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Examiners' Report
June 2014

GCSE Design and Technology 5TT02 01

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Introduction

As in previous years this paper questioned candidates using a variety of methods, which included a multiple choice section at the beginning, in the middle, the more traditional design section with also a product analysis question and at the end an extended question. The two later questions mentioned would similarly test candidates 'quality of written communication' as well as their knowledge and understanding. The multiple choice section of questions (1-10) worked well as an introduction to the paper as it tested a wide range of the specification at a medium to low level. The next section of the paper allowed candidates to demonstrate their knowledge and understanding of a number of familiar/ common workroom equipment, tools and components. This section gave way to a high number of successfully answered responses and showed that good practices are being carried out in many centres to acquaint candidates with a range of correct manufacturing technical language and uses thereof. The paper contained a range of short and longer answer type questions designed to allow candidates to demonstrate their abilities, for example, through naming, discussion, justifications or explanations.

Question 11 (b) (i)

This question required candidates to be able to show an understanding of the properties of cotton. Most candidates could give one correct response; a good number could a give second, the ability to give the third and final property alluded all but a few. This was a good differentiator.

(i) Name **three** benefits of cotton fibre.

(3)

1 has good absorbtion

2 Soft on the skin

3 Can be washed at a high temperature.

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Examiner Comments

The reason this candidate achieved full marks was their attention to detail and a good example of this was in the third point where they do not just say that cotton is 'easy to wash' but give evidence of their specific knowldge of cotton's ability to be washed 'at high temperatures' which defines it from other fibres.

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Examiner Tip

Concise responses are all that is required from this sort of questioning. The candidate does not use one word answers but gives phrases that are correct and clear.

Question 11 (b) (ii)

Candidates were asked to describe the contributions that polyester fibre would bring to a given product. Where good answers reflected the clear link to the benefits the added fibre would bring to a school shirt, many lower ability answers generalised or failed to link the reason to the original point.

(ii) Describe **one** reason why the cotton fibres of school shirts are commonly blended with polyester.

(2)

Cotton fibres of school shirts are blended with polyester because it makes the shirt crease resistant which will give a smart appearance

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Examiner Comments

One of the most popular responses to this question was 'crease resistant'. 'Cheaper' was also very popular. Generally we discourage such a simplistic response as 'cheaper' but as polyester was used as a comparative to cotton this was a reasonable response.

Question 11 (c)

This question was attempted by most although some technical terms were not used and descriptions offered instead. For example instead of the term 'plain seam' candidates offered straight stitch and this form of response could not be awarded any marks.

(c) Name a suitable technique for constructing the seams of the school shirt.

(1)

French seam

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Examiner Comments

The candidates should not divorce technical knowledge from practical experience. As most would have made a seam at some time, candidates would know 'how' to manufacture and along with practise, they should be encouraged to use the correct terminology to name processes. Learning a range of suitable stitch types for different purposes would aid candidates in the answering of this type of question.

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Examiner Tip

It is extremely useful for candidates to note that 'description, uses, terms and names' of processes are required knowledge as part of this specification and should regularly be practised.

Question 11 (d)

The need for candidates' to demonstrate knowledge when reading aftercare symbols was evident from the multitude of responses that could name the correct symbol but did not give the temperature or setting that was required. This would be the difference between a well maintained and a ruined product so candidates should be encouraged to give details and specifics.

The ability to demonstrate knowlegde of aftercare to include that of symbols, garment labelling and care of textile products is necessary for all candidates.

(d) The following symbols have been used on the school shirt's care label.

State the meaning of the symbols:

(3)

Machine wash at 40°c on a medium cycle

Iron at a low temperature

Tumble dry on a low cycle

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Examiner Comments

Here the candidate is able to apply clear understanding of the symbols shapes and the detail included inside these to indicate suitable temperature settings. The candidates did not just say 'dry' at a low heat, which is how some candidates lost marks.

