consumer can see if they like the foods it contains. • The product looks nicely presented this way/aesthetically pleasing. 	1			
	Developed response: <ul style="list-style-type: none"> • The product looks more attractive/appetising presented this way, this could increase sales/encourage more people to buy it. • So the consumer can see inside the product and make a decision if they would like to buy it/if they like the foods it contains. 	2			
(c)	No answer or the answer does not refer to why the soy sauce, pickled ginger and wasabi are packaged separately	0	2		
	Correct one mark responses for this question could include: <ul style="list-style-type: none"> • So the consumer has a choice if they want to use them. • They are quite different/quirky sold this way. • Adds to the overall appearance of the product. • These extras may not be liked by everyone. 	1			
	Developed response: <ul style="list-style-type: none"> • Having these extras included in the wrap could make the appearance/overall quality poor this could affect the sales of the product. • The extra products may not be liked by everyone, this could stop a consumer from buying the product as they think it's a waste of money. 	2			

Question			On paper	Question Totals	Running Total
(d)	No answer or the answer does not relate to an ingredient in the product that could be considered unsafe.	0	1		
	Correct ingredient identified. Sushi rice/accept just rice.	1			
	No answer or an answer that does not explain how the safety point identified could be harmful to the consumer.	0	2		
	A simple answer related to the safety point specified can be awarded one mark: <ul style="list-style-type: none"> Rice is a high risk food Rice can give a consumer food poisoning An elaborated response can be awarded two marks: <ul style="list-style-type: none"> Rice is a high risk food if not stored at correct temperature it could result in harmful bacterial growth. If not stored at correct temperature it could be unsafe to eat and give the consumer food poisoning. 	1 2			
(e)	No answer or the answer does not relate to the including of seaweed.	0	2		
	Credit each correct reason: <ul style="list-style-type: none"> To give a layered effect to the wrap. To provide colour/dark green colour. To keep the rice and vegetables separate. To increase the nutritional value of the product (vitamin B12). To improve the overall appearance of the product. Traditional ingredients. Provide moistness. 	1 + 1	2		
(f)	No answer or the answer does not relate to the function of the sushi style vegetarian wrap.	0	2		
	Correct one mark responses for this question could include: <ul style="list-style-type: none"> To be sold as a snack type product. To be sold as a quick lunch product. To be sold as part of a buffet. To be sold as a meal on the go/out of pack. To provide a nutritious snack. Ready to eat. 	1 1	2		
	Developed response: <ul style="list-style-type: none"> To be sold as a meal on the go for an office worker who does not have time to sit down and eat lunch. To provide a healthy/nutritious meal/snack, it contains carbohydrates/proteins/vitamins. To serve as part of a buffet style meal where other dishes are also available for a variety of tastes. 	2			

Question			On paper	Question Totals	Running Total
(g) (i)	No answer or the answer does not refer to the total score awarded for the sushi style vegetarian wrap.	0	1		
	Correct response 23	1	1		
(ii)	No answer or the answer does not relate to the % of scores awarded for the characteristics texture and flavour Correct 60% shown No workings shown	0 1	2		
(iii)	Correct % and workings shown	2			
	3 +2 = 5 4+3 =7 12/20 x100 = 60% Or alternative suitable calculation.	2			
Total marks for Question 1				15	15

Question			On paper	Question Totals	Running total
2 (a) (i)	No answer or incorrect responses Logo A – soil association (organic standard) Logo B – recycling (multifamily)	0	2 1 1		
(b) (i)	No answer or the answer does not refer to the six R's. Award each correct R identified: <ul style="list-style-type: none"> Rethink Repair 	0	2 1 1		
ii	No answer or the answer does not relate to how refuse can be applied when shopping in a supermarket. Correct responses to this question could related to: <ul style="list-style-type: none"> Packaging of foods, processing of foods, importing of foods/food miles, chemicals used in production, environmental concerns (recycling/reusable) special offers, health/diet implications. Award basic response: <ul style="list-style-type: none"> Refuse to buy special offers- buy one get one free Award response with some detail: <ul style="list-style-type: none"> Refuse to buy special offers- buy one get one free that the consumer is aware could be wasted due to family size/personal taste. Award a very detailed response: <ul style="list-style-type: none"> Refuse to buy special offers- buy one get one free that the consumer is aware could be wasted due to family size/personal taste/ lifestyle which would result in goods being thrown away and possibly ending up in landfill site. 	0	3		
(c)	No answer or answer does not relate to lifecycle of a food product. Award basic response: <ul style="list-style-type: none"> When a new product goes through different stages. Award response with some detail: <ul style="list-style-type: none"> When a new product progresses through a variety of stages starting from conception of idea. Award a very detailed response: <ul style="list-style-type: none"> When a new product progresses through a variety of stages starting from conception of idea to its decline where it might be discontinued or disposed of. 	0	3 1 2 3		
Total marks for Question 2				10	25

Question			On paper	Question Total	Running Total
3 (a) (i)	No answer or incorrect response: • Delia Smith.	0 1	2		
(ii)	No answer or incorrect response: • Jamie Oliver.	0 1			
(b)	No answer or answer does not describe the style and presentation of the work of Jamie Oliver or Delia Smith. Jamie Oliver <ul style="list-style-type: none"> • Believes good food can be produced in a short period of time – 30 minute meals book is an example of this. • Believes good food can be produced at home. • Not always a strong believer in measuring all ingredients accurately –often just a splash. • 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'. • 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. • Not always a 'traditionalist' more of a throw it all in person. • Presentation – rustic, can sometimes be quite messy/home style(kids/families). • Can be quite precise/neat if producing foods to restaurant standards. Delia Smith <ul style="list-style-type: none"> • Very traditionalist/ home style skills and recipes. • Follows recipes accurately and is well prepared for the making of them. • Likes ingredients to be weighed out accurately and will measure even smallest ingredients. • Very methodical –recipes are easy to follow as are her TV shows. • Teaches basic skills for people who cannot cook as well as skills for those wanting to expand/improve • Style old fashioned –recipe influences can date back to research in British Museum. • Style can be to teach people how to be frugal/ to cater for occasions- Christmas, summer or cook for a single person (one is fun). • Will use shortcuts when making dishes as her how to cheat at cooking programs reveals. • Methods used can be very simple and basic – how to boil an egg. • Presentation – neat, not fussy, can be quite basic but attractive, often uses home style presentation. No answer or no relevant description of the designer: 0 <ul style="list-style-type: none"> • Some simple description of the work of Jamie Oliver/Delia Smith • Little, if any, understanding of its main features • •QWC is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling. Award one or two marks. Description of the work of one chef/designer. Some understanding of its main features. <ul style="list-style-type: none"> • QWC is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. Award three or four marks. Description of the work of one chef/designer. Understanding shown of its main features. <ul style="list-style-type: none"> • QWC is good presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. Award five or six marks. Description of the work of one chef/designer. Clear understanding shown of its main features. <ul style="list-style-type: none"> • QWC is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling. Award seven or eight marks.	0	8		
			Total marks for Question 3	10	25

Question			On paper	Question Total	Running Total
4 (a)	No answer or incorrect responses Award each correct response: Prototyping – the testing of ideas before the final make. Design brief – short statement that outlines the problem to be solved. Research – things to explore before designing.	0 1 1 1	3		
(b)	No answer or the answer does not identify a piece of information that is included in a plan for making Correct piece of information identified. Award one mark from the list: <ul style="list-style-type: none"> • Ingredients and amounts. • Timings. • Equipment. • HACCP. • Hygiene and safety. • Method for making. 	0 1	1		
(c)	No answer or the answer does not address when evaluation could take place during research and why it is important Correct time for evaluation – award one mark for correct time and up to two marks for the why important. After a questionnaire (1) To summarise what people want/like (1) to help tailor design ideas(2) After product analysis (1) Provides vital information about a product-ingredients/weight/component parts etc (1) that can help when designing own ideas and thinking about ingredients/portion size etc for specification (2) After looking in shops/internet research at products available(1) Helps to identify main features of a product (1) that can give a focus for specifications (2)	0	3		
(d)	No answer or the answer is not a design that satisfies the brief.	0			
(i)	The design shows the product is sweet and suitable for serving and eating hot by the choice of ingredients- sweet/sugar/chocolate/fruit. The dessert must not contain any cream on top. Other desserts not suitable – cheesecake (cream cheese style), trifles, tiramisu, panacottas	1	2		
(ii)	The dessert does not include an interesting sauce The dessert includes a sauce: Chocolate, raspberry, caramel, toffee.	1 0 1	2		
	The dessert includes an interesting sauce Chocolate and orange, raspberry and almond, toffee and walnut.	2			
iii	The dessert does not include foods that would give a combination of flavours- <i>these must be flavours in the dessert not the sauce</i> One flavour identified – oats. Combination of flavours. Cinnamon and oats, cherry and almond, orange and ginger.	0 1 2	2		


Question			On paper	Question Total	Running Total
(iv)	The dessert does not indicate it contains fruit.	0	1		
	The dessert contains a fruit.	1			
	No award for grated lemon zest or a slice of lemon on top.				
(v)	The dessert does not include foods that will give different textures.	0	2		
	Award each different texture the dessert has;				
	• Crumble top.	1			
	• Fruit puree base.	1			
	• Sponge top.	1			
	• Chunky fruit base.	1			
(vi)	The dessert does not include or indicate a good source of calcium.	0	1		
	Award correct calcium source:				
	• Milk	1			
	• Yogurt				
	• Fromage Frais				
	• Eating apple				
	• Oranges				
	• raisins				
	• Rice				
	• White/wholemeal bread				
	• White/wholemeal four				
	• Cream cheese				
	• Eggs				
	• Butter				
	• Apricots				
	•				
	• Bananas				
	• Dates				
	• Figs				
	• Cherries				
	• Bran flakes				
	• Cornflakes				
	• Muesli				
	• Chocolate biscuits				
	• Almonds				
	• Milk chocolate				
	• Honey				
	• Marmalade				
(vii)	The dessert does not have any ingredients identified to make the dessert and sauce.	0	4		
	Dessert	1			
	Incomplete list or no specified ingredients – just flour, margarine				
	Complete list/fully specified ingredients.	2			
	Sauce				
	Basic list – fruit coulis – fruit, sugar .	1			
	Detailed list – fruit, sugar, water, lemon zest/vanilla custard -milk, eggs, sugar, vanilla essence or custard powder, milk, and sugar.	2			
(viii)	No answer or the answer cannot be understood, no annotation.	0	4		
	Poor response - drawing with no colour/labelling.	1			
	Adequate drawing/colouring, some labelling/annotation.	2			
	Good standard of drawing/colouring/labelling with good annotation.	3			
	Excellent standard of drawing/colouring/labelling with detailed comments/annotation.	4			
Total marks for Question 4				25	60

Question			On paper	Question Total	Running Total
5 (a)	No answer or incorrect responses Award each correct response True False False	0 1 1 1	3		
(b)	No answer or answer is related to disadvantage of having cake made by one off production. Basic response award one mark. It is expensive/time consuming. Detailed response award two marks. It is expensive as more luxurious/better quality ingredients are used in the making of the cake. It is expensive as skilled staff are used to make the cake which increases wages. It is time consuming, you may have to wait a long time for the cake as many processes are carried out by hand due to the quality of the product.	0 1 2	2		
(c)	No answer or the answer is not related to the top of the fruit tart. Correct responses could refer to the arranging of the fruit on top of the tart or the preparation of the fruit pieces Award a basic response. Fruit needs to be placed in correct position/exact pattern Fruit pieces need to be cut to exact size/shape Machine could damage the fruit. Award developed response. Fruit needs to be placed in correct position/exact pattern. A machine would not be able to be that precise and presentation of fruit could be muddled. Fruit pieces need to be cut to exact size/shape completing this by hand would give a more high quality/consistent outcome.	0 1 2	2		
(d) (i)	No answer or incorrect response. Award one advantage of using mandolin slicer. Correct responses could be: <ul style="list-style-type: none"> • More hygienic than cutting by hand as limited contact with food. • Workers not using knives which reduces risks of cutting themselves/injury. • Mandolin slicer is a lot more faster than cutting by hand. 	0 1	1		
(ii)	No answer or the answer does not relate to the benefits to the manufacturer. Award simple response. Mandolin slicer can be set for thickness of slices speeds up the manufacturing process. Award developed response. Mandolin slicer can be set to repeatedly cut the same size slice thickness, this gives a consistent result/ high quality outcome. Mandolin slicer is a lot more faster at cutting accurate sized slices which allows for more to be cut in a shorter space of time.	0 1 2	2		
Total marks for Question 5				10	70

Question			On paper	Question Total	Running Total
6 (a)		No answer or answer does not relate to the improving of the taste of the biscuit.	0	2	
	(i)	Plain taste – add a flavouring example needed. Spices, vanilla essence, zest of a fruit, nuts, dried fruit.	1		
	(ii)	No answer or the answer does not relate to the browning of the product. Appearance/browning of product – glaze with milk, glaze with egg / egg and milk, cook product for longer.	0 1		
(b)	(i)	No answer or the answer does not relate to the ingredients added to enrich a yeast mixture. Award correct ingredient: <ul style="list-style-type: none"> • Butter • Milk • Eggs 	0 1	1	
	(ii)	No answer or the answer does not relate to the ingredient added to enrich a yeast mixture. Award a simple response: <ul style="list-style-type: none"> • Eggs enrich nutritional value. • Eggs enrich colour of dough- yellow. • Butter enriches to give colour to the dough. • Butter enriches taste of product- buttery. • Milk enriches creamy taste of dough. • Milk enriches nutritional value/colour of the dough. Award developed response: <ul style="list-style-type: none"> • Eggs enrich nutritional value by increasing the protein/iron content of the dough. Protein can give the dough more thickness. • Eggs enrich the colour of the dough and can give the dough a smooth, glossy appearance. • Butter enriches the taste of the dough and can give a moister texture/ slightly crumblier texture. • Milk increases nutritional value by increasing the calcium content. • Milk enriches the colour of the dough – more yellow/creamier which helps with the browning of the Chelsea buns. 	0 1 2	2	
(c)		No answer or the answer does not relate to the component parts of a Bakewell tart. Award each correct component part identified <ul style="list-style-type: none"> • Pastry case/base. • Jam filling. • Sponge/frangipane top. 	0 1 1 1	3	
(d)	(i)	No answer or answer does not relate to nutrient found in eggs. Award correct response. Protein.	0 1	1	
	(ii)	No answer or incorrect response. Award basic response: <ul style="list-style-type: none"> • Protein sets/becomes firm • Protein (moist or dry heat) coagulate- become firm, shrink, can change colour, lose moisture, become tough and more difficult to digest • Protein denatures – structure changes 	0 1 2/3 3	3	

