WJEC 2014 Online Exam Review

GCE Design and Technology DT3 1113-01

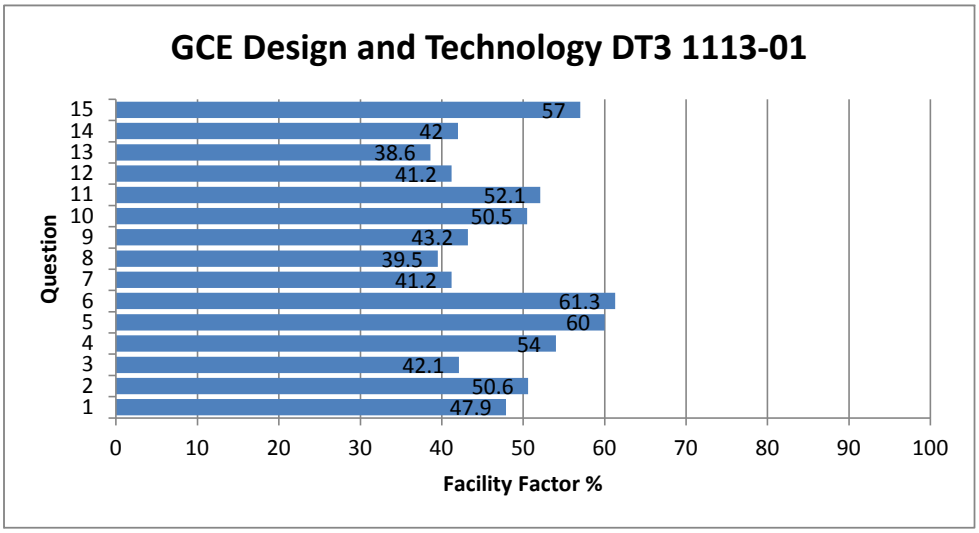
All Candidates' performance across questions

Question Title	N	Mean	S D	Max Mark	F F	Attempt %
1	884	3.8	1.7	8	47.9	72
2	99	4.1	2.1	8	50.6	8.1
3	819	3.4	1.6	8	42.1	66.7
4	975	4.3	1.7	8	54	79.4
5	878	4.8	1.7	8	60	71.5
6	1110	4.9	1.8	8	61.3	90.4
7	812	3.3	1.6	8	41.2	66.1
8	556	3.2	1.7	8	39.5	45.3
9	520	3.5	1.9	8	43.2	42.4
10	618	4	1.7	8	50.5	50.3
11	595	13.6	4.2	26	52.1	48.5
12	613	10.7	4.3	26	41.2	49.9
13	175	10	5.5	26	38.6	14.3
14	455	10.9	3.9	26	42	37
15	574	14.8	4.2	26	57	46.7

3

8

13



SECTION A

Answer **three** *questions from this section.*

This section is designed to demonstrate your **breadth** *of knowledge in Product Design.*

Each question carries 8 marks.

3. Explain why innovation is important to the process of designing products. [8]

Question number
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Section A

3. Innovation is highly important to the process of designing products because you will need to find ways to make you product unique and stand out to the world if not then it will just simply be a boering plain product which nobody will want to have. Another reason why innovation is important to the process of designing products is because before you make a product you will always need a plan this is where innovation of the product kicks in to place in order for it to be attractive and appealing to your furget market it will have to be innovative such as it can be used for indoor and outdoor use and also have a unique specification point making it innovative, our innovative design will able to keep the users happy and persuaded to by it not only that but it can be money saving.

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innovation in a product draws customers in. An example would be the Dyson ball. With it innovative Cyclone technology it is market pull, as the market are excited by the new technology which would be technology push.

Another way why innovation is good is. it helps manufacturing considerably. For example if you can change the products appearence and cut down on processes like less material being used or less components the manufacturer is not only saving time but resources as well.

Furthermore customer feedback can lead to innovation. For example an iphone, the company gathers feedback from

Question number		Leave Blank
	Customers in regards to the product and then you increment the Customer's needs into your idea it will increase sales such as a camera that has more megapixels for the iphone.	