Question 11 (e)

This was by far the most misconstrued question, with candidates giving the focus on purchasing and not the manufacturing of the school shirts. Where ordering was mentioned, very few used any key terms with reference to the manufacturing system, such as 'quick response' or 'JIT'. A popular correct response was the use of 'seasonal' requirements that could be met by this manufacturing system. This does highlight the need for candidates to embed the technical language and not just the general differences between production systems and avoid use of terms such as 'faster, quicker, cheaper and more efficient' as a complete answer without plenty of justification.

(e) The school shirts have been batch produced for a number of schools.

Describe **one** benefit to schools of shirts being produced using the batch production process.

(2)

It's easier to produce as all the products are all identical, the fabric can be bought (mass) large amounts which is cheaper

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Examiner Comments

The candidate ensures they gain the full two marks by giving the reason that the process is easier and linking it to bulk buying. This directly links to batch production and the benefits to schools of this form of manufacturing.

Question 11 (f)

Candidates seemed to draw on knowledge from Textiles as well as other areas they have studied and responded well to the reduced environmental impact of organic cotton. The most commonly used terms related to 'chemicals, pesticides, fertilisers and water, air and other forms of pollution. 'Fair trade' and the consumers 'feel good factor; when participating in this spending habit were also linked to the ethical side. Where candidates were seen to be less successful was when they omitted the organic link and instead discussion was based around ordinary cotton fibre production. Others simply used words such as reduced' environmental impact' which was given to them in the question and so could not be credited.

(f) The designers have decided to make the school shirt out of organic cotton.

Explain **one** benefit to the environment and **one** ethical benefit to the consumer or manufacturer when considering the use of organic cotton.

(4)

Environmental benefit

There are no chemical processes needed if the shirt is made of organic cotton, this therefore reduces the chance of left over chemicals being put into rivers or the sea contaminating water and killing animals and habitats

Ethical benefit

the consumer knows that there have been no chemicals used on the product meaning their product is sustainable and the consumer doesn't need to feel guilty about the product.

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Examiner Comments

Good understanding was shown, by this candidate, about the environmental impact of chemicals on surrounding plants, however the lack of a reasoned explanation to the 'feel good factor' achieved by the customer, does not allow for the full two marks to be awarded on their ethical response.

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Examiner Tip

Candidates should be encouraged to give as much relevant information as they know and be as explicit as they possibly can.

(f) The designers have decided to make the school shirt out of organic cotton.

Explain **one** benefit to the environment and **one** ethical benefit to the consumer or manufacturer when considering the use of organic cotton.

(4)

Environmental benefit

No pesticides or chemicals were used on it so they don't get spread onto other plants than the cotton and unnessarily kill other animals or insects

Ethical benefit

People working on cotton farms don't have the health hazards they did when using chemicals and so the manufacturer gets a better reputation as workers have a healthy working enviroment. and people are more likely to buy from them

(Total for Question 11 = 19 marks)

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Examiner Comments

This candidate achieved the full four marks available and responded well to the question using connectives which join and relate to the initial point made, supplying an explanation to the raised point.