Question			On paper	Question Total	Running Total
(e)	<p>No answer or answer does not relate to the use of antioxidants in the manufacturing of a food product.</p> <p>Award basic response:</p> <ul style="list-style-type: none"> • Prevents some foods going brown. • Help prevent a product going rancid. <p>Award developed response:</p> <ul style="list-style-type: none"> • Helps to prevent some foods from going brown e.g. apples/pears when exposed to air. • Helps to prevent some foods from going brown which affects colour of final outcome/quality of product. <p>Award full detailed response:</p> <ul style="list-style-type: none"> • Used to help prevent a product containing fats become rancid – give unpleasant smell and taste (fat soluble vitamins A and D from combining with oxygen). 	0	3		
		1			
		2			
		3			
	Total marks for Question 6			15	85

Question			On paper	Question Total	Running Total
7 (a)	<p>No answer or the answer does not correctly name the equipment pieces</p> <p>States the correct equipment piece one mark.</p> <ul style="list-style-type: none"> • Balloon whisk/whisk • Cooling tray • Pasta machine • Fish slice 	0	4		
(b) (i)	<p>No answer or the answer does not name any safety points that must be checked before the food processor can be used</p> <p>Award two correct responses.</p> <p>Correct responses can include:</p> <ul style="list-style-type: none"> • Machine bowl is in correct position on base. • Blade is correctly positioned. • Lid has been locked into position. • Equipment is placed in a safe place on the worktop- not near the edge. • Plug is not switched on until ready to use. • Processor is not placed near water. • Dry hands are used to switch processor on. • No cracks in bowl. • Wires not exposed or damaged. 	0	2		
(ii)	<p>No answer or the answer does not relate to the processes the machine can be used for.</p> <p>Award two correct processes:</p> <ul style="list-style-type: none"> • Chopping vegetables finely. • Grating cheese. • Rubbing fat into flour for pastry. • Mixing/combing breadcrumbs with water to form dough. 	0	2		
(c) (i)	<p>No answer or the answer does not relate to the ingredients used in the making of rock buns</p> <p>Award one mark each correct ingredient</p> <p>Correct responses could include:</p> <ul style="list-style-type: none"> • Self-raising flour. • Margarine/butter. • Sugar. • Egg. • Milk. • Raisins/dried fruit. 	0	2		
(ii)	<p>No answer or the answer does not relate to the consistency of the rock bun mixture.</p> <p>Correct response – dropping consistency or stiff consistency.</p>	0	1		

Question			On paper	Question Total	Running Total
(d)	<p>No answer or the answer does not relate to the chocolate feathering decoration.</p> <p>Award each correct stage one mark.</p> <p>1. Melted chocolate has been put on the top of the biscuit.</p> <p>2. White melted chocolate has been piped on top of the chocolate using a greaseproof paper bag in a circular pattern.</p>  <p>3. Using a cocktail stick lines have been dragged from the centre to the outside of the biscuit.</p> <p>4. Lines are then dragged the opposite way –from the outside of the biscuit to the inside to create a feathered appearance.</p> <p>Award one mark for any diagrams/sketches or award one mark for including greaseproof paper/ piping bag.</p>	0	5		
(e)	<p>No answer or the answer does not relate to methods of thickening the tomato sauce</p> <p>Award correct method of thickening identified:</p> <ul style="list-style-type: none"> • Use of a starch (cornflour)/blended. • Puree. • Reduction. <p>Award correct explanation, awarding up to three marks for a more developed response</p> <p>Use of a starch (cornflour)/blended - Cornflour is mixed with cold water to make a paste (1) then added to the sauce. As it heats up it thickens(2) (starch gelatinises)(3)</p> <p>Puree – tomato puree can be added to the sauce during making the thick paste helps thicken it(1) Puree – the tomato sauce can be blended(2) to make a smooth puree which makes the sauce have a thicker consistency(3)</p> <p>Reduction – during cooking tomato sauce simmers (1) gently to reduce down/evaporate in liquid content(2) this gives the sauce a thicker consistency (3)</p>	0	4		
	Total marks for Question 7			20	105

Question			On paper	Question Total	Running Total
8 (a)	No answer or the answer does not relate the design related task to the correct ICT software. Award each correct statement and term matched: <ul style="list-style-type: none"> • Make a bar chart - Spreadsheet. • Download and image – internet search engine. • Check grammar and spellings – word processor. 	0 1 1 1	3		
(b)	No response or the answer does not relate to the full meaning of CPU. Correct response. Processing .	0 1	1		
(c)	No answer or answer does not relate to the correct stage of production for the statements for production systems Award each correct statement: <ul style="list-style-type: none"> • Raw materials and components – input. • Finished food product – output. • Equipment – input. • Creaming the raw materials- process. • Baking and decorating – process. 	0 1 1 1 1 1	5		
(d) (i)	No answer or the answer does not relate to how cad could be used during modelling and developing Suitable responses could include: <ul style="list-style-type: none"> • Basic response. • Used to calculate the nutritional content of a food. • Used to scale up recipes. • Used to cost out recipes. • Used to record taste testing results. Developed response: <ul style="list-style-type: none"> • Used to calculate the nutritional content of a food product which can be easily adapted to suit a specific group/need or adapted by the amending of ingredients. • Used to scale up recipes to enable larger amounts of a product to be manufactured accurately. • Used to cost out recipes to get accurate calculations for the ingredients and amounts. • Used to record taste testing results in different formats – star profile which can be used to present findings. 	0 1 2	2		

Question			On paper	Question Total	Running Total
(ii)	<p>No answer or the answer does relate to the use of CAD during the designing stages.</p> <p>Basic response could include:</p> <ul style="list-style-type: none"> • Used to produce annotated drawings of products. • Used to communicate design ideas by email. • Used to test out different colours/graphics effects on packaging nets. • Used to design different style packaging nets. • Developed response could include. <p>Used to produce annotated drawings of products which allows you to see the product without making it/ Which allows you adapt/change appearance without making it.</p> <p>Used to communicate design ideas by email to other workers to collect views and check to see if suitable for manufacturing.</p> <p>Used to test out different colours/graphics effects on packaging nets without having to produce them, this saves time and money.</p> <p>Used to design different style packaging nets – the packaging style can be varied/amended easily if any details change or special promotional offers are added.</p>	0	2		
		1			
		2			
(e)	<p>No answer or the answer does not relate to why a manufacturer may use a computer to control the adding of ingredients to a product</p> <p>Basic response:</p> <ul style="list-style-type: none"> • To standardise the production of the product. • To make sure the process is accurate. • Saves time during the manufacturing. • Computers are more reliable than workers. <p>Developed response:</p> <ul style="list-style-type: none"> • To standardise the production of the product which results in a more consistent final outcome. • The process can be repeated accurately once the computer has been set up. • Saves time during the manufacturing as the computer will automatically remember the amounts of ingredients whereas a worker may have to keep checking. • Computers are more reliable at working at a set pace/to a set standard over a long period of time. 	0	2		
		1			
		2			
Total marks for Question 8					
TOTAL MARKS FOR PAPER					

GCSE DESIGN & TECHNOLOGY - GRAPHIC PRODUCTS

SUMMER 2015 MARK SCHEME

Question			On paper	Question Totals	Overall TOTAL	
1	(a)	(i)	No answer or answers that do not match the mark scheme Appropriate answer with appropriate detail. e.g. box needs to be thick enough to protect the contents / but needs to be relatively light for postage.	0 2		
			Appropriate statement but with little detail, e.g. box needs to be thick enough to protect the contents.	1		
			Candidates need to make two points about reasons for choice to get two marks.	2		
		(ii)	No answer or answers that do not match the mark scheme. Basic statements about: the card inlay has no protective function so it doesn't need to be as thick as the box, / a smaller g.s.m. is lighter for postage. / a smaller g.s.m. is cheaper keeping the overall cost of the box down. / a smaller g.s.m. is easier to manufacture die cut and fold.	0 1 1		
			One mark for each of the above reasons. Candidates need to make two points about reasons for choice to get two marks.	2		
	(b)	(i)	No answer or answers that do not match the mark scheme Only appropriate answer – non-recycled bleached duplex paper board. (In part or full).	0 1		
		(ii)	No answer or the answer does not match mark scheme Appropriate answer with appropriate detail, e.g. food packaging should never be made from recycled materials because of the risk of the contamination of the food, / instead packaging is normally made from recyclable material.	0 2		
			Appropriate statement but with little detail, e.g. basic statements about: packaging that comes into contact with food should never be made from recycled materials.	1		
		(iii)	No answer or the answer does not match mark scheme Appropriate answer with appropriate detail, eg. glue-less nets are easier to assemble, easier to recycle / they are also cheaper as special glues need to be used as food packaging runs the risk of contamination.	0 2		
			Appropriate statement but with little detail, e.g. the company use glue-less nets because it will be quicker to put them together.	1		
			Candidates need to make two points about reasons for glue-less nets to gain two marks.			

Question			On paper	Question Totals	Overall TOTAL
2 (a)	(i)	No answer or answers that do not match the mark scheme One mark each for <ul style="list-style-type: none"> Life Cycle Analysis 	0 1 1 1		
	(ii)	No answer or answers that do not match the mark scheme One mark each for: <ul style="list-style-type: none"> B.S.I. or British Standards Institution British Standards Institute will be accepted. I.S.O or International Standards Organisation International Standardising Organisation will be accepted . 	0 1 1		
(b)		No answer or answers that do not match the mark scheme Good answers could include reference to: <ul style="list-style-type: none"> Giving sustainable and environmental issues a higher profile. Providing consumers with more information about such issues. Raising awareness of the '6Rs'. Appealing to consumers' conscience. <p>Appropriate answer with appropriate detail, e.g. including symbols similar to the above, make sure that customers are always aware of environmental issues and the 6Rs / and by reminding them to recycle / or that it's inappropriate to litter.</p> <p>Appropriate statement but with little detail, e.g. these symbols on packaging are always visible to customers to make them think about the environment.</p>	0 2 1		
(c)		No answer or answers that do not match the mark scheme Appropriate answers could make reference to the following list: Candidates will gain one mark for each correct statement. The regulations govern; <ol style="list-style-type: none"> How information is displayed on packaging e.g. braille on medicinal packaging or nutritional information and ingredients on food labelling. Minimising the environmental impact of Packaging. From raw material harvest through packaging production and disposal of packaging waste. Minimising packaging weight and volume. How health warnings on some packaging are displayed. E.g. cigarette boxes. What materials packaging are manufactured from. E.g. reducing the use of metals such as Lead or Mercury. The appropriateness of packaging, e.g. possible contamination of food stuffs from certain types of packages. 	0 3x1		
Total marks for Question 2				10	25

Question			On paper	Question Totals	Overall TOTAL
3 (a)	No answer or answers that do not match the mark scheme 1 st blank – Ray Gun magazine 2 nd blank – Times New Roman	0 1 1			
(b)	<p>MARK DESCRIPTION OF THE INFLUENCE OF THE DESIGNER'S 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 influence of the work of the designer. Little, if any, understanding of how the designer has influenced others. Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling. Award 1-2 marks</p> <p>Description of the influence of the designer. Some understanding of how the designer has influenced others. Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. Award 3-4 marks</p> <p>Description of the influence of the designer. Understanding shown of how the designer has influenced others. Candidates may make reference to a specific designer that has been influenced by either Carson or Brody. Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling. Award 5-6 marks</p> <p>Detailed description of the influence of one designer. Clear understanding shown of how the designer has influenced others. Candidates may name a specific designer that has been influenced and draw reference to where the influences can be found culturally today. 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 7-8 marks</p> <p>SEE APPENDIX AT THE BACK OF THE MARK SCHEME FOR INDIVIDUAL DESIGNER'S IMPACT ON THE WORLD OF DESIGN.</p>	0 1-2 3-4 5-6 7-8			
Total marks for Question 3				10	35

Question			On paper	Question Totals	Overall TOTAL
(iii)	No answer or answers that do not match the mark scheme	0			
	An imaginative design with embellishment that matches the front cover. The pop-up mechanism can be clearly seen.	3			
	A design that contains embellishment that matches the front cover. The pop-up mechanism can be seen but some important considerations of the design might be lacking.	2			
	A poorly drawn design lacking in creativity or innovation. It is unclear what the pop up mechanism might look like or where items may be placed on the inside of the card. The design lacks lots of important consideration.	1			
(iv)	No answer or answers that do not match the mark scheme	0			
	A fully detailed, annotated sketch that includes <i>all</i> appropriate details. The mechanism could be manufactured by a third party using the sketch. The mechanism will clearly work.	5			
	A detailed annotated sketch that considers most aspects of the design. The mechanism could be manufactured by a third party. The mechanism should work.	4			
	A detailed annotated sketch that lacks some important considerations. It is unclear whether the mechanism could be manufactured by a third party. The mechanism will work, although there may be some issues e.g. the mechanism might not fit inside the card neatly.	3			
	An annotated sketch that considers some details. The design could not be manufactured by a third party. It is not clear if the design would work without any significant problems.	2			
	A simplistic sketch that only considers minor details. It could not be manufactured by a third party or it may not work without significant issues.	1			
	A design that would not work in any way. It may be totally unclear or contain no annotation. Lacking considerable detail.	0			
(v)	No answer or answers that do not match the mark scheme	0			
	Good quality drawing and presentation skills. All aspects about both parts of the design are very clear and concise.	4			
	Good quality drawing skills with good application of colour. All aspects of the design are understandable.	3			
	Adequate levels of drawing and presentation. Most aspects of the design are understandable.	2			
	Poor quality drawing skills. Application of colour is rushed or untidy. Aspects of the design are hard to understand.	1			
	Drawing skills are very basic. Presentation is completely inappropriate. Design cannot be understood.	0			
Total marks for Question 4				25	60