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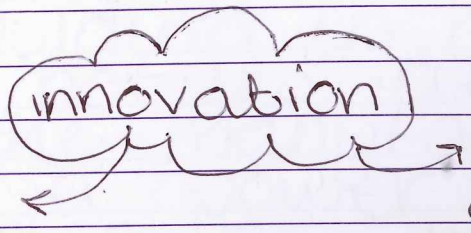

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Question number		Leave Blank
3.	Innovation refers to being creative whilst designing and manufacturing products.	
	It is evident that innovation is highly important to the process of designing products as designers must be creative in order to make their products stand out in comparison to competitor products.	

Question number

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For example, they must attempt to be as creative as possible by creating a unique selling point of the product, as an attempt to guarantee sales. It could be argued that they could do this through aspects such as including the modern technique of laser cutting in an eveningwear garment, in order to catch attention.

Similarly innovation is also important whilst designing a product as being creative may include experimenting with new materials. This could consequently be beneficial as the original idea of the designer may flourish into something better than before and showcase the use of new materials. For example, smart materials such as thermochromic materials, which could be experimented with and be used to make for example wearable clothing.

On the other hand, innovation is—as can also be seen as important to the process of designing products as it simply shows that the designer is confident in what they are doing. It also could be due to aspects such as market pull and therefore consumer demand for better more efficient and improved products. Due to this, designers are aware that innovation is essential within the process of

Question number		Leave Blank
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Question number		Leave Blank
	designing products due to audience expectation and the pressure of a successful product life-cycle.	1 (3)

SECTION B

Answer **three** *questions from this section.*

This section is designed to demonstrate your **breadth** *of knowledge in Product Design.*

Each question carries 8 marks.

8. Outline how the main elements of Registered Design, as prescribed by the Intellectual Property Office, benefit the creator of the design. [8]

Question number

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8 Registered Design is one step further than Design rights. design rights automatically product your design but you can register this design so that it becomes registered - hence Registered Design.

One of the main elements is that it lasts for 25 years. Design rights only last for 15 years maximum whereas Registered Design can last for 25 years. This benefits the designer as it prevents anyone from ~~Another main element is that the design can be sold, leased or hired by another designer~~ copying his design and manufacturing it.

Another main element is that the design cannot be copied or created by any other designer, this benefits the creator of the design because it allows only the creator to create and sell his/her product

Question number		Leave Blank
	to gain profit. It can however be licensed, sold or hired to anyone else.	
	Another main element would be that registered design is able to include 2D and 3D images/objects. For example if a vase was made with a unique form and pattern then the registered design would cover this preventing anyone else from using this pattern. Design rights doesn't cover this so that may be a reason to register your design.	
	The last main element for registered design that will benefit the creator of the design is that the design doesn't have to be an invention, for an invention, the design must be patented but for a registered design, the new product doesn't have to be an invention, it can just be a different design of an existing product such as a vase with a different form/shape to it.	

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Question number		Leave Blank
8	A Registered Design gives you the exclusive rights to the look and outward appearance of a product. It protects a designers product from being copied and allows them to sell licence and let out their design to other people. This brings many benifits to the designer. Most importantly it protects their design. This means that they then have the only right to sell and profit from their work. It also allows them to publically expose their product	

Question number		Leave Blank
	and to market their design without needing to worry about their work being copied and profited by someone else. This also protects the work from cheap copying flooding consumers. The creator of the design can then develop their product further.	

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Question number

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8	Intellectual property is the integrable property that is the result of creativity. Registered design rights protect the way a product looks. The protection does not cover certain materials or textures but does cover the compelation of these feature so it cannot be used by others. It does not over simple text either. It can be applied to a 2 dimensional shape/pattern or a 3 dimensional orenament (the shape of a component). Registereed design rights benefit the creator of the design as the prevent others from using the do way a design looks without permission, with permission the designer can get reap royalties from the use of the design. As the Design right is legal property it allows you to take people who have infringed upon your ownership right to court and sue them. By doing

Question number		Leave Blank
	able to register design rights for components of products (because of the way the look) it prevents competitors using the same mechanism and so keeping you ahead of the market. Protecting the combination of features also means a design can be unique to the designer and the designer can be recognised publically for their designs - such as Jonathon Ives.	