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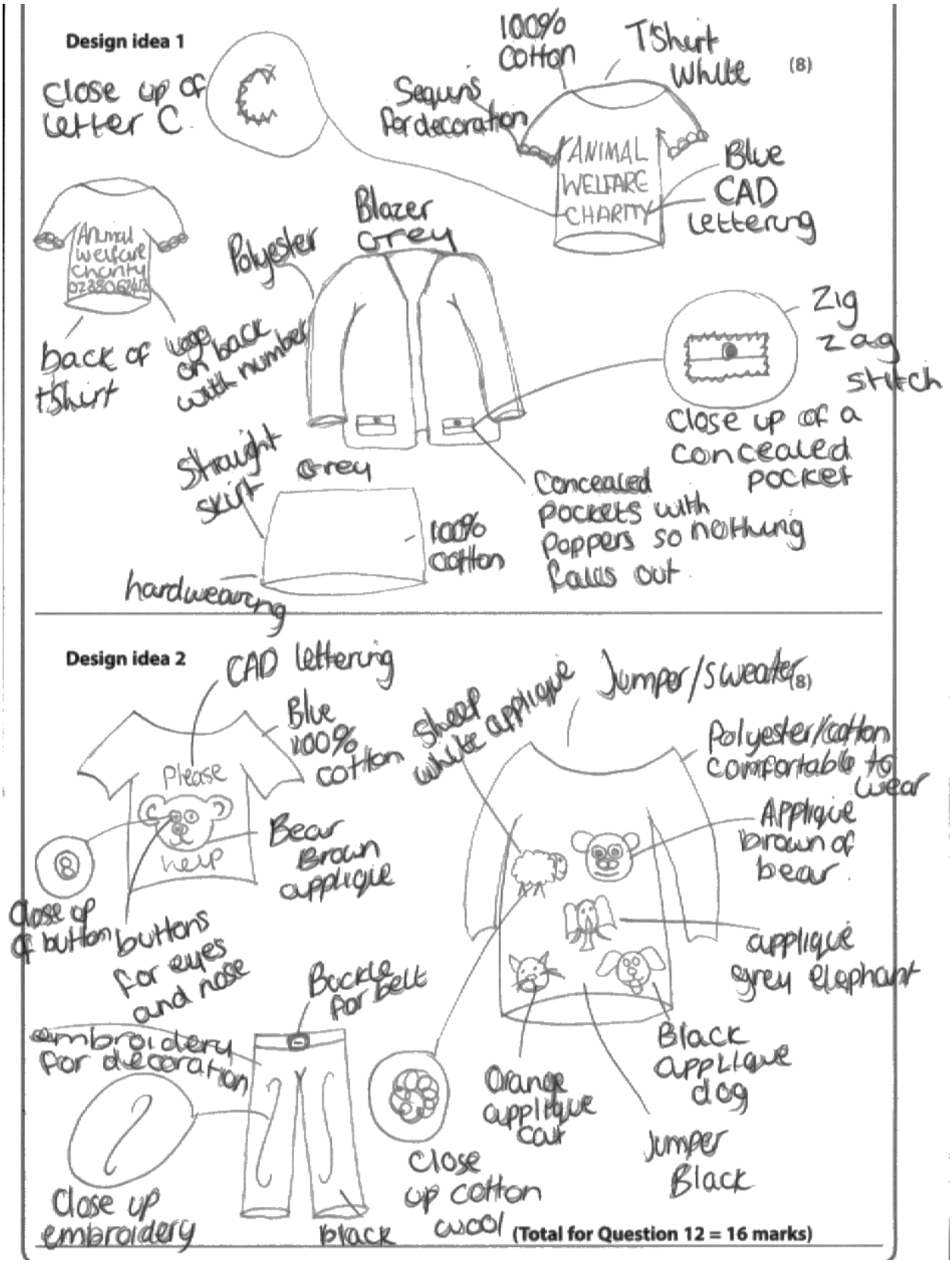
Examiner Tip

Comparatively, this response could have been even better with wider use of technical language such as 'effluents' and 'fertilisers and pesticides'.

Question 12

Candidates have improved their performance on this question as many centres appear to have acted on advice given in previous years and enhanced the quality of the annotation linked to each criteria point being assessed.

Marks were most commonly lost when candidates drew more than one product for the first specification point that the 'outfit' must consist of 'one item'. Clear reasons were required for any comments linked to the last specification point to be credited as a number of candidates did not give specific detail e.g. hand sewn sequins' is not sufficient to demonstrate the candidates understanding that they know why this is linked to the one off process and confirmation that it is a skilled, slow/ time consuming process is needed.