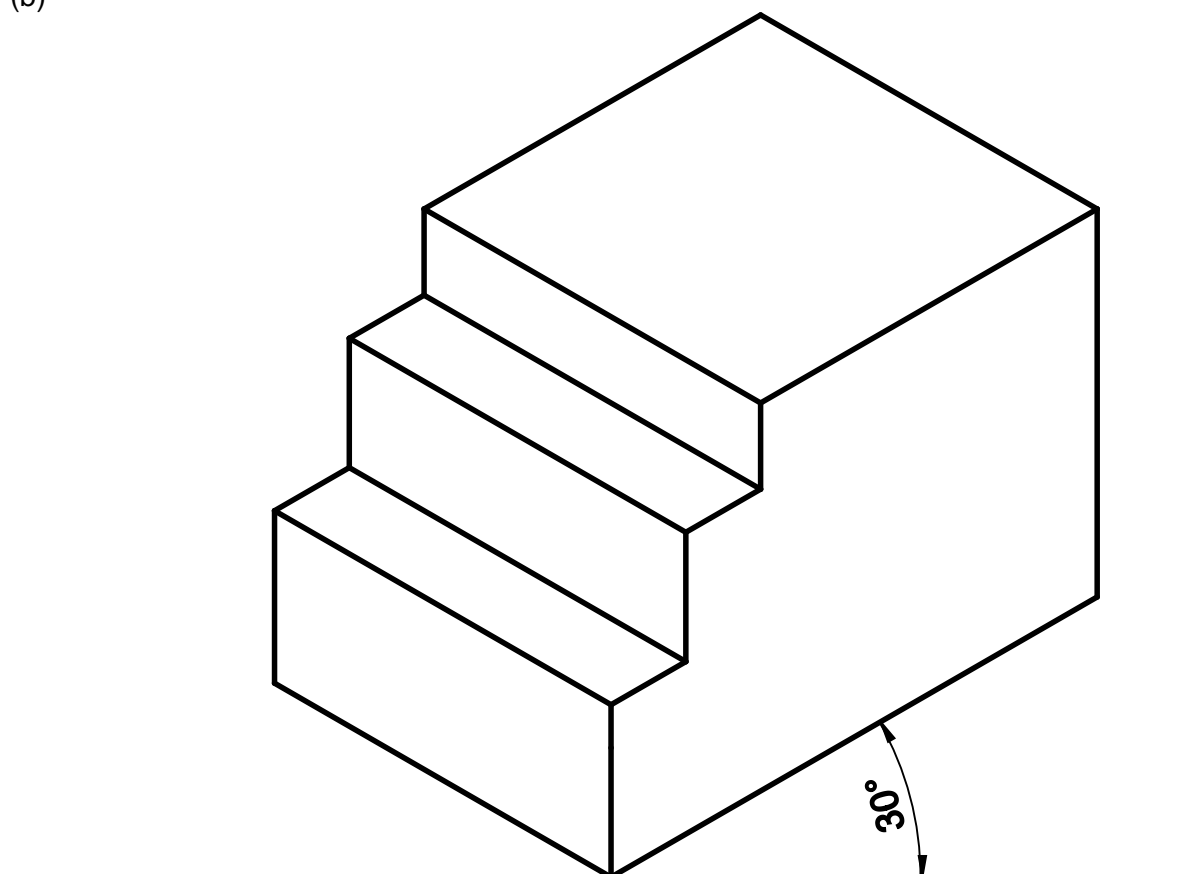
Question			On paper	Question Totals	Section TOTAL
6 (a) (i)	No answer or answers that do not match the mark scheme. 1 st blank – A6 2 nd blank – A2 3 rd blank – A0	0 1 1 1			
(b) (i)	No answer or answers that do not match the mark scheme. Only acceptable answer - -Complementary.	0 1			
(ii)	No answer or answers that do not match the mark scheme. Only acceptable answer – Tick under the middle image.	0 1			
(iii)	No answer or answers that do not match the mark scheme. Good answers MUST include references to: <ul style="list-style-type: none"> • CMYK colour systems and RGB colour systems. • Additive colour systems can be found on monitors and electronic goods. • Subtractive colour systems can be found on all printed goods using CMYK or when we mix paint, etc. • As we add more colour to subtractive colour systems they get darker. As we add more colour to additive systems, they get lighter. <p>There should be a comparison of both colour systems to gain full marks. Maximum of two marks if not (depending on level of detail)</p> <p>Appropriate answer with appropriate detail, e.g. a subtractive colour system can be found on everything that is printed or painted. CMYK is an example of this / and as we add more colour to this system, it gets darker. / an additive colour system can be found on all monitors and screens as they use RGB. / when we add more colour in this system, it gets lighter.</p> <p>Appropriate answer with some detail, e.g. printed or hand painted items are subtractive. CMYK is an example of this. / everything that we see electronically is additive and uses RGB.</p> <p>Appropriate statement but with little detail, e.g. one is CMYK, one is RGB.</p>	0 3 2 1			
(c) (i)	No answer or answers that do not match the mark scheme. 1 st blank – Olfactory Packaging 2 nd blank – Tamper indicating wrappers	0 1 1			
(ii)	No answer or answers that do not match the mark scheme Good answers could include reference to; <ul style="list-style-type: none"> • The fact that composite materials are made by combining two or more materials. • The materials have very different properties • The materials work together to combine the properties of each. • In a composite material, the two materials can still be seen as they do not blend into one. • *They can be laminated or stuck together. <p>Appropriate answer with appropriate detail, e.g. composite materials are two or more materials put together / to enhance the properties of each.</p> <p>Appropriate statement but with little detail, e.g. composite materials are two or more materials mixed together.</p>	0 2 1			

Question			On paper	Question Totals	Section TOTAL
7 (a) (i)	No answer or answers that do not match the mark scheme. Only acceptable answer – Circle or Arc.	0 1			
(b) (i)	No answer or answers that do not match the mark scheme 1 st blank – Knife with retractable snap off blades – Blades can be hidden within the knife when not being used. Blades can be kept sharp by snapping off blunt ones, making cutting easier. 2 nd blank – Metal Safety Rule – Reasons can include rule contains a channel to put your finger, the shape of the rule makes it difficult to cut your hand, the shape allows for nice firm grip. 3 rd blank – Cutting mat – Reasons can include cutting towards yourself allows for more control, increased stability and soft touch mat which resists slipping.	0 2 2 2			
(ii)	No answer or answers that do not match the mark scheme One mark for each stage in the correct order. Correct order should be 1. Create document to the correct size... 2. Save the document as a high quality PDF... 3. Does the document look as expected? 4. Load correct size weight paper 5. Cut out document safely... 6. Score document along fold lines...	0 1 1 1 1 1 1			
(c) (i)	No answer or answers that do not match the mark scheme. 1 st tool – tool allows user to fill selected area with gradient. 2 nd tool – allows the user to blur or repair parts of an image. 3 rd tool – allows user to add text to a path.	0 1 1 1			
(ii)	No answer or answers that do not match the mark scheme <ul style="list-style-type: none"> • Good answers could include reference to; • Changing the shutter speed alters the length of time the camera's shutter is open whilst taking a photo. • The amount of light that reaches the image sensor can create different effects e.g. movement and brightness. • Long exposure times and short exposure times. <p>Appropriate answer with appropriate detail, e.g. adjusting the camera shutter speed to have a longer exposure time can create a photograph full of movement / e.g. running water or a fast moving train. / a shorter shutter speed should capture the image with little movement and more clarity.</p> <p>Appropriate statement but with little detail E.g. Can make the items in the photograph look like they're moving.</p>	0 2 1			
(iii)	No answer or answers that do not match the mark scheme. <p>Good answers could include reference to;</p> <ul style="list-style-type: none"> • The duplex printing allows for the printing on either one side or both sides of a piece of paper. • Equipment without this facility will only allow for printing on one side. • Materials that allow for duplex printing will be printable on both sides of the material. • Some duplex machines allow for the printing and stapling of double sided booklets. <p>Appropriate answer with appropriate detail, e.g. the term 'duplex' refers to printing equipment that can print on both sides of a material. / it also refers to materials that have a finish that allows for them to be printed on both sides.</p> <p>Appropriate statement but with little detail, e.g. printed on both sides.</p>	0 2 1			
Total marks for Question 7				20	105

Question				On paper	Question Totals	Section TOTAL
8	(a)	(i)	No answer or answers that do not match the mark scheme 1 ST image – Exploded drawing 2 ND image– Cutaway drawing	0 1 1		
		(ii)	No answer or answers that do not match the mark scheme 1 st blank – Accordion fold 2 nd blank – Gate fold 3 rd blank - Parallel fold	0 1 1 1		
	(b)	(i)	No answer or answers that do not match the mark scheme Complete drawing with no mistakes, lines are drawn with instruments and the correct square has been used. Complete drawing with minor mistakes. Correct square has been used. Drawing may have some errors, but the correct square has been used and the overall scale is correct. Drawing will have major errors but the overall shape is visible. The scale may be different in parts from the orthographic drawing. Candidates have not used a 30/60 set square but have sketched an approximate shape. No parts of the drawing are correct. Scale is incorrect.	0 4 3 2 1 0		
	(c)		No answer or answers that do not match the mark scheme Responses should be broken down into the remaining quarters. For each quarter first mark construction marks. Then mark the Ellipse Construction Lines All construction lines correct and visible. All lines clearly aid the construction of the ellipse. Most of the construction lines are visible and correct, although some may have issues or may not help with the construction of the shape. Some of the construction lines are present, they may all be in one of the quarters of the circles, or spread throughout the drawing, some will not help in the construction of the shape, but some must help with the construction. No construction lines present or they do not help the construction of the shape. Ellipse Every section of the Ellipse correct and well-drawn, touching the concentric circles and construction lines in the correct place. Most parts of the Ellipse are correct, although some areas may have small errors or flaws. Some sections may not touch the concentric circles in the correct place. An ellipse is present and some attempt has been made to draw it correctly, although it will have flaws. It may, or may not, touch the concentric circles or the construction lines. No ellipse present, or a shape that is not an ellipse.	0 3 2 1 0 3 2 1 0		
			Total marks for Question 8		15	120

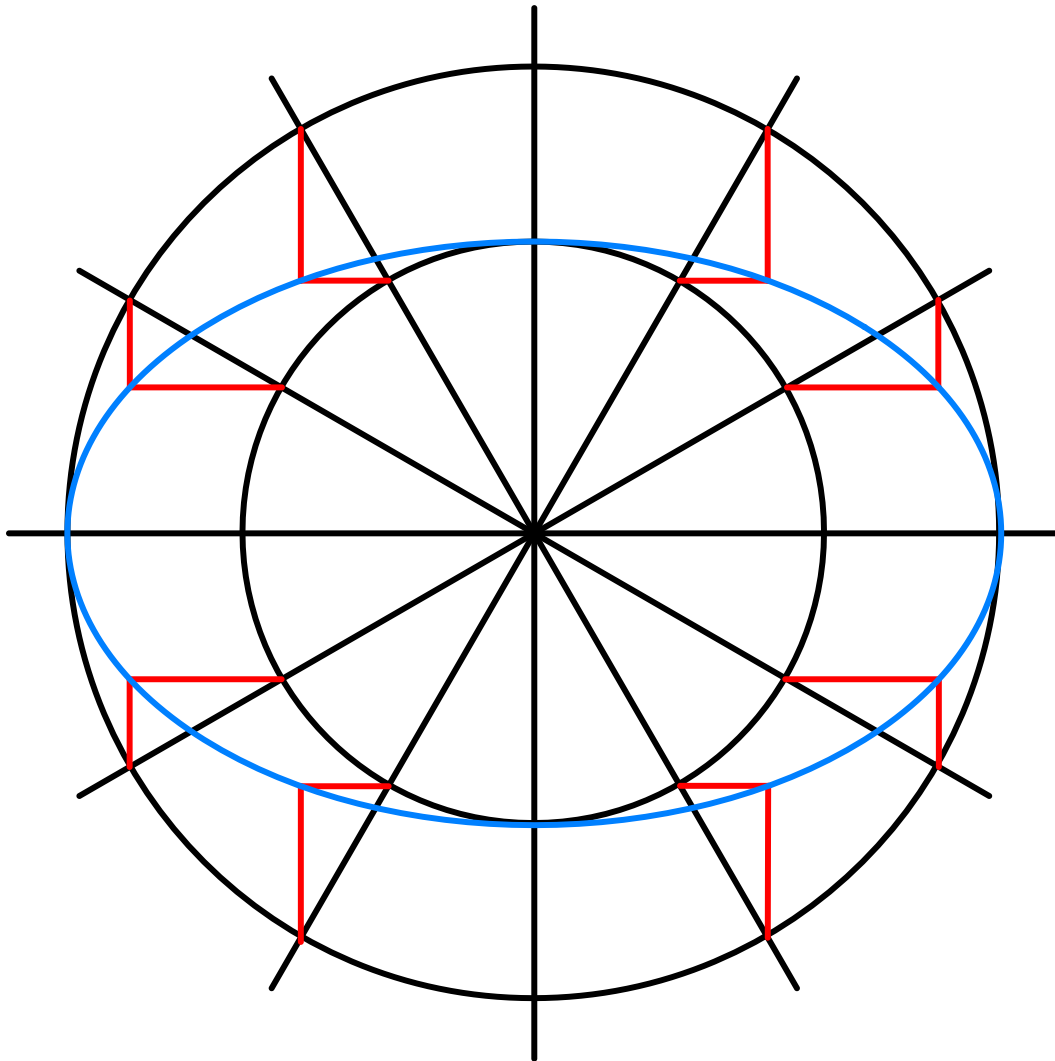
Question 8 Solutions.

(b)



Candidates must use the correct Set Square. Sale can be estimated but the steps should be higher than deeper. The top step is not as high as the other two.

(c)



Candidates should complete all the construction lines correctly. Maximum of 3 marks for correct construction lines. The Ellipse should touch all of the relevant points to gain marks up to a maximum of 3.