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6

SECTION C

Answer **two** *questions from this section.*

Your answers should be substantial and show the **depth** *of your knowledge in Product Design.*

Each question carries 26 marks.

13. Product designers will often have a 'toolbox' containing various strategies for creative thinking, such as brainstorming.

Compare, in detail, **two** other creative thinking strategies with which you are familiar. [26]

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Question number

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13

It can be difficult for designers to produce creative ideas, however often this phase is highly important and influential during the designing phase of a product. Creative ideas allow the designer to over come problems and exploit new opportunities through their product. In this essay I will focus on two methods, the 6-3-5 method and the SCAMPER method.

The 6-3-5 method is a group activity in which the aim is to produce 106 new ideas in 30 minutes. The emphasise in the 6-3-5 method is focused on quantity rather than quality. The main aim is to work in a group of 6 and to build upon

Question number

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others ideas, boosting creativity.

The SCAMPER method however is more an individual creation strategy which encourages the designer to change their perspective on their problems and opportunity. (These words are combind to create problortunity)

SCAMPER is an acrym ~~with~~ which ~~stands~~ stands for: Substitute, Combine, Adapt, Modify, Purpose, Eliminate and reverse.

Substitution is the process of substituting part of your product to create a new problortunity.

Combine means to combine parts of your problortunity to create new ones that can then be addressed

Adapting your product in certain ways may greatly improve it.

Simarly modifying your product may also help to over come problems

Changing the purpose of your product to suit a new problortunity. ~~and finally~~

Eliminating parts of your product or problem, and finally reversing the problortunity to view it from a different perspective.

Both these strategies have similarities and differences advantages and disadvantages.

The 6-3-5 method can be extremely useful because it allows designers to draw upon ideas of other individuals in the group. This greatly increases the volume and variety of ideas being generated.

The SCAMPER method however is an individual analysis of a problem and so does not ~~allow~~ build upon or have the support from a group.

The SCAMPER method is however very systematical and structured. It alows the designer to address the problems of ~~their~~ this design in a variety of perspectives and angles, where as the 6-3-5 method does not achieve this specifically

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The 6-3-5 method may not be as productive as the ~~SA~~ SCAMPER method because it focuses on quantity of ideas and not quality. In this sence it may produce numerous ideas however they may not be realistic or high quality. Some designers may prefer to use the SCAMPER method and produce fewer ideas independantly but insure that these ideas are addressing the specific problem and are of higher quality.

Many designer often become stuck or fixed on a single idea and so working in a group during the creativity stages can produce much better results.

The 6-3-5 method can save large amounts of time, which will eventually reduce the ~~tag~~ lead time of a product meaning that it can be brought to market much faster. This is because a large quantity of ideas can be generated in a relatively short period of time allowing only the best ones to progress onto the development stages using ICT and computer programs.

The SCAMPER method can help to generate 'out of the box' ideas through its various aproaches to a problem. The multiple aproaches mean that problems can be turned around and new opportunities can be exploited. This structured guide is not available in the 6-3-5 method however and so this could be seen as a disadvantage.

In conclusion to ~~better~~ both these methods, I believe that between both of them a ~~De~~ designer has an effective arsonal to over come the problems that they are likely to meet during their designing cycle. It may be down to the designers preference as to which they find more helpful; the SCAMPER method can be used to redesign a product and open up new opportunities, and the 6-3-5 method used as a tool to generate multiple creative ideas, ~~Both~~ both of which will generally improve the product.