(Total for Question 12 = 16 marks)

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Examiner Comments

As this example shows the candidate gave a range of products, most without justification as to 'how' or 'what' specification point each annotation or visual description had been linked to. Also, as it was easier to meet some points on a variety of products and more difficult on one and this was also taken into consideration when awarding marks.

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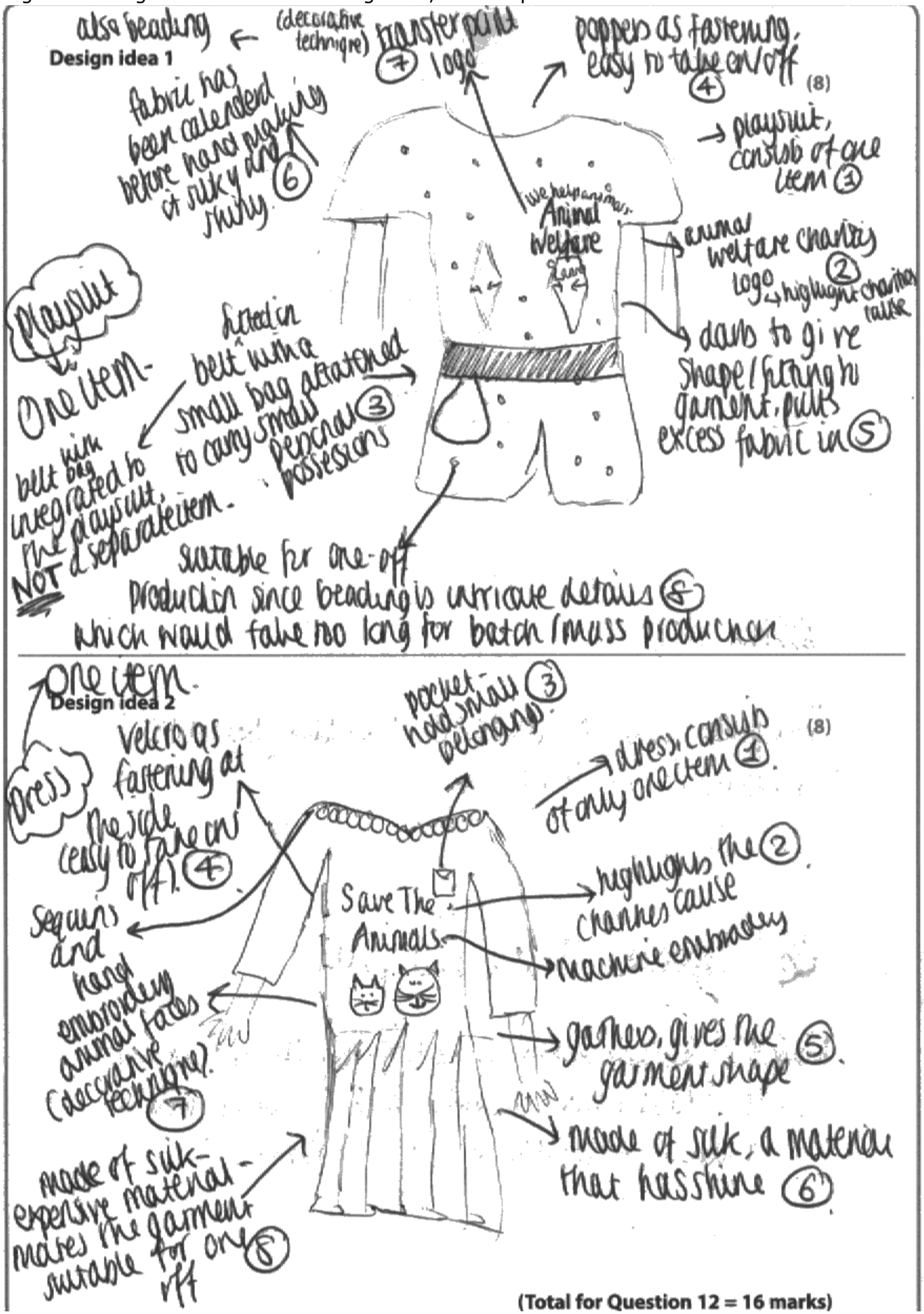
Examiner Tip

Encourage candidates to read the introduction and each subsequent specification point carefully. For example some candidates produced bags and these were not awarded marks for points such as 'easy to get off and on'.