**GCSE DESIGN & TECHNOLOGY - RESISTANT MATERIALS
TECHNOLOGY**

SUMMER 2015 MARK SCHEME

Question			On paper	Question Totals	Overall TOTAL
1 (a)	No answer or incorrect answer Only acceptable answers: i Scale of Manufacture. ii Target Market. iii Aesthetic appeal. iv Safety Considerations.	0 4x1	4	4	4
(b)	No answer or incorrect answer. Award one mark for each appropriate reason, e.g. Beech is a hard and durable material. Beech - answers related to: <ul style="list-style-type: none"> Resistant to wear Fine-grained Resistant to moisture Polishes well 	0 2 x1	2	6	6
(c)	No answer or an inappropriate answer. Appropriate explanation but lacking detail e.g. Shows that the product is environmentally friendly Award one mark Appropriate explanation well e.g. Shows that the product is environmentally friendly, for every tree chopped down another is planted in its place Award two marks Answers related to: <ul style="list-style-type: none"> Wood is sourced from managed forests. 	0 1 or 2	2	8	8
(d)	No answer or incorrect answer. One word answers – cheap, small. (i) Appropriate advantage but lacking detail e.g. It is easy for the customer to take home. Award one mark Appropriate advantage well detailed e.g. The product is sold disassembled in a compact package making it easier for the customer to transport. Award two marks Consumer – advantages related to: <ul style="list-style-type: none"> Assembled by customer - leading to reduced production cost of manufacturer – cheaper retail price. Large pieces of furniture can be carried through narrow doors and up staircases before being assembled. Can be disassembled if moving house. Customer can choose different colours and finishes. Saves on delivery cost. 	0 1 or 2	2	10	10

Question			On paper	Question Totals	Overall TOTAL
(ii)	<p>Appropriate advantage but lacking detail e.g. Flat-pack furniture is built by the customer. Award one mark</p> <p>Appropriate advantage well detailed e.g. The manufacturer saves on part of the cost of the production process because Flat-pack furniture is assembled by the customer. Award two marks</p> <p>Manufacturer – advantages related to:</p> <ul style="list-style-type: none"> • Assembly of products is a labour intensive, high cost part of production process. • Consistent shape of flat-packed products means that space is saved during transport -more cost effective. • More products can be transported in one journey. 	1 or 2	2	12	12
(e) (i)	No answer or incorrect answer Only acceptable answer = France	0	1	13	13
(ii)	<p>No answer or answers that do not match the mark scheme</p> <p>Answer that is 9922 without workings – can be awarded 1 mark</p> <p>Sales in UK = $22/100 \times 45,100$ or $0.22 \times 45,100$ = 9922</p>	0 1 or 2	2	15	15
Total marks for Question 1				15	15

Question			On paper	Question Totals	Overall TOTAL	
2 (a)	No answer or an incorrect answer. Rethink Reduce Reuse Recycle Refuse	0 4x1	4	4	19	
(b) (i)	No answer or an incorrect answer. BSI (British Standards Institute) or Kite mark	0 1	1	5	20	
(ii)	No answer or an inappropriate answer. Appropriate explanation but lacking detail e.g. The product meets British Standards. Award one mark Appropriate explanation well detailed e.g. The product has been tested and meets British Standards of safety and reliability. Award two marks Answers related to: <ul style="list-style-type: none"> • The BSI has issued a license to the company to use the Kitemark. • Manufacturing process is assessed, at regular intervals. • Independently tested. 	0 1 or 2	2	7	22	
(c)	No answer or an inappropriate answer. Appropriate explanation but lacking detail e.g. Cause pollution because they are thrown away. Award one mark Appropriate explanation, includes some detail e.g. Disposable products are only used once then cause pollution because they are thrown away. Award two marks Appropriate explanation, well detailed e.g. Their short life span compared to the carbon footprint they create at all stages of their life cycle make disposable products harmful to the environment. Award three marks Answers related to: <ul style="list-style-type: none"> • Total environmental impact of disposable products. • Energy is used at different stages of their life cycle – raw materials, processing, transport, disposal. • Eco/Carbon footprint. • Recyclability of materials used. • Planned obsolescence. 	0 1 or 2 or 3	3	10	25	
Total marks for Question 2					10	25

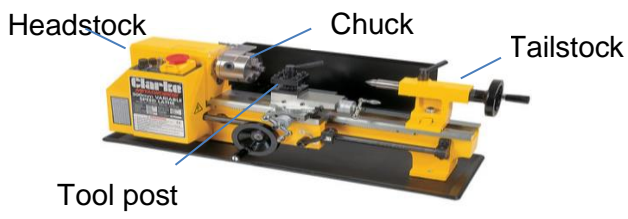
Question			On paper	Question Totals	Overall TOTAL	
3 (a)	(i)	No answer or incorrect answer. Only acceptable answer: Phillipe Starck	0 1	1	26	
	(ii)	No answer or incorrect answer. Only acceptable answer: Ross Lovegrove	0 1	2	27	
(b)		<p>Candidates would need to include references to the following in their answers.</p> <p>Phillip Starck - style of work:</p> <ul style="list-style-type: none"> 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. responsible for the creation of a wide variety of objects in the O.W.O. Series, noodles for Panzani, boats for Beneteau, mineral-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. <p>Phillip Starck - ideas:</p> <ul style="list-style-type: none"> Much of his work produced in the 1980's and 1990's was influenced by fashion and novelty. It has even 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 of 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. <p>Ross Lovegrove - style of work:</p> <ul style="list-style-type: none"> Worked for Frog Design a company in West Germany; on products like Walkman's and Apple Computers. Designs a range of product from chairs to domestic sinks. Worked with well known designers Stark, Nouvel, Dupont, etc. Works as a freelance designer for companies such as Peugeot, Olympus major corporate companies. <p>Ross Lovegrove - ideas;</p> <ul style="list-style-type: none"> Objects have clean lines with interesting forms and shapes. Likes to experiment with materials. Likes to use the shape and forms in nature as inspiration. Advocate of sustainable design, e.g. Renault Twin'Z electric concept car/solar tree. <p>No answer or no relevant issues described or discussed. Note- if both designers are described. Mark the first answer only.</p> <p>Some simple description of the style of work of one designer. Little, if any, understanding of the ideas they have introduced over time. Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling.</p> <p>Some description of the style of work of one designer. Little understanding of the ideas they have introduced over time. Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling.</p> <p>Description of the style of work of one designer. Some understanding of the ideas they have introduced over time. Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling.</p> <p>Description of the work of one designer. Clear understanding of the ideas they have introduced over time. 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>	0 1 or 2 3 or 4 5 or 6 7 or 8	8	10	35
Total marks for Question 3				10	35	

Question			On paper	Question Totals	Overall TOTAL
4 (a)	No answer or an incorrect answer.	0	3	3	38
	Evaluation Research Specification	1 1 1			
(b)	No answer or an inappropriate answer. Acceptable answers: <ul style="list-style-type: none"> • Dimensions • Finish • Tolerance • Materials • Components • Construction detail • Time • Cutting list • Tools/equipment • Number to be produced 	0 2x1	2	5	40
(c)	No answer or an inappropriate answer. Appropriate explanation but lacking detail e.g. The initial idea is turned into a finished product. Award one mark Appropriate explanation, well detailed e.g. Improving on the initial design proposal by considering the best options for materials and construction methods. Award two marks Answers related to: <ul style="list-style-type: none"> • Improving form, appearance, style and function. • Considering size, quantities and costings. • Considering possible finishes and Quality issues. • Good development ensures that the make is efficient. • Helps to ensure a sustainable product. 	0 1 or 2	2	7	42
(d) (i)	Details to satisfy specification 0 marks no work or does not meet specification in anyway. 1-2 marks basic but functional solution that could address some of the specification points. 3-4 marks more feasible and functional solution that addresses many of the specification points. 5-6 marks an excellent, innovative and functional design solution that addresses all of the specification points.		6	13	48
(ii)	Technical details 0 mark no details of construction shown. 1 mark basic solution but could work with few technical features and processes shown. 2-3 marks feasible solution that shows some important technical features and processes. 4 marks feasible solution, sufficient constructional details are listed to manufacture the storage unit. Clearly communicated with detailed range of sketches and good annotation.		5	17	52
(iii)	Specifying suitable materials, components & processes Up to two marks for naming SPECIFIC and relevant material/s, component/s & process(es). Do not accept wood, plastic, etc.	1 or 2	2	19	54

Question			On paper	Question Totals	Overall TOTAL
(iv)	<p>Stating two important dimensions. Up to two marks specifying appropriate dimensions. One mark per important/appropriate dimension.</p>	1 or 2	2	21	56
(vi)	<p>Quality of communication 4 Excellent 3 Good 2 Average 1 Below average</p>	1 or 2 or 3 or 4	4	25	60
Total marks for Question 4				25	60

Question			On paper	Question Totals	Overall TOTAL
5 (a)	No answer or an incorrect answer.	0	3	3	63
	Extruding Die casting Spinning	3x1			
(b)	No answer or an inappropriate answer. Only acceptable answers: Furniture Industry Research Association	0 2x1	2	5	65
(c)	No answer or an inappropriate answer. Appropriate explanation but lacking detail Award one mark e.g. checking that the product is made to standard. Appropriate explanation, well detailed Award two marks e.g. checks carried out at stages during the production process to ensure the final product is made to standard. Answers related to: <ul style="list-style-type: none"> • Inspections on the production line to identify quality and note any imperfections. • Checking against the Manufacturing Specification • The Quality Control Manager is responsible for ensuring accuracy and consistency throughout the manufacturing process. • ISO 9000 is awarded to manufacturing companies that produce high quality products. 	0 2x1	2	7	67
(d)	No answer or an inappropriate answer. Appropriate advantage but lacking detail Award one mark e.g. The prototype can be produced very quickly. Appropriate explanation, includes some detail Award two marks e.g. The prototype can be produced very quickly so that the product development time is shortened. Appropriate explanation, well detailed Award three marks e.g. The prototype can be produced very quickly so that the product development time is shortened which will reduce manufacturing costs. Answers related to: <ul style="list-style-type: none"> • Allows the designer to see and handle a product in real life before production begins. • Costly production mistakes can be avoided as problems can be identified early in the design process. • Minimise changes to the product once manufacturing has started. • Leading time is reduced. 	0 1 or 2 or 3	3	10	70
Total marks for Question 5				10	70

Question			On paper	Question Totals	Overall TOTAL	
6 (a)	No answer or an incorrect answer.	0 4x1	4	4	74	
	<table border="1"> <thead> <tr> <th>Softwoods</th> <th>Hardwoods</th> <th>Manufactured boards</th> </tr> </thead> <tbody> <tr> <td>Parana Pine</td> <td>Oak Balsa</td> <td>Hardboard</td> </tr> </tbody> </table> <p>Note: If same material is used more than once, accept only first answer from left</p>					Softwoods
Softwoods	Hardwoods	Manufactured boards				
Parana Pine	Oak Balsa	Hardboard				
(b)	No answer or an incorrect answer.	0	2	6	76	
(i)	Butt	2x1				
(ii)	Tee					
(c)	No answer or an incorrect answer. Ductility → ability to withstand stress without deforming Hardness → resistance to scratching and cutting Toughness → ability to be stretched without breaking	0	3	9	79	
(d)	No answer or an inappropriate answer.	0	2	11	81	
	<p>(i) Appropriate description but lacking detail. AWARD 1 mark e.g. Thermosetting plastics can be heated and shaped but only once.</p> <p>Appropriate description well detailed. AWARD 2 marks e.g. Thermosetting plastics can be heated to make them soft to shape and form but only once. They have strong covalent bonds</p> <p>Answers related to:</p> <ul style="list-style-type: none"> Cannot be recycled. Thermosets more resistant to heat. 	1 or 2				
(ii)	No answer or an incorrect answer.	0	2	13	83	
	<p>Appropriate description but lacking detail. AWARD 1 mark e.g. Composite materials are made by combining different materials.</p> <p>Appropriate description, well-detailed. AWARD 2 marks e.g. Composite materials are made by combining different materials in order to produce better properties.</p> <p>Answers related to:</p> <ul style="list-style-type: none"> Particle, Laminated and Stranded composited. Reinforcing material and Matrix. 	1 or 2				
(e)	No explanation given or an inappropriate explanation given.	0	2	15	85	
	<p>Appropriate explanation but lacking detail. AWARD 1 mark e.g. Nanotechnology is concerned with the control of matter on an atomic scale.</p> <p>Appropriate explanation well detailed. AWARD 2 marks e.g. Nanotechnology is concerned with the control of matter on an atomic scale. Carbon nanotubes are used to make tennis racquets that are very strong, but very light.</p> <p>Answers related to:</p> <ul style="list-style-type: none"> The arrangement of atoms at the molecular scale. 'The science of the very small'. Enhancing the properties of materials. Water-repellent wood finishes. Light emitting phosphors. Nano crystalline materials such as Tungsten Carbide and Titanium Carbide to improve wear resistance in machine part. Coatings to produce self-cleaning windows. Paint technology. 	1 or 2				
Total marks for Question 6				15	85	

Question			On paper	Question Totals	Overall TOTAL									
7 (a)	No answer or an incorrect answer.	0	4	4	89									
	<table border="1"> <thead> <tr> <th>Holding tool</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>Machine vice</td> <td>To hold material when drilling on a (pillar drill milling machine/mortise).</td> </tr> <tr> <td>Sash cramp</td> <td>To hold a large piece of furniture together when gluing.</td> </tr> <tr> <td>Mitre cramp</td> <td>To glue a picture frame / 45° mitre joints.</td> </tr> <tr> <td>Engineers / Metalworking vice</td> <td>To hold a metal bar for cutting</td> </tr> </tbody> </table>	Holding tool	Use	Machine vice	To hold material when drilling on a (pillar drill milling machine/mortise).	Sash cramp	To hold a large piece of furniture together when gluing.	Mitre cramp	To glue a picture frame / 45° mitre joints.	Engineers / Metalworking vice	To hold a metal bar for cutting	4x1		
Holding tool	Use													
Machine vice	To hold material when drilling on a (pillar drill milling machine/mortise).													
Sash cramp	To hold a large piece of furniture together when gluing.													
Mitre cramp	To glue a picture frame / 45° mitre joints.													
Engineers / Metalworking vice	To hold a metal bar for cutting													
(b)	No answer or an incorrect answer.	0	4	8	93									
		4x1												
(c)	No answer or an inappropriate answer.	0	2	10	95									
	<p>Appropriate considerations:</p> <ul style="list-style-type: none"> Wearing safety goggles / visor. Sleeves rolled up / Hair tied back / Tie tucked in. Work securely clamped. Ensure been shown how to operate machine. Position of emergency stop. Guard is in position Drill is secure in chuck. Get permission before using. Remove chuck key Extraction Apron 	2x1												
(d) (i)	No answer or an inappropriate answer.	0	1	11	96									
	Mortice and Tenon	1												
(ii)	No answer or an inappropriate answer.	0	4	15	100									
	<p>The following points need to be referenced to gain marks.</p> <ul style="list-style-type: none"> Mortise gauge spurs set to width of chisel. Try square, pencil/marketing knife to mark out top and bottom of mortise. Mark out mortise using mortise gauge set to width of chisel. Tenon depth is marked all around the wood using pencil/marketing knife. Mortise gauge as previously set for marking the mortise joint is used to mark width of tenon. <p>Note : Step + equipment required for 1 mark.</p> <p>One mark – very basic understanding (1 of the above points referenced).</p> <p>Two marks – some detail and understanding related to tools, processes (two of the above points referenced).</p> <p>Three marks - more detail and understanding related to tools, processes (3-4 of the above points referenced).</p> <p>Four marks – detailed understanding (all of above points referenced),clearly communicated.</p>	1 or 2 or 3 or 4												