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14

Question number

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13	Creative thinking Strategies vary greatly depending on the method that a designer believes suits a scenario/ task best. Two other creative ~~th~~ thinking strategies aside 'brainstorming' are morphological analysis and ~~[illegible]~~ lateral thinking Morphological analysis is the mathematical approach taken by designers when creating new possibilities for a design solution. This is done by listing every possible characteristic and the variations within that (see table in next booklet). Lateral

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13

Thinking on the other hand is the creative process coined by de Bono who believed that a designer must 'think outside the box'. These two different approaches will often be relevant as the general habit of the designer and the requests of the task. Morphological analysis is a more rational and devised way of solving problems whilst Lateral thinking relies on creativity. Both are creative ways of thinking but the difference lies within the method. The main important part of these two strategies is the physical process of solving the problem that the designer has been presented with.

Analysis table for a light bulb

Bulb	Colour	Power source	Material
halogen	blue	battery	wood
energy saver	black	wall plug	plastic
	white	solar	metal
	green		glass

The main difference between the two creative thinking strategies is the results of them. Lateral thinking is more likely to spawn something creative and artistic but this may not be relevant to the task. Morphological analysis is a far more practical approach as through the listing of the different options the designer can visually see the possible variations whilst lateral thinking relies on the imagination. Morphological analysis is not likely to produce a unique but fully functional product as the designer can see the different combination options whilst also seeing what could not

Question number

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work at the same time. Lateral thinking may not be considered as practical as it does not involve choosing the possible variations or evaluating different combinations. It does however rely on creating something new and extraordinary as the intention is to create something outside of the creative norm.

Morphological analysis and lateral thinking are two very different creative thinking strategies when it comes to problem solving. The comparisons can be seen in the method, creative versus mathematical, and also seen in the results. Both thinking strategies are effective but they can suit different purposes and scenarios better than the other. Lateral thinking belongs to the creative and artistic world whilst morphological analysis is more focused on problem solving and creating a variety of options for one product.

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Question number *Rhif y Cwestiwn*

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SECTION C

13. Product designers tend to have a toolbox containing various strategies for creative thinking such as a product Analysis. The product Analysis allows you to overcome many answers for a designer such as they are able generate a wide range of age group which is suitable to target using internet research. Also They will able to identify any ~~&~~ hazards which can occur and how to solve them this may be a cause of wearing goggles when neccessary or placing a used wet floor sign to notice others. Also Designers are able to identify many different types of material which is needed for their product such as red acrylic in order for it to be appealing. Another reason why a strategy such as Product Analysis will be good for designers is that they are able to adjust and find ways to develop the product and make it have more uses and improvements made. Not only that but you are able to ~~ideal~~ identify which types of finishes maybe neccessary for a design according to the designers budget and income.

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Product designers tend to have a toolbox containing various strategies for creative thinking such as the Specification of Essential and Desirable. The Specification of essential and Desirable allows many Designers to overcome their answers such as where as Desirable they are able to come to to dessions such as more Product can come in a range of colours, their product can be multifunctional, their product can be portable and have elephant shapes to attract the user also their product can have lights in order to make it more useful. As for essential designers are able to jump to conclusions where as the product must be this certain size or the product must store a range of books from 3-5 or their product must have a waterproof finish in order to withstand the rain. Essential and desirable specificatio helps designers create the correct dession based on their answers for their design, not only that but it also helps develop and improve the overall look of their design.

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13. Comparison between Product Analysis and Essential and desirable Specification. In my overall opinion I think that a Product Analysis is better than the specification for designers as its more useful however ~~they~~ they are two differential tool boxes. The product Analysis can show designers where to improve and so does the specification. However the Analysis can outline full safety aspects where as the specification we can only state it must be safe. However one advantage of the specification is that you can easily a list of ways of how to improve your design from the essential side and take it into account. Also with the Analysis you can easily allocate a wide range of materials which designers can perform on their design and find which is best suited. ~~In my overall opinion I~~ Product Analysis

In conclusion I think our ~~Specification~~ is best suited for designers rather than a specification points this is because simply with the product analysis you are able to come to better conclusions as your have a bigger field of results also you are able to have customer results and target audience results making it alot easier for your findings.

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