It was rare to see a good 2nd design scoring full marks, equally most candidates scored higher in design one rather than design two, where options seem to have been exhausted.



(Total for Question 12 = 16 marks)

ResultsPlus
Examiner Comments

This candidate does not use lengthy annotations and has produced text in an organised manner. Encourage candidates to visually show and write clear, confirming annotation that ensures that they are explaining 'how' each comment and idea meets the specific point aimed at.

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Examiner Tip

Practise the design section by giving candidates a list of specific points to design to. They could number each of these sequentially. Then ask them to number where their evidence of this occurs in the design. This should not be a jumble of text, which tends to become repetitive and unfocussed. Great list examples were also seen.

Question 13 (a) (i)

This question concerned the benefit of the fibre to the chosen product. To get full marks the candidate needed to show knowledge of the correct fibre property that would match the reason given. Where this was sometimes demonstrated very well a large number seemed to be able to give a sound property and a separate sound reason but unfortunately these were unrelated and so half the mark awarded.

(i) Name **one** property of lambswool that makes it a suitable fibre for the cushion cover and provide a reason why.

(2)

Property

Soft and fluffy

Reason

Because cushions covers are the surface that meets against the skin which makes it comfortable and soft

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Examiner Comments

The candidate provides a good property and a reason that offers the link to the quality of the fibre being tactile. Where marks were not awarded candidates often gave reasons that aluded to the comfort of the cushion as a whole, including filling, such as 'comfortable to lean against'.

Question 13 (a) (iii)

This question (as with 13ai & 13aii) also relates to determining 'why' the choice made was suitable for the product. This time however, it requires candidates to know the characteristic of a fabric structure and justify the reason it was used.

Some candidates were more inclined to add responses that gave properties and characteristics related to the fibre content and not the information directly based on the fabric structure. Terms such as 'absorbent' were seen on a regular basis.

(iii) Describe **two** reasons why felted fabric has been used for the cushion cover. **(4)**

1 Felted fabric is non-woven meaning it does not tear or fray easily as it is a very strong fabric. Because it doesn't have a grain or a selvedge it won't fray / tear when cut.

2 It is very good to decorate on especially when you embroider on, because it is a thick fabric that will hold the decorations in place without the fabric tearing.

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Examiner Comments

Although, for the first response, this candidates initial comments are a little confused the last part of the statement they gave a good point on the property of the fabric. The second response was answered very well with an excellent reason for the suitability and use of the fabric for the product being discussed.

Question 13 (c)

The breadth and depth of response is often the deciding factor between the levels awarded for this question. Candidates can quite often latch onto one point and explain this fully but not give the same amount of discernment to other factors of the product analysis. This question, as with 14d, has an asterisk placed so candidates know that this is where they will be tested on the Quality of their Written Communication (QWC).

To improve on the longer response questions candidates should be aware that comparisons were asked for but should avoid simply stating that one product 'has' something and the other 'not' and also that a list of points for each product does not constitute comparison.

Evaluate cushion A compared with cushion B in terms of 'function' and 'scale of production'.

(6)

Cushion A in comparison with Cushion B is a more elaborate cushion, which would less likely to be made by mass production and is more likely to be made individually or by batch production whereas Cushion B is more likely to be made by mass production because it requires less precision and no hand stitching. Cushion A, because it is non removable means that it is less good in terms of durability because ~~it would make~~ you couldn't wash it, where as design B, has a removable cover and therefore is more likely to be washable and therefore last longer which would benefit the environment Cushion A would cost more as the individual labour of the hand stitching would ~~add~~ make it more expensive, and Cushion B would less likely cost as much because it requires simple levels of production and no hand stitching, so would be quicker to manufacture. Cushion A however would be benefiting the environment because it is made out a Natural fibre with the silk trimming, where as the polyester fabric Cushion B is made out of would not benefit the environment because it requires more processes to make it to a yarn.