Question			On paper	Question Totals	Overall TOTAL
(e)	<p>No answer or an inappropriate answer.</p> <p>Marks awarded for sketching and annotating a suitable design for a jig that communicates a means of:</p> <ul style="list-style-type: none"> • Holding jig securely on pillar drill. • Locating the acrylic accurately during drilling. • Allowing the holes to be drilled efficiently, i.e. four holes can be drilled by rotating acrylic without the need to relocate jig. <p>One mark – very basic understanding.</p> <p>Two marks – some detail and understanding related to holding jig securely on pillar drill bed, locating the acrylic accurately during drilling and allowing the holes to be drilled efficiently.</p> <p>Three marks – good understanding related to holding jig securely on pillar drill bed, locating the acrylic accurately during drilling and allowing the holes to be drilled efficiently.</p> <p>One to two marks - Quality of communication.</p> <p>0 marks poor quality communication skills. 1 mark basic drawing that shows some details. 2 marks good quality drawing showing most details clearly.</p>	0	5	20	105
Total marks for Question 7				20	105

Question			On paper	Question Totals	Overall TOTAL
8 (a) (i)	No answer or an inappropriate answer.	0	1	1	106
	Acceptable answers: <ul style="list-style-type: none"> • Pro desktop • Google Sketchup • Illustrator • Artcam • AutoCAD • ProEngineer • Solid Works • 2 D design Any suitable CAD software programme	1			
(ii)	No answer or an inappropriate answer.	0	1	2	107
	Acceptable answers: <ul style="list-style-type: none"> • Word • Works • Pages • Publisher • Open Office Any suitable word processing software programme	1			
(b)	No answer or an incorrect answer.	0	3	5	110
	i CAM Vinyl Cutter	1			
	ii high speed / low power	1			
	iii CAM router	1			
(c)	<i>No answer or an inappropriate answer.</i> <p>The following points need to be referenced to gain marks:</p> <ul style="list-style-type: none"> • Preparing wood – work down through grades of glass paper. • Use glass paper along the grain. • Remove dust with damp cloth/white spirit. • Apply sealing coat of varnish. • Allow to dry before using fine glasspaper to provide key. • Repeat for 2/3 further coats of varnish. <p>One mark – basic understanding (reference to one or two of the points above). Two marks – more detail (reference to three or four of the points above). Three marks – detailed response (reference to five or six of the points above).</p>	0	3	8	113
		1 or 2 or 3			
(d)	No answer or an incorrect answer.	0	4	12	117
	Case hardening	4x1			
	Tempering				
	Annealing				
	Hardening				

Question			On paper	Question Totals	Overall TOTAL
(e)	<p>No answer or an inappropriate answer.</p> <p>Appropriate explanation but lacking detail. AWARD 1 mark e.g. The metal is heated up then put in tank of plastic.</p> <p>Appropriate explanation, includes some detail. AWARD 2 marks e.g. The metal is heated in an oven, then plunged in a tank of plastic powder with air blowing through it. It is then reheated to make a smooth finish.</p> <p>Appropriate explanation, well detailed. AWARD 3 marks e.g. The metal is heated to 180°C then suspended in a tank of polythene powder with air blowing through it. The plastic sticks evenly to the metal. The coat hook is then reheated to give a smooth finish and left to cool.</p> <p>Marks awarded for discussing relevant factors such as:</p> <ul style="list-style-type: none"> • Heating the metal in oven to suitable temperature (polythene 180°C). • Metal plunged into tank of fluidised polythene powder for a few seconds. • Fluidisation involves blowing air through the powder so that the powder behaves like a liquid. • Coating applied evenly to the metal. • Coat hook is then reheated to produce a smooth finish. • Left to cool. <p>One mark – basic understanding (reference to 1 or 2 of the points above) Two marks - more detail (reference to 3 or 4 of the points above) Three marks - detailed response (reference to 5 or 6 of the points above)</p>	0	3	15	120
	Total marks for question 8			15	
	TOTAL MARKS FOR PAPER				120

GCSE DESIGN & TECHNOLOGY - SYSTEMS AND CONTROL

SUMMER 2015 MARK SCHEME

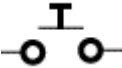

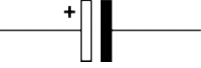
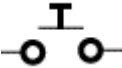

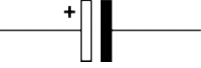
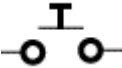

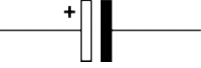
Question	Answer	Marks	Total	Spec Content	
1	(a) (i)	Full answer should demonstrate understanding of how the specification point is met, e.g. Any waste plastic items like cash cards or carton lids can be reused to make plectrums instead of being thrown away. Product is robust and durable therefore having a long life expectancy reducing waste / replacing.	2	2	Product Analysis
		Limited answer e.g. uses plastic that would be thrown away, or lasts a long time.	1		
		Weak or short responses like reuse waste.	0		
	(ii)	Full answer should demonstrate understanding of how the specification point is met e.g. The punch is made from stainless steel which is durable and the sizes allow the product to be easily carried by hand, in a pocket, or guitar case.	2	2	Dev, Plan, Com (b)
		One part correct e.g. Small in size / hand held. Or steel is a strong material.	1		
		One word answers like small or strong.	0		
	(iii)	Full answer should demonstrate understanding of how the specification point is met e.g. The £8.50 is relatively cheap one –off initial cost considering this product can make 1000s of identical plectrums.	2	2	Product Analysis
		Once £8.50 is paid, the user will no longer need to buy plectrums.	1		
		One word responses like repeatability.	0		
(b)	Full answer should demonstrate understanding e.g. The size of the slot that the plastic fits into must be too small for a finger to fit. Or The sharp edge that cuts the plectrum shape faces inwards and the user cannot get cut or hurt.	2	2	Product Analysis	
	Limited answer e.g. make sure the user cannot get hurt Inappropriate or incorrect answer, no sharp edges	1 0			
(c)	Only acceptable answer – Batch Production	1	1	Product Analysis	
	Inappropriate or incorrect answer,	0			
(d)	A clear and detailed response e.g. The manufacturer would employ giving a free gift as a promotion or sales strategy to sell more items or appear to be offering a better deal than competitors.	2	2	Product Analysis	
	An unclear or less detailed response. A response which contains some truth. To promote the new item and sell more.	1			
	Limited response like e.g. sell more, make more money.	0			
(e) (i)	A clear and detailed response e.g. More items are purchased as Christmas gifts so sales are boosted.	1	1	Product Analysis	
	Inappropriate or incorrect answer.	0			
	(ii)	Only acceptable answer – 3000. Inappropriate or incorrect answer.			1 0
(iii)	The correct answer together with workings: $15/100 * £8.50 = £1.275, *750 = \mathbf{£956.25}$ (accept 956.25)	2	2		
	Correct answer, no workings OR correct working wrong answer.	1			
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.				
Total marks for Question 1			15		

Question	Answer	Marks	Total	Spec Content
2 (a)	REDUCE REUSE REPAIR (any order) Incorrect or blank.	3x1 0	3	Overarching principles
(b) (i)	Batteries are identified with a crossed out wheeled bin symbol, meaning they should not be disposed of in normal household waste. Incorrect or inappropriate answer	1 0	1	Overarching principles
(b) (ii)	According to the European commission, mercury, lead and cadmium are the most problematic substances in the battery waste stream and batteries made with these metals are classified as hazardous waste. When these waste batteries are burned, they contribute to air pollution and, when they end up in landfill, the metals leach into the surrounding land. In addition, thousands of tonnes of valuable metals, such as nickel, cobalt and silver, could be recovered if batteries did not go to landfills or incinerators A fully detailed response e.g. If batteries are placed in landfill, chemicals may leak into natural surroundings polluting them. Less developed responses e.g. Batteries contain dangerous material, parts could have been recycled. Incorrect or inappropriate answer.	 2 1 0	2	
(c) (i)	Clear and detailed response e.g. Governments began in 2009 to 2012 systematically ending the manufacture of incandescent bulb because they are inefficient (lots of energy lost to heat) Incandescent bulbs also have short lifetimes compared with other types of lighting; around 1000 hours for home light bulbs versus 10,000 hours for compact fluorescents. Less developed / limited responses. E.g. they are bad for the environment or there are better alternatives for the environment. Incorrect or inappropriate answer.	2 1 0	2	Overarching principles
(c) (ii)	A fully detailed response covering at least 1 winner and 1 loser e.g. The government may be a winner because LED bulbs would help meet statistical targets, consumers may be a winner because the new bulbs last longer and are cheaper to run. Manufacturers may be winners due to new types of bulbs needed. Losers could be consumers who still have supplies of less efficient bulbs that work but will be pressured into buying new ones. Losers are manufacturers who have to set up new production systems. Manufacturers will also produce less in the long run because the new types last much longer. (Any 1 winner and 1 loser, but not 2 winners/losers). Weaker responses or responses that include only one example of a winner or lose. e.g. winner is the government to be more energy efficient. Incorrect or inappropriate answer.	2 1 0	2	
2 All	Unexpected answers – Possibly a wide range of responses for C.			
		Total marks for Question 2	10/25	

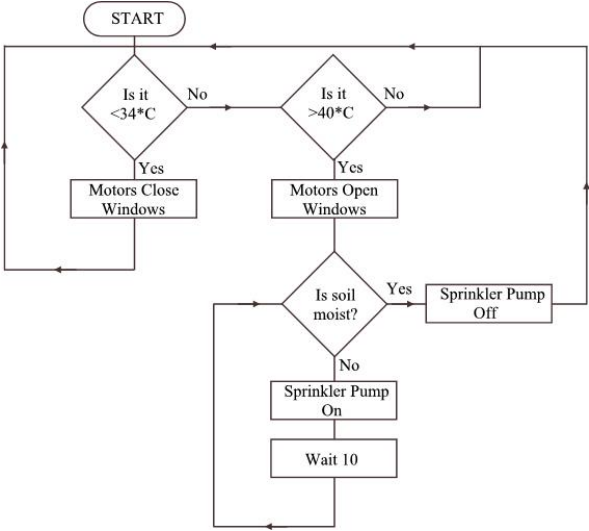
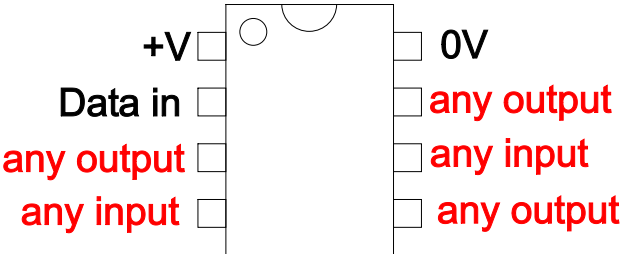
Question	Answer	Marks	Total	Spec Content
4 (a)	Correct design term linked to meaning. Development of ideas – Improving and refining possible solutions. Planning – consider the making stages and time required to make product. Modifications – changes that are needed to improve a product. No answer or inappropriate answer.	1 1 1 0	3	Design Process
(b)	A clear and detailed response. E.g. To establish a clear understanding of the problem and the user needs and wants. A weaker / less clear response, e.g. to see other products. No answer or inappropriate answer e.g. find out information.	2 1 0	2	Design Process
(c)	A clear and detailed response. Incrementally improved means that there are tweaks or facelifts that improve and existing version of a product to improve any weaknesses identified in previous versions. Some manufacturers use this as a sales strategy to boost flagging sales by introducing a slight modification. Weaker responses may not be as detailed, ..slightly improved products ... Poor response / no clarity, no answer or inappropriate answer.	2 1 0	2 7/42	Design Process
(d) (i)	Accurate and clear sketching of the external features of the table centre including all the specification points, storing three dispensers, and battery replacement. Clear sketching meeting most details of the specification. Clear sketching meeting some details of the specification. Limited information meeting some of the specification points. No answer or inappropriate answer.	4 3 2 1 0	4	Design Question
(ii)	Block diagram with three main boxes, Input, Process, and Output. Components named in relevant box e.g. LDR, switch, Transistor, PIC or similar, 3 x LED's. Unexpected answers might appear here – a3 x Input AND gate is acceptable. No answer or inappropriate answer.	3 x 1 mark 0	3	Design Question
(iii)	Fully labelled circuit diagram of a system that will work. Symbols and conventions correct and accurate. Comprehensive details of a PIC, transistor switch system or other that would be fully functioning meeting the specification. Labelled circuit diagram that shows some conventions and components correct, some use of suitable components but may not function fully. Labelled circuit diagram with several errors or details missing. One or two components or conventions correct. No answer or inappropriate answer.	[up to 4/5] [up to 2/3] [up to 1] 0	5	Design Question
(iv)	Clear details of an effective method of sensing when one (or more) dispensers are removed. Could be LDRs, PTM or B switches, limit switches with paddles etc. Some details of a method of sensing, maybe some errors / partially correct. No answer or inappropriate answer.	2 1 0 mark		

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

Question	Answer	Marks	Total	Spec Content
5 (a)	(i) 3D Schematic Drawing and PCB Layout	2x1	2	Commercial Manufacturing Practices (a)
	No answer or inappropriate answer.	0		
	(ii) CAD (only acceptable answer)	1	1	Commercial Manufacturing Practices(a)
	No answer or inappropriate answer.	0		
	(iii) Two clear detailed and full responses required. Designers can save work and revisit at later date saving time. Computer generated images are often more precise than work completed by hand. E-files may be emailed within company / globally. Computers promote modelling, simulation and reduce lead-in time with rapid prototyping.	2	4	
A weaker response e.g. less mistakes, or all work is on screen	1			
No answer or inappropriate answer.	0			
(b)	There are many acceptable aspects – look for 3 ‘strands’. <ul style="list-style-type: none"> Computers allow ordering, stock control and material processing of individual parts of products to be manufactured where the labour, expertise or cost effectiveness is present. Assembling products may take part in a different country once all aspects of production are complete. Computers drive automated machinery in the manufacturing and assembling processes. Identical products may be manufactured around the world to meet countries needs as files / programs may be shared. Computers allow effective communication between branches of companies, suppliers, sub-contractors etc. Purchasing and Shipping are computer based. A less developed response – Computers are more reliable than workers and make better products with no mistakes. Limited response or unclear - computers make sure they are high quality. No answer or inappropriate answer.	3 1 mark 2 marks 1 mark	3	Commercial Manufacturing Practices(a)
Total marks for Question 5			10/70	