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Examiner Comments

This candidates use of descriptive words such as 'elaborate' and technical language such as 'durability' linked with excellent demonstration of their knowledge and understanding allow them to access level 3. This response was awarded the full 6 marks available.

Question 14 (a) (ii)

Candidates had either clearly been familiar with this term or had not. There was a surprisingly large number of candidates that incorrectly responded to this question and some left blank spaces.

(ii) Polyester yarn is made from filament fibres.

State what is meant by a filament fibre.

(1)

a ~~fo~~ long continos fibre

ResultsPlus
Examiner Comments

Simple terms were all that were needed to gain one mark from this question. Here a key term was used 'continuos' so no doubt was left about this candidates knowledge.

(ii) Polyester yarn is made from filament fibres.

State what is meant by a filament fibre.

(1)

a long natrcal fibre eg silk.

ResultsPlus
Examiner Comments

Similar to the example above, this candidate gives specific knowledge of the term questioned. It is good to note that the amount of marks to be awarded to the question is a good prompt to the length of response required.

Question 14 (a) (iii)

Candidates' knowledge of coatings varied significantly. There were some very good examples of technical language seen, including silica and Teflon and although some could relate this to a matching reason for their choice for outdoors, others relied on the fact that the tent was outside and all reasons related to it being waterproof.

The tent has a modern coating.

(iii) Name **two** modern coatings that are suitable for an outdoor product.

For each coating, give one reason for your answer.

(4)

Coating 1

water proof.

Reason

pw
, would keep out the rain and insure the people inside ~~the~~ the tent are dry and cosy.

Coating 2

Sylecone based substance (spray)

Reason

This would stop the tent getting dirty ~~essitesily~~ from all the mud and would reinforce the dryness/waterproofing making any moisture roll off.

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Examiner Comments

The common response of waterproof, given in coating 1, was backed up by an example that did not just give the definition of what waterproof means. The link to the needs of the 'people inside' gave a clear indication of the candidates understanding.

As QWC was not being assessed here the candidate's phonical wording of silicon and very good explanation still allowed them to gain full marks on this question.

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Examiner Tip

It would be useful if candidates could practise matching finishes with their specific properties and a range of end uses. Be careful to not repeat, using definitions, of the first point. It is crucial that a deeper, wider and specific link is shown.

Question 14 (b)

Most commonly candidates knew that bonded seams would add strength. To improve it would be good to see a range of responses that were less general about what strength is and more focussed on the process and the way in which it functions in the given situation.

(b) Explain **one** benefit of using bonded seams on the tent.

(2)

The seams will not rip at the stitching when the tent is stretched taught or under pressure. This means the seams are stronger and more suitable for the function which is outdoor use.

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Examiner Comments

The first sentence provides a good demonstration of what a detailed, justified response would look like and how to gain full marks when asked to relate a process. The point it is linked to can come before or after as long as it matches.

(b) Explain **one** benefit of using bonded seams on the tent.

(2)

There are no needle holes that could allow ~~the~~ wind & rain to get into the tent.

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Examiner Comments

The first sentence of this example provided some refreshing diversity in the responses seen from candidates as it demonstrated specific knowledge of the process and not a response that had been gleamed from the wording in the question.

Question 14 (c)

It is important for candidates to relate their life experiences, such as, 'wearing lined garments' and use this in the examination environment as even basic knowledge is able to be considered when awarding marks. Product analysis can also give opportunities to handle or understand products that candidates may not have access to in daily life.

(c) Outdoor garments are often lined.

Explain **one** advantage of lining an outdoor garment.