Question	Answer	Marks	Total	Spec Content						
6 (a)	(i) Underlines worm drive and spur. No answer or inappropriate answer.	1 0	1	Materials and components (b) Mechanisms						
	(ii) Rotary 90 No answer or inappropriate answer.	1 1 0			2	Materials and components (b) Mechanisms				
(b)	(i) True True False No answer or inappropriate answer.	1 1 0	3	Materials and components (b) Mechanisms						
	(ii) RV Calculation: 30*20=12*?, 600/12=50rpm Correct answer with evidence of all workings. Incorrect answer, but evidence of all working correct / correct answer with some workings. Correct answer but no workings or correct workings but wrong answer. Some workings, wrong answer, correct answer only. No answer or inappropriate answer.	2 1 1 0			2	Materials and components (b) Mechanisms				
(c)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>PTM</td> <td>Buzzer</td> <td>Polarised Capacitor</td> </tr> </table>				PTM	Buzzer	Polarised Capacitor	1 1 1	3	Materials and components (a) Electronics
										
PTM	Buzzer	Polarised Capacitor								
(d)	CWM=ACWM 2 x 435 = 870 3A=870 A=290N A complete correct answer with full workings. Correct answer with most workings. Correct answer limited workings / correct workings incorrect answer Correct answer only / some correct workings wrong or no answer. No answer or inappropriate answer.	4 3 2 1 0	4	Materials and components (a) Electronics						
Total marks for Question 6			15/85							

Question	Answer	Marks	Total	Spec Content
7 (a)	Locktronics kit, stripboard, breadboard / protobloc	3x1	3	Tools, Equipment & Making
(b)	Side cutters (accept wire cutters) Wire strippers Long nose pliers (accept pliers) No response or incorrect response	1 1 1 0	3	Tools, Equipment & Making
(c)	Can 400 180 No answer or inappropriate answer	1 1 1 0	3	Tools, Equipment & Making
(d) (i)	High impact polystyrene (HIPS) No answer or incorrect answer.	1 0	1	Tools, Equipment & Making
(ii)	Vacuum Forming No response or inappropriate answer.	1 0	1	
(iii)	Heating element / guard Temperature control dial Power indicator (accept alternative wordings for same meanings) No response or inappropriate answer.	1 1 1 0	3	
(iv)	Step 1 - Marking out and preparation - Acrylic sheet material is cut and shaped. Marking out with ruler, try square and marker pen. Cut with bandsaw , fretsaw, or coping saw. Filed edges, glass papered and polished. e.g. – Acrylic is measured and marked out using ruler and marker pen. Shape is cut using a bandsaw. Step 2 – Line bender is turned on and up to heat required. Hold acrylic about heating element, (not too close to cause blistering) rotating to heat evenly. e.g. – Bending lines / markings are heated once strip heater has been switched on and is hot. Step 3 – Once soft, bend acrylic to desired angle and remove heat to cool acrylic bend at desired position. This is repeated for the second bend. e.g. – Once soft, the acrylic can be bent to the shape required. Heat is removed. This cools and the process is repeated for the second bend. There may be a variety of methods of marking out, cutting out, finishing / polishing, jigs used once heated etc. These responses will deserve credit. Use of high quality sketching with good annotation. No response or inappropriate answer.	1 1 1 0 1 1 0	3	Tools, Equipment & Making
(e)	A full and detailed response with diagrams e.g. Drill a 3mm hole through both acrylic holder and green HIPS base. Use a counterbore to allow the 3mm bolt to fit flush with surface or just below. A washer may be fitted between surfaces. The nut will be tightened from inside the hollow case giving a neat and appropriate finish. A full and accurate description. Reasonably clear, lacks some details or no notes some sketches, notes no sketches. A less accurate or less developed response, limited. No response or inappropriate answer, e.g. epoxy resin gluing or other permanent method.	3 3 2 1 0	3	
Total for Question 7			20/105	

Question	Answer	Marks	Total	Spec Content
<p>8 (a) (i)</p>	<p>False</p> <p>No response or inappropriate answer.</p>	1	1	Systems and Processes
<p>(b) (i)</p>	 <p>Completed flowchart Marks reduced x1 as errors appear</p>	7x1	7	
<p>(ii)</p>	<p>A full and accurate description</p> <p>The control panel needs to be situated away from water falling from the sprinkler heads. Or If the climate stays between 40 degrees and 34 degrees plants will not be watered.</p> <p>A less accurate or less developed response E.g. temperatures need changing</p> <p>No response or inappropriate answer.</p>	2 marks	2	
<p>(c) (†)</p>	 <p>Marks reduced x1 as errors appear No response or inappropriate answer. (Candidates may only use each input or output once.)</p>	5x1	5	
Total marks for Question 8			15/120	

GCSE DESIGN & TECHNOLOGY - TEXTILE TECHNOLOGY

SUMMER 2015 MARK SCHEME

SECTION A

Question				On Paper	Question Totals	Overall TOTAL
1	(a)	(i)	No answer or an incorrect answer. <i>Only acceptable answer:</i> females from 10 years to adults.	0 1	1	
		(ii)	No answer or an incorrect answer. <i>Answers that indicate an understanding regarding the appeal of the slippers to females can be awarded a mark based on:</i> use of vibrant colours; pretty designs; fluffy and cosy to wear; fun novelty items. <i>A one mark answer:</i> They look cosy and fun to wear which would appeal to females.	0 1	1	2
	(b)		No answer or an answer that does not indicate an appropriate safety feature – 0 mark. <i>Only acceptable answer:</i> non-slip sole. No answer or an answer that does not describe the importance of the safety feature – 0 mark. Up to two marks can be awarded to answers that indicate a clear understanding of the importance of the safety feature based on the non-slip sole preventing an accident. <i>A one mark answer:</i> the non-slip sole will prevent the wearer from slipping and falling over. <i>A two mark answer:</i> the non-slip sole will prevent the wearer from slipping particularly on polished floors and hurting themselves.	0 1 1 2	1 2	3
	(c)	(i)	No answer or one that does not address the main function of the slippers - 0 mark. <i>Answers that indicate an understanding of the function of the slippers to keep the wearers feet cosy and warm can be awarded up to two marks based on:</i> the fleece and Sherpa fleece prevent body heat from escaping by trapping warm air in between the fibres; this keeps the wearers feet warm. Knowledge of the materials' properties is required. <i>A simple statement that reflects an understanding e.g.</i> it meets the specification point because they are made from cosy and warm materials. <i>A more developed response worth two marks e.g.</i> it meets the specification point because the fluffy materials will trap air retaining body heat which will then ensure the warmth of the wearer particularly their feet!	0 1 2	2	

Question			On Paper	Question Totals	Overall TOTAL
	(ii)	<p>No answer or one that does not address the affordable price of the slippers – 0 marks.</p> <p><i>Answers that indicate a very clear understanding of the selling price being easily affordable to the intended target market can be awarded up to 2 marks based on:</i> the target market is young girls up to adults - whilst adults might be able to afford them they are quite expensive for the younger target market for what they are – a fun pair of novelty slippers with limited use; the price of £13.99 is too expensive for a pair of slippers that may not last that long and are not value for money, not easily affordable which would put people off buying them. The specification point would not have been met.</p> <p><i>A simple statement with limited elaboration in the answer can be awarded one mark e.g.</i> they are quite expensive for a pair of slippers which might not last very long.</p> <p><i>A more developed response which is fully explained can be awarded two marks e.g.</i> They are quite expensive for a novelty pair of slippers that might not last a long time and offer poor value for money. Therefore, not easily affordable to the target market meaning the specification point has not been met.</p>	0		
			1		
			2	2	4
	(d)	<p>No answer or one that does not explain why batch production is the most suitable scale of production – 0 mark.</p> <p><i>Answers that indicate an understanding of batch production being the most appropriate scale of production should be given credit based on:</i> slippers are mostly sold in the autumn / winter season so very large quantities may not be needed; they are offered in a range of colourful and fun patterns which only appeal to a set target market – limited appeal; the slippers are a bit novelty item – a fashion Fad which might sell quickly at first then sales would drop off quickly when the market is saturated. All indicate batch production as most appropriate as only set quantities are needed.</p> <p><i>A simple response e.g.</i> they are usually only worn in winter so have limited use.</p> <p><i>A more developed response with some elaboration e.g.</i> they are a seasonal product (autumn/winter) so there is a limit to the numbers needed as not everyone would buy them/wear them and the target market would only need one pair each.</p> <p><i>A fully developed response with clear reasoning fully explained e.g.</i></p> <p>The slippers are a seasonal product with a novelty factor appealing to a set target market; all these factors mean that very large quantities are not needed because fashion trends change quickly, they are limited in the length of time/time of year to use them and the target market would only want one pair each. Limiting the numbers needed.</p>	0		
			1		
			2		
			3	3	3

Question				On Paper	Question Totals	Overall TOTAL
	(e)	(i)	No answer or an incorrect answer – 0 mark <i>Acceptable answers based on:</i> A seasonal product bought in preparation for the cold winter (1 mark) or bought as a Christmas present (1 mark)	0		
				1	1	
		(ii)	No answer or an incorrect calculation and answer – 0 mark Award 1 mark for an incorrect answer but method is correct – 1 mark Correct answer with calculations – 2 marks $3000 + 6600 + 8000 = 17600 \times \text{£}13.99 =$ Correct answer = £246,224	1		
			2	2	3	
			Total for Question 1			15
					15	15

Question				On Paper	Question Totals	Overall TOTAL	
2	(a)	(i)	Incorrect answers or no answer – 0 mark Only acceptable answer: Standards Institution	0 1	1	2	
		(ii)	<i>Award one mark for answers based on:</i> it is the universally recognised symbol for recycling, and denotes that the object is recyclable. (Answers do not need to name - Mobius Loop)	1	1		
	(b)		No answer or incorrect answers - 0 marks <i>Award one mark for each correct answer in this order:</i> REUSE REPAIR REFUSE	0 1 1 1	3	3	
	(c)	(i)	No answer or the answer does not relate to sustainable design – 0 mark <i>Answers that indicate an understanding of sustainable design can be credited with up to 2 marks based on:</i> designers have taken the social, economic and environmental implications into consideration when designing new products for example - relates to source of materials, manufacturing processes, transportation, ethical issues, products built to last and disposal issues. <i>(Answers have to be specific and demonstrate a very clear understanding of the term).</i> <i>Award one mark for a simple statement e.g:</i> this means designing products which clearly address environmental issues such as its impact during manufacture. <i>Award two marks for a developed response e.g:</i> this means designing products which clearly address environmental issues such as its impact during manufacture as well as social and economic factors. The aim being to reduce the overall impact.	0 1 2	 2	5	
	(ii)	No answer or an answer that does not indicate an understanding of the designers role in lessening the environmental impact of textile products on disposal - 0 mark <i>Answers that indicate an understanding of the designers role in lessening the environmental impact of textile products on disposal can be credited up to 3 marks based on:</i> sourcing materials/components that are biodegradable from a natural source; choosing materials that are easily recycled; design products that can be repaired easily and passed on; consider products that can be disassembled and restyled/remodelled in some way. Answers could refer to the 6 'R's. <i>Award one mark for a simple response e.g.</i> Designers could choose a natural material that is biodegradable so it is not an issue if sent to landfill. <i>Award two marks for a more developed response e.g.</i> designers could choose to use natural materials that are biodegradable, lessening the environmental impact on disposal and use materials that can be easily recycled to extend the materials usefulness. <i>Award three marks for a fully developed response e.g.</i> Designers could choose to use natural materials that are biodegradable so not such a problem if they end up as landfill; they could also consider materials that are easy to recycle and used for a different purpose such as wool which can be shredded and used for insulation in buildings.	0 1 2 3	 1 2 3			
			Total for Question 2			10	25

Question				On Paper	Question Totals	Overall TOTAL
4	(a)	(i)	No answer or words incorrectly placed – 0 mark Award one mark for each correct answer: TARGET MARKET PRIMARY RESEARCH PROTOTYPE	0 1 1 1	3	
		(ii)	No answer or an answer that does not relate to the design brief – 0 mark <i>Answers that define the term 'design brief' should be credited with one mark based on: a statement clearly setting out what will be designed and made.</i>	0 1	1	
		(iii)	No answer or an answer that does not relate to detailed product analysis – 0 mark <i>Answers that indicate an understanding of detailed product analysis should be credited with up to three marks based on: ideas from a competitor product can be used to develop their own ideas based on identifying the strengths and weaknesses of a competitor product; construction processes used; materials used; sustainability issues; costs; target market appeal; safety issues.....specific issues that could influence their own design. DO NOT accept answers that relate to evaluating existing products in more general terms. Award one mark for a basic response for example: Detailed product analysis helps designers identify the strengths of a competitor product which they could develop. Award two marks for a more elaborate response for example: Detailed product analysis helps designers identify the strengths and weaknesses of a competitor product which in turn would help them to design an improved and more successful product. Award three marks for a fully developed response for example: Detailed product analysis allows designers to identify the strengths in a competitor product (or see something they haven't thought of) which they could develop further into something much better. It also identifies poorer features which they could improve upon or avoid saving them time and money.</i>	0 1 2 3	3	7
(b)	(i)	No answer or the answer would not appeal to teenagers and is not suitable for winter - 0 marks Award one mark for a design that would appeal to young women. Award one mark for a design that is suitable for winter wear. Not a coat – no marks.	0 1 1	2		
	(ii)	No answer or a design that is neither inspirational nor based on the theme of the mood board – 0 mark <i>Answers that clearly show an attempt by the candidate to create an inspirational design based on the theme of the mood board should be credited with up to four marks for example: use of the check patterns; acrylic fur; buttons/fastenings; textures. Design should include features that make it fit for purpose.</i> A weak attempt to show the front and back views of a winter coat but overall lacks imagination. Poor use of mood board. A satisfactory attempt to show the front and back views of a winter coat some reasonable ideas for the overall style; shows some imagination taking some inspiration from the mood board. A good attempt to show the front and back views of a winter coat; some good ideas for the overall style; shows good imagination and use of the mood board. A very good attempt to show the front and back views of a winter coat; good ideas for the overall style; shows highly imaginative styling with clear reference to the mood board.	0 1 2 3 4	4		

Question			On Paper	Question Totals	Overall TOTAL
	(iii)	No answer or a design that is not inspired by the colours of the mood board – 0 mark Answers that clearly show an attempt by the candidate to use and interpret the colours of the mood board to design a winter coat should be credited. A weak interpretation of the colours of the mood board; lacks imagination or creativity. A good interpretation of the colours of the mood board. Some imagination and creativity. An excellent interpretation of the colours of the mood board. Highly imaginative and creative.	1 2 3	3	
	(iv)	No answer or no evidence of specific named style details 0 - mark <i>Award one mark for each specific named style detail for example: named collars –shawl, funnel, hood, rever; types of pocket - patch, welt; shaping – darts, princess line, gathers, tucks; named fastenings – frogs, toggles; named sleeve style and so on.....</i> <i>Note: named style details must be correctly drawn.</i> <i>Do not accept named accessories e.g. a belt that is not part of the coat.</i> <i>Style details should relate to the coat.</i>	0 1 1 1	3	
	(v)	No answer or materials named are unsuitable – 0 mark <i>Award one mark for each specific named material that is highly suitable for winter wear, for example: wool and wool types (Harris tweed, tartan), corduroy, leather, acrylic fur, fake fur.</i>	0 1 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. Good graphic details and image, appropriate styling, understandable, good annotation of important style details. Excellent graphic details and image, highly appropriate styling, with correct annotation of important style details and techniques.	0 1 2 3 4	4	18
		Total for Question 4		25	60

Question			On Paper	Question Totals	Overall TOTAL
	(ii)	<p>No answer or an incorrect answer: 0 mark</p> <p><i>Answers that show a clear understanding of how fashion forecasters support the work of designers should be credited based on:</i> fashion forecasters are specialists who work on predicting future trends; they gather information about lifestyles, new technologies, new materials, popular culture and other fields of design to predict what will be popular in a few years' time. Designers use these predictions to ensure that their designs will be relevant and on trend at the appropriate time.</p> <p><i>Award one mark for a simple response for example:</i> the designer needs to know what will be popular/in fashion in a few years' time.</p> <p><i>Award two marks for a developed response for example:</i> the designer needs to know what will be popular/in fashion in a few years' time so they rely on fashion forecasters to inform them of the trends to focus on.</p> <p><i>Award three marks for a fully developed response for example:</i> designers often work on designs 2 or 3 years before they reach the shops; they rely on fashion forecasters to tell them what is going to be fashionable in the future based on the research they have done. Designers need reassurance that their designs will be fashionable when they reach the shops.</p>	0		
			1		
			2		
			3	3	5
		Total for Question 5		10	70

Question				On Paper	Question Totals	Overall TOTAL
6	(a)	(i)	No answer or does not identify the correct method of construction – 0 mark Only acceptable answers: WEFT KNITTING Twill WEAVE	0 1 1	2	
		(ii)	No answer or an answer that does not refer to a disadvantage of a satin weave - 0 mark <i>Award one mark for a correct answer based on: the threads lying on top of the warp threads can snag easily.</i>	0 1		
	(b)	(i)	No answer or an incorrect answer - 0 mark Only one acceptable answer: plants	0 1	2	2
		(ii)	No answer or an incorrect answer - 0 mark Only one acceptable answer: lustre	0 1		
	(c)	(i)	No answer or an incorrect answer - 0 mark <i>Award up to two marks for answers that show a clear understanding of the difference between a mixed and blended fibre based on: a mixed fibre is when two different fibres are mixed together in the production of the fabric whereas a blend is when different fibres are spun together to make a yarn. Award one mark for a simple response for example: fibres are mixed together to make a yarn; OR fibres are mixed together to make the material. Award two marks for a developed response for example: mixing fibres takes place during the construction of the material but blended fibres are spun together to make a yarn before making the material.</i>	0 1 2	2	
		(ii)	No answer or the answer is incorrect - 0 marks <i>Award up to two marks for answers that clearly demonstrate an understanding of regenerated fibres based on: cellulosic fibres (plant based) usually from wood pulp, mixed with a chemical which allows the fibres to be extracted; they are part natural and part artificial. Award one mark for a basic response for example: made from wood pulp but with some chemicals. Award two marks for a fully developed response for example: they are part natural/plant based but chemicals have to be added to extract the fibres from the source – mainly wood pulp.</i>	0 1 2		
		(iii)	No answer or the answers are incorrect. 0 mark <i>Award one mark for each correct answer based on: viscose; rayon; acetate; triacetate; modal; Tencel; Lyocell</i>	0 1 1		
	(d)		No answer or the answers are incorrect - 0 mark <i>Award one mark for each answer based on: Name 1: Photochromic dyes/material (1 mark) These dyes allow materials to change colour in response to changes in light. (1 mark) Name 2: Thermochromic dyes/material (1 mark) These dyes allow material to change colour in response to changes in temperature. (1 mark) Accept answers relating to: Solvation chromism usually used in nappies allows the fabric to change colour when exposed to moisture.</i>	0 1 1 1 1	4	4
Total for Question 6					15	85

Question				On Paper	Question Totals	Overall TOTAL
7	(a)	(i)	No answer or incorrect name or explanation. Only three acceptable answers in this order: <ul style="list-style-type: none"> • Binding • Frill • Hem 	0 1 1 1	3	
		(ii)	No answer or an incorrect answer: 0 mark <i>Award up to one mark for each answer based on:</i> The over locker has a blade to cut the edge of the material making the edge straight and neat (1 mark). It sews over the edge joining the two pieces of material together to prevent fraying (1 mark).	0 1 1	2	
		(iii)	No answer or an incorrect answer – 0 mark <i>Award up to 2 marks for a clear understanding of the purpose of a double stitched seam based on:</i> it has two rows of stitching which adds to the overall strength of the seam; less likely to come undone as two rows of stitching are more secure; often used as a decorative feature. <i>Award one mark for a simple response for example:</i> it's a strong method of joining a seam. <i>Award two marks for a developed response for example:</i> it forms a much stronger seam as two rows of stitching are more secure than one.	0 1 2	2	7
	(b)	(i)	No answer or an incorrect answer – 0 mark <i>Award one mark for the correct technique:</i> BATIK (it could be interpreted as silk painting using gutta – accept)	0 1		
		(ii)	No answer or answers that do not describe batik - 0 mark <i>Award up to five marks for answers that demonstrate a clear understanding of the stages needed to produce a batik panel based on:</i> hot melted wax is applied to the fabric; a Tjanting tool is used to apply the hot wax; when the wax has cooled and solidified dye can be applied; the wax acts as a barrier preventing the dye from seeping into unwanted areas; remove the wax by ironing the batik panel between sheets of absorbent paper using a hot iron. A simple response – 1 mark: simple diagram, limited annotation no logical sequences shown. Award two marks for a slightly more detailed response: one or two diagrams, some annotation with a basic understanding of the stages needed to create a batik panel. Award 3 marks for a reasonable understanding of the batik technique, a few diagrams – some logic in the sequence. Award four marks for <i>notes and sketches</i> which show a clear understanding of the batik process – logical. Award five marks for clearly annotated series of sketches that could easily be followed to create a successful batik panel including how to remove the wax. <i>Assess the quality of work as a whole and apply marks for notes and sketches on a 'best fit' approach.</i>	0 1 2 3 4 5	5	

Question			On Paper	Question Totals	Overall TOTAL
	(iii)	<p>No answer or an answer that does not refer an appropriate QC point 0 mark</p> <p><i>Award up to two marks for a clear understanding of a relevant QC point for assembling the front panel based on: all panels need to be the same size and joined using a consistent seam allowance ensuring that the panels meet accurately at the corners, not out of line.</i></p> <p><i>Award one mark for a basic response for example: the corners of each square should meet perfectly.</i></p> <p><i>Award two marks for a developed response for example: the corners of each square should meet perfectly otherwise the squares would be mismatched and look untidy.</i></p>	0		
			1		
			2	2	
	(iv)	<p>No answer or an answer that does relate to a suitable method of testing flammability - 0 mark</p> <p><i>Award up to five marks for a clear understanding of an appropriate method of testing the flammability rates of different materials based on: cutting identical size pieces of a range of materials to be tested; setting up suitable apparatus to attach the materials to; attach each material in turn and lighting it with a taper; observe what happens; note the time taken to ignite each piece; compare results; same conditions must apply for each piece of material.</i></p> <ul style="list-style-type: none"> • A simple response – 1 mark: simple diagram, limited annotation • Award 2 marks for a slightly more detailed response: one or two diagrams, some annotation. • Award 3 marks for a reasonable understanding of an appropriate method, a few annotated diagrams. • Award 4 marks for fully annotated and detailed sketches which show a clear understanding of an appropriate method of testing; most of the above description included. • Award 5 marks for a very clear description of a suitable method of testing which covers all above points. <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	5	13
		Total for Question 7		20	105

Question				On Paper	Question Totals	Overall TOTAL
8	(a)	(i)	No answer or the answer is incorrect – 0 mark Only acceptable answers in this order: WORD PROCESSOR POWER POINT SPREADSHEET	0 1 1 1	3	
		(ii)	No answer or an incorrect answer – 0 mark <i>Award up to two marks for answers based on knowledge of desk top publishing: inserting tables/charts from spread sheets and pictures from a range of sources, bringing them together and inserting them into text or columns easily; being able to adjust the layout of the report -changing font styles and sizes to suit a style; ability to move images around the text with ease; it provides a more professional looking document</i> No marks to be awarded for unqualified assertions, e.g. quicker, easier, faster etc. <i>Award one mark for a basic answer for example: you can fit pictures and charts in between text and move them around to improve the layout with ease.</i> <i>Award two marks for a more developed response for example: you can fit pictures and charts in between or alongside text and move them around, resize them to improve the overall layout of the report.</i>	0 1 2	3 2	5
	(b)	(i)	No answer or an incorrect answer – 0 mark <i>Award one mark for an answer based on: this is a QC point/decision point where decision regarding quality would be stated.</i>	0 1		
		(ii)	No answer or an incorrect answer – 0 mark. <i>Award one mark for an answer based on: this symbol means a process; an instruction on the process to be carried out.</i>	1	2	
		(iii)	No answer or an answer that does not include information normally included on a flowchart - 0 mark <i>Award one mark for an appropriate piece of information based on:</i> <ul style="list-style-type: none"> • input (1mark); data needed to go into the system e.g materials and components so the manufacturer knows what is needed. (1 mark). • Feedback loop (1 mark); following a QC point it is important that the system is running properly and standards are maintained (1 mark). • Ouput (1 mark); data on completion – what the intended outcome is so everyone concerned knows e.g quantities/ product. (1 mark). • Safety; precautions needed/identify hazards. • Time; for each process. 	0 1+ 1 or 1+1 or 1+ 1	2	4

Question			On Paper	Question Totals	Overall TOTAL
(c)	(i)	No answer or an incorrect answer – 0 mark <i>Award one mark for a suitable named programme based on: photoshop; speedstep; corel draw; publisher. Accept other suitable programmes.</i>	0		
			1	1	
	(ii)	No answer or an incorrect answer – 0 mark <i>Award up to 3 marks for fully developed answers based on: textile designers can create patterns using a suitable CAD package and send the designs immediately to a printer for printing onto materials (CAM); no limits on colour ways; instant sample materials; a wide range of colour ways can be created and compared; high quality results; samples can be shown to clients quickly. No marks to be awarded for unqualified assertions, e.g. Quicker, faster, easier etc. <i>Award one mark for a basic response for example: the designer can see the end result instantly as designs can be sent directly from the computer to the printer for printing on material. Award two marks for a more developed response for example: the designer can see the end result instantly as designs can be sent directly from the computer to the printer for printing on material. Changes can be made instantly with no restriction on the number of colour ways. Award three marks for a fully developed response for example: the designer can see the end result instantly as designs can be sent directly from the computer to the printer for printing on material. Changes can be made instantly with no restriction on the number of colour ways; these can be shared with clients and adapted/changed if necessary.</i></i>	0		
			1		
			2		
(iii)	No answer or an incorrect answer – 0 mark <i>Award up to two marks for a developed answer based on: 3D design is where designers can simulate 3D/realistic images on screen and get a better understanding of how their ideas will work in reality even before they are made. Award one mark for a basic response for example: a realistic 3D image can be created on the computer. Award two marks for a more developed response for example: a realistic image in 3D format can be created on the computer using suitable software which allows for a realistic view of a product before it is made.</i>	0			
		1			
			3	6	
		Total for Question 8		15	120

GCSE DESIGN & TECHNOLOGY - PRODUCT DESIGN

SUMMER 2015 MARK SCHEME

SECTION A

Question			On paper	Question Totals	Overall TOTAL
1 (a)	<i>No answer or the answer does not give a reason that is appropriate.</i> One-off Production	0 1	1		
(b) (i)	No answer or the answer does not identify a specific material Appropriate specification point made about the materials of the product but lacking in detail appropriate for a Design Specification. e.g. It must be heatproof Appropriate specification point made about the material of the product with detail appropriate for a Design Specification. e.g. the toaster must be made from a heatproof material so that it does not deform when in use. Options: <ul style="list-style-type: none"> • Heat proof • Transparent • Candidates may mention a specific material but this is not essential to achieve the marks, discussion of the required properties with explanation is sufficient. 	0 1 2	2		
(ii)	No answer or the answer does not identify a specific aesthetic feature . Appropriate specification point made about the aesthetics of the product but lacking in detail appropriate for a Design Specification. e.g. it must look modern Appropriate specification point made about the aesthetics of the product with detail appropriate for a Design Specification. e.g. the toaster must look sleek and minimal in order to appeal to the target market of young professionals. Options: <ul style="list-style-type: none"> • Attractive shape • Simplistic, minimal design • Attractive use of materials 	0 1 2	2		