(2)

It provides insulation - air is trapped between the lining and outer layer - so the garment is warmer, which is useful outdoors where it may be cold.

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Examiner Comments

Here the candidate names the advantage of 'warmer' and provides a clear understanding of the way in which it is achieved for the second marking point.

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Examiner Tip

Keeping warm' was most commonly awarded as a correct response and this was occasionally matched with 'trapping air' between layers to create this insulation. The range of possible replies was not exploited by the majority of candidates, however there were examples of high achieving candidates who described (and sometimes named) fabric systems such as GoreTex or the use of slippery fabrics such as acetate to provide comfort and ease when wearing.

Question 14 (d)

The area of integrated electronics seemed to be one where candidates on the whole did not demonstrate a solid base of knowledge. There were many blank pages seen and a large number gave information unrelated to the topic. Candidates did however show reasonable quality of written communication when evidence was presented.

This question really stretched the candidates' knowledge base.

The beneficial points commonly made were about tracking devices, lights, kinetic and solar battery charging, temperature and heart monitors. But the majority of candidates only picked up on the disadvantages of weight, safety, expense and others mentioned the convenience factor.

*(d) Integrated electronics are often used in the outdoor textiles industry.

Discuss the advantages and disadvantages to consumers of integrated electronics in outdoor textiles.

(6)

There are both advantages and disadvantages of outdoor textiles.

One of the main advantages comes from solar panels or heat energy ~~tech~~ electronics. The technology can convert energy from ~~the~~ the ~~user's~~ users body and the sun, and generate it into a power supply. This provides the user with entertainment when used as the energy can be used to power a personal media player to listen to music. This energy can also help keep the user warm, as thermal energy can be generated from the sun or body heat energy to power a music device. ~~Micro-encapsulation~~ Patients can also allow people to go outside whilst wearing, for example a lifeshirt, ~~yet still~~ as their vital signs can be monitored through the ~~release any chemicals released from textiles as they need~~ use of integrated electronics in outdoor textiles. Moreover, ~~when outdoors.~~ outdoor textiles can also allow GPS software to be encorporated into a garment. in case a person ~~need~~ gets lost or needs to find their way.

(Total for Question 14 = 19 marks)

TOTAL FOR PAPER = 80 MARKS

On the other hand, there are also some disadvantages. This includes the weight solar panels for example cause a user when wearing them on their backs. This can cause back pain, and may cause damage to a users health.

Overall, there are both advantages and disadvantages to consumers of intergrated electronics in outdoor textiles

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Examiner Comments

This candidate gained 5 marks as they were able to state a range of advantages and describe what some of those benefits would be to the user. They also were able to achieve in the top level 3 band as the disadvantage was relevant and explained.

To achieve full marks this candidate could have added technical information, for example, 'the integrated technology works through waterproof conductive wires' which would have added to how the energy is converted and improved the flow of the text.

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Examiner Tip

Canddate or soft switch technology that allowed the user to interface the technology but remove battery packs before washing.

Paper Summary

This paper worked particularly well in the extended question area where candidates were asked to analyse products (Q13c) and comment on their suitability to given foci. Responses were high and there seemed to be a reduction in blank spaces and the number of candidates scoring no marks at all. However, there was an increase in blank spaces for the last extended question (14d) and as there is the potential for candidates to achieve marks for the quality of their written communication they should be encouraged to give any relevant information and manage time well so that they respond to the very end of the paper. Another area that has benefited from good practice was Q12, where very few candidates did not annotate alongside their sketches. This left less ambiguity or interpretation for the examiners and stood a better chance of marks being awarded. Many of the candidates who provided a number that corresponded to the specification point that they were addressing performed well and this seemed to aid their organisation. There is still a clear need for candidates to recall, relate and share the workshop practises they perform in the controlled assessment to the analysis and demonstration of knowledge and understanding in an examination setting. Some of the weakest responses are still fibre, fabric and materials based and candidates would benefit from developing more confidence in these areas.

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