Question			On paper	Question Totals	Overall TOTAL
(iii)	<p>No answer or the answer does not identify a specific safety appropriate specification point made about the safety of the product but lacking in detail appropriate for a Design Specification. e.g. the outer casing must not get too hot.</p> <p>Appropriate specification point made about the safety of the product with detail appropriate for a Design Specification. e.g. the outer panes of glass must not heat up so the user does not burn themselves when using the toaster.</p> <p>Options:</p> <ul style="list-style-type: none"> Outer glass does not heat up A way of placing the toast in and removing it from the toaster safely without touching the hot glass 	0 1 2	2		
(c) (i)	<p>No answer or the answer is not feasible. A simple answer can be awarded 1 mark e.g. the user can see the toast.</p> <p>An elaborated answer that explains – can be awarded 2 marks e.g. the transparent material allows the user to monitor the toast cooking and help avoid burning the toast.</p>	0 1 2	2		
(ii)	<p>No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. e.g. it is not easy to remove the toast from the toaster.</p> <p>An elaborated answer that explains can be awarded 2 marks. e.g. there is no mechanism to aid the loading and removal of bread from the toaster making it very awkward and potentially dangerous for the user.</p>	0 1 2	2		
(d) (i)	<p><i>No answer or the answer does not give a reason that is appropriate.</i> Manufacturing 55%</p>	0 1	1		
(ii)	<p><i>No answer or an answer that does not state £120 will be awarded 0 marks</i> Incorrect answer but part of the workings are correct. (ie 15% used in calculation) Answer that is £120 but shows only part of the working. Answer that is £120 with all the calculations shown and correct. Divide £18 by 15% to calculate 1%: $18/15 = 1.2$ Multiply 1.2 by 100 to calculate the total selling price: $1.2 \times 100 = £120$</p>	0 1 2 3	3		
Total for Question 1				15	15

Question				On paper	Question Totals	Overall TOTAL
2	(a)	(i)	Growth Maturity Decline	1 1 1	3	
		(ii)	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. The product is launched An elaborated answer that explains can be awarded 2 marks. The product is launched and sales grow slowly as people are not aware of the product. A detailed answer that explains and mentions both the winner and the loser can be awarded 3 marks The product is launched and sales grow slowly as people are not aware of the product. Informative advertising is used to promote the product. Normally no profit is made. <ul style="list-style-type: none"> • Early adopters • Lighthouse customers 	0 1 2 3		
	(b)	(i)	Life Cycle Analysis No answer or inappropriate answer. A simple answer using a few of the point's below-can be awarded 1 mark. A better answer using several of the point's below-can be awarded 2 marks. A detailed answer that explains most of the points below - can be awarded 3-4marks. 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. 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.	0 1 2 3-4	4	
			Total for Question 2		10	25

Question			On paper	Question Totals	Overall TOTAL
3 (a)	(i)	Apple Mac, iPod, iPad, iPhone, any other Apple product.	1	2	
	(ii)	Juicy Salif, ghost chair, iPod speakers.	1		
(b)		No answer or no relevant issues described or discussed.	0		
		Some description of the work of Jonathan Ive. Little understanding of its main features and influences. A little understanding of the impact on the design industry is described.	1 or 2		
		Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling. Description of the work of Jonathan Ive. Some understanding of its main features and influences. Some understanding of the impact on the design industry.	3 or 4		
		Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling Description of the work of Jonathan Ive. Understanding shown of its main features with respect to form and function. Discussion of who influenced him and his impact on the industry with some appropriate examples provided.	5 or 6		
		Quality of Written Communication is very good, presenting appropriate material in a coherent and logical manner, very few errors of grammar, punctuation and spelling. Description of the work of Jonathan Ive. Clear understanding shown of its main features with respect to form and function. Discussion of who influenced him and his impact on the industry with fully appropriate examples provided.	7 or 8		
		Quality of Written Communication is excellent, presenting wholly appropriate material in a coherent and logical manner, hardly any errors of grammar, punctuation and spelling			
Total for Question 3				10	35

Jonathan Ive:

- Inspired by the work of Braun designer Dieter Rams
- Follows Rams: 10 principles of good design as his design philosophy.
- Principal designer iMac and iPod.
- Modern day legend not known by public.
- Liked to use translucent colours.
- Trend of using two or three main colours
- First designer to use the internal workings of a product as a feature/ selling point.
- Minimalistic / simplistic forms.
- Tropical colours /names – locations.
- Metallic forms and shades / chrome.
- Elegant form, geometric shapes.
- Slim line approach.
- Control wheel/ touch screen for ease of use.
- Interconnectivity of products.
- Simplicity is the key not only in his designs but also in the function of his products.

Question			On paper	Question Totals	Overall TOTAL
4 (a)	(i) Brief and Specification	1	3		
	(ii) Planning the making	1			
	(iii) Manufacturing	1			
(b)	(i) No answer or the answer does not give an explanation that is appropriate. A simple answer can be awarded 1 mark. e.g. a prototype block model would be made. An elaborated answer that explains can be awarded 2 marks. e.g. a prototype block model would be made to allow the designer to handle and test the product to identify any flaws, then make modifications. <ul style="list-style-type: none"> • 3D Block modelling • 3D CAD modelling • Testing • Evaluative comment • Further development through design/drawing techniques 	0 1 2	2		
	(ii) No answer or the answer does not give an explanation that is appropriate. A simple answer can be awarded 1 mark. e.g. it provides a checklist. An elaborated answer that explains can be awarded 2 marks. e.g. the designer can refer to their design specification to identify if they have achieved all of the success criteria that was stipulated at the start of the design process resulting from the research.	0 1 2	2		
(c)	(i) No answer or the answer does not include reference to the teenage market A simple answer can be awarded 1-2 marks. Consideration of colours or style that would make it appear to be modern. An elaborated answer that explains can be awarded 3-4 marks. Candidate has a combination of the right colours, style, lettering (if any) to make the product appear to be modern, innovative and minimal. Design is in keeping with the design of the tablet.	0 1-2 3-4	4		
	(ii) No answer or the answer does not refer to how it can be freestanding and portable. Showing how the stand is freestanding Showing how the stand is portable – consideration of size and weight	0 1 1	2		

Question			On paper	Question Totals	Overall TOTAL
	(ii)i	No answer or the answer does not refer to how the tablet will be attached or how the angle will be adjusted.	0	4	
		For showing how the tablet will be attached, up to 2 marks.	1		
		<ul style="list-style-type: none"> Formed tray that it sits in Some form of clip/locking mechanism 	1		
		For showing how the angle can be adjusted, up to 2 marks.	1		
		<ul style="list-style-type: none"> Mechanical system Ball joint Malleable/adjustable material 	1		
	(iv)	Material		2	
		No answer or the answer is not an appropriate material (plastic, wood, card).	0		
		A correct answer can be awarded 1 mark.	1		
		Suitable material identified – Aluminium, Stainless steel, ABS, Acrylic.	0		
		Process	1		
		No answer or the answer is not an appropriate process			
		A correct answer can be awarded 1 mark.			
		Suitable Manufacturing process identified to match the material – Casting, Injection moulding, fabrication, line bending etc.			
	(v)	No answer or the answer is not an appropriate size	0	2	
		A simple answer can be awarded 1 mark for each appropriate size.	1		
		Sizes must be appropriate to design.	1		
	(vi)	No answer or the answer cannot be understood, no annotation	0	4	
		<ul style="list-style-type: none"> Poor quality drawing skills, hard to understand, annotation unclear. Drawing skills are barely adequate, understandable, line work uneven, corners poor, not accurate, annotation describes drawing. Drawing skills are adequate, understandable, line work even, corners satisfactory, fairly accurate, annotation describes drawing with some comments. Good quality drawing skills, accurate, high quality annotation with good commentary. 	1		
			2		
			3		
			4		
		Total for Question 4		25	60

SECTION B

Question				On paper	Question Totals	Overall TOTAL
5	(a)	(i)	One-off production. Batch production. Mass production. One mark for each correctly labelled description.	1 1 1	3	
	(b)		<i>No answer or the answer does not give an explanation that is appropriate..</i> A simple answer can be awarded 1 mark. Less mistakes are made. An elaborated answer that explains can be awarded 2 marks. Machines can operate quicker than humans increasing efficiency. Automated production provides many advantages: <ul style="list-style-type: none"> • Machines can operate quicker than humans increasing efficiency. • Less mistakes are made meaning greater consistency. • Once set up the line is cheaper to run than paying workers. • Products can be produced in large quantities resulting in economies of scale. 	0 1 2 1 2	4	
	(c)		<i>No answer or the answer does not give an explanation that is appropriate.</i> A simple answer can be awarded 1 mark. To make sure the machinery is working correctly. An elaborated answer that explains can be awarded 2 marks. To make sure the machinery is working correctly so that the product is made to tolerance. A detailed answer can be awarded 3 marks. Quality Assurance checks all the systems on the production line meet the required standards in order to ensure the final product is manufactured to the highest quality. <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. 	0 1 2 3	3	
			Total for Question 5		10	10

Question			On paper	Question Totals	Overall TOTAL
6	(a)	Stainless Steel: Strong, non-corrosive, non-toxic,	1+1	6	
		ABS: Very Strong, Shatter proof, resistant to wear, range of colours, easily formed into complex shapes.	1+1		
		Carbon-fibre reinforced polymer: High Strength, Light weight, can be formed easily into complex shapes.	1+1		
	(b)	No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. An elaborated answer that explains can be awarded 2 marks. A detailed answer that explains can be awarded 3 marks. A composite material is where two or more constituent materials with different properties or strengths are combined together to make one material with the combined strengths. This often makes composite materials stronger, lighter and less expensive. Some examples are: Fibreglass, GRP, Carbon reinforced polymer, ply, concrete.	0 1 2 3	3	
	(c)	ii No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. It gets darker with light. An elaborated answer that explains can be awarded 2 marks. Photochromic material changes colour and darkens with light. This will allow the cyclist to wear the glasses throughout their ride and not have to take them off as the lenses will react automatically to the light conditions.	0 1 2	2	
	(d)	<i>No answer or the answer does not give an explanation that is appropriate.</i> A simple answer can be awarded 1 mark. Saves time during manufacture. An elaborated answer that explains can be awarded 2 marks. Manufacturing time and costs are reduced as the component does not need to be made. The use of Standard components provides many advantages for manufacturers: <ul style="list-style-type: none"> • Safe time manufacturing. • Cheaper as bought in bulk (mass produced). • Cheaper than producing the part themselves. • Continuous supply available (nuts, bolts, fixings). • High quality parts as manufactured by specialists. 	0 1 2 1 2	4	
Total for Question 6				15	25

Question			On paper	Question Totals	Overall TOTAL
7	(a)	<p>No answer or the answer does not give a reason that is appropriate.</p> <p>A- Cordless Drill/Screwdriver/Pistol drill</p> <ul style="list-style-type: none"> Use: To drill holes in materials (wood ,metal, plastic). To fasten screws into material. <p>B- Pliers</p> <ul style="list-style-type: none"> Use: To grip/ hold small components. To cut curved shapes out of wood or plastic. <p>C- Vernier Caliper (Given)</p> <ul style="list-style-type: none"> Use: To accurately measure materials and Components thickness/diameter and depths. 	0 1 1 1 1 1 1 1 1	8	
	(b)	<p><i>No answer or the answer does not give an appropriate safety consideration.</i></p> <p><i>1 mark for each correct stage stated in the correct order up to 4 marks.</i></p> <p>2 – Place the mould on the platen and lower. 3 – Place plastic over the top and secure using clamps. 5 – Use the lever to raise the mould up into the plastic. 6 - Switch the vacuum on to suck the plastic around the mould.</p>	0 1 1 1 1	4	
	(c)	<p>No answer or the answer does not give a reason that is appropriate.</p> <p>A simple answer can be awarded 1 mark.</p> <p>Make sure the plastic is not over heated.</p> <p>An elaborated answer that explains can be awarded 2 marks.</p> <p>Make sure the plastic is not over heated as it could melt and damage the vacuum former.</p> <ul style="list-style-type: none"> Don't touch the heater. Don't place flammable materials near the Vac former. Use heat proof materials for the moulds. Ensure the plastic is secured appropriately. Wear appropriate PPE. 	0 1 2	2	
	{d}	<p>No answer or the answer does not give instructions that are appropriate.</p> <p><i>1 mark awarded for each stage of the process that is explained, up to a maximum of 5 marks.</i></p> <ul style="list-style-type: none"> Accurately mark out the design for the cardboard net using a pencil/pen and a steel rule (or using CAD – marked on laser cutter); Cut out the outline shape of the net using a steel rule and a scalpel or Scissors or laser cutter ; Score lines where the net needs to be folded . Cut slots for tabs; Fold net into 3D shape; Secure in place using tabs, glue etc. <p>For 6 marks, notes and sketches must be included.</p>	0 1 1 1 1 1 1	6	
		Total for Question 7		20	45

Question				On paper	Question Totals	Overall TOTAL
8	(a)	(i)	No answer or the answer is not appropriate. Information COMMUNICATION TECHNOLOGY	0 1+1	2	
		(ii)	No answer or an incorrect answer - 0 marks Award 1 mark for each simple statement: Draw a pie chart to present the results of a questionnaire. Award 2 marks for a more developed response: The results of a questionnaire can be entered on a spread sheet; this information can be converted in to suitable charts for further analysis. <ul style="list-style-type: none"> • Research material such as the results of a questionnaire can be uploaded onto a spreadsheet and converted into graphs and charts for analysis; • Designs can be evaluated using a spreadsheet; • Used in product analysis to present information. 	0 1 2	2	
		(iii)	No answer or an incorrect answer – 0 mark. 0 Award 1 mark for each correct answer: <ul style="list-style-type: none"> • 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.	0 1+1	2	
(b)	(i)	No answer or the answer does not give an appropriate input. Input: <i>On switch, electricity.</i>	0 1	1		
	(ii)	No answer or the answer does not give an appropriate input. Output: Hot water/Steam/Heat	0 1	1		
	(iii)	<i>No answer or the answer does not give a reason that is appropriate.</i> <i>A simple answer can be awarded 1 mark.</i> Thermostat used to sense when the water has boiled. <i>An elaborated answer that explains can be awarded 2 marks.</i> A thermostat is used to sense when the water has reached boiling point, it then feeds back the information and switches off the kettle.	0 1 2	2		

Question			On paper	Question Totals	Overall TOTAL
(c)	<p>No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark. It produces models or parts quickly.</p> <p>An elaborated answer that explains can be awarded 2 marks. Models or parts of models can be accurately produced in a short amount of time. Following testing, modification can be made to the design and it can be made quickly again.</p> <ul style="list-style-type: none"> • Quick to produce model/ part. • Following testing designs can be modified and remade quickly. • Accurate within very small tolerances. • Excellent finish 	0 1 2	2		
(d)	<p><i>No answer or the answer does not give a reason that is appropriate. A simple answer can be awarded 1 mark.</i></p> <p><i>An elaborated answer that explains can be awarded 2 marks.</i></p> <p><i>A detailed answer that explains can be awarded 3 marks.</i></p> <ul style="list-style-type: none"> • Consistency achieved across large quantities of products. • High levels of accuracy. • Low tolerances. • High quality of finish. • Cheap labour costs. • Quicker manufacture. 	0 1 2 3	3		
		Total for Question 8		15	60



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