

GCSE



WJEC GCSE in  
**DESIGN AND TECHNOLOGY**

APPROVED BY QUALIFICATIONS WALES

**SAMPLE ASSESSMENT  
MATERIALS**

Teaching from 2017



This Qualifications Wales regulated qualification is not available to centres in England.





For teaching from 2017  
For award from 2019

GCSE DESIGN AND TECHNOLOGY  
(FASHION AND TEXTILES)

SAMPLE ASSESSMENT  
MATERIALS



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Candidate Name	Centre Number					Candidate Number				



**GCSE DESIGN AND TECHNOLOGY**

**UNIT 1**

**FASHION AND TEXTILES**

**SAMPLE ASSESSMENT MATERIALS**

**2 hours**

**ADDITIONAL MATERIALS**

In addition to this examination paper, you will need a calculator.

**INSTRUCTIONS FOR CANDIDATES**

Answer ALL questions.

Write your name, centre number and candidate number in spaces at the top of this page.

Write your answers in the spaces provided in this booklet.

Use black ink or black ball-point pen.

Do not use pencil or gel pen.

Do not use correction fluid.

**INFORMATION FOR CANDIDATES**

The number of marks is given in brackets at the end of each question or part question. You are advised to divide your time accordingly.

The total number of marks available is 100.

You are reminded of the need for good English and orderly, clear presentation in your answers. The quality of your written communication, including appropriate use of punctuation and grammar, will be assessed in your answer to question (4a).

1. The picture below shows a collection of ladies printed shirts that have been designed using Computer Aided Design (CAD).



- (a) Tick **two** boxes below to show the reasons why a fashion designer might use CAD to develop ideas. [2]

Mistakes can be corrected easily	<input type="checkbox"/>
CAD equipment is cheaper to buy than traditional drawing materials	<input type="checkbox"/>
Fashion designers do not need any training to use CAD	<input type="checkbox"/>
It is easy to present ideas in a range of colourways	<input type="checkbox"/>

- (b) Designers often use Computer Aided Design (CAD) programmes to produce virtual or 3D prototypes of new fashion garments.

Explain how this process is a more sustainable approach to design. [4]

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- (c) Global production means fashion products can be designed in one country and made in another.

Explain the role and importance of Computer Aided Design (CAD) in supporting this process. [4]

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2. Fossil fuels are used to generate energy to power the factories that manufacture fashion and textile products.

- (a) Name **two** fossil fuels. [2]

(i) .....

(ii) .....

- (b) Textile manufacturers are increasingly turning to renewable energy to power their factories.

Explain how the use of renewable energy in the textile manufacturing industry improves the carbon footprint of textile products. [4]

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- (c) Stella McCartney is known as a high-end fashion designer with strong animal welfare and environmental beliefs.

Describe how this influences the choices she makes throughout her work. [4]

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3. The sports shirt shown below is made from a smart material.



- (a) Tick the boxes to show if the following statements about smart materials are true or false. [2]

Smart materials change their properties depending on the environment.

Changes in the properties of smart materials are reversible.

True	False
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

(b) Complete the table below about colour changing smart materials.

Describe each smart material and the benefits to the user when each of the smart materials is incorporated into a textile product. 2 x [3]

<b>Technical term</b>	<b>Benefits to the user</b>
Photochromic	Description: ..... ..... ..... Benefit to user: ..... ..... .....
Thermochromic	Description: ..... ..... ..... Benefit to user: ..... ..... .....

(c) Micro-encapsulation is an example of a smart material used in textiles.

Explain what this term means and describe the benefits to the consumer/wearer.

[7]

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4. Study the fashionable products shown below which are available in a range of sizes. The sizes are based on anthropometric data.



**Product Information:**

**Coat:** Available in sizes 10 – 18

**Boots:** Size 3 - 8, 3 calf fittings

- (a) The coat shown below has been quilted.

Explain the benefits of quilting when developing winter coats.

[4]



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- (b) The products shown in the table below have been made from materials with specific properties that are considered essential for that product.

Describe the properties of the material and explain why it is suitable for **each** product.

2 x [3]

<b>Product</b>	<b>Description of properties' suitability</b>
<p>(i)</p>  <p><b>Linen shorts</b></p>	<p>Properties: .....</p> <p>.....</p> <p>.....</p> <p>Explanation: .....</p> <p>.....</p> <p>.....</p>
<p>(ii)</p>  <p><b>Nylon Kite</b></p>	<p>Properties: .....</p> <p>.....</p> <p>.....</p> <p>Explanation: .....</p> <p>.....</p> <p>.....</p>

- (c) Analyse the importance of using anthropometric data to develop clothing and footwear in a range of sizes. Use the above products to outline specific issues that would need to be considered when developing the sizes. [10]

*Marks will be awarded for the content of the answer and the quality of written communication.*

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5. (a) (i) The shirt shown below is made from a 50% polyester and 50% cotton material.



Evaluate why polyester is commonly mixed with cotton to make textile products like the shirt. [5]

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- (ii) Shown below are cycling shorts made from elastane. Evaluate the suitability of this material for the cycling shorts. [5]



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- (b) Study the pictures of the two cushions shown below and answer the questions that follow.



*Floor cushion*



*Bolster cushion*

- (i) State the name of the edge finish that has been used on both cushions and give a reason for its use.

Edge finish: ..... [1]

Reason: .....

..... [1]

- (ii) Explain why it is important to lay templates out following pattern language in the construction of the two cushions. [3]

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- (iii) During the manufacture of the floor cushion, a zip fastener was used as a method of closing. A zipper foot as shown below was used on the sewing machine for this process.



- Discuss the use of specialist attachments on the sewing machine when carrying out certain processes in the construction of textile products. [5]

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6. A manufacturer of children's clothing intends to make a new product for the range. The dungarees shown below are to be included as part of the range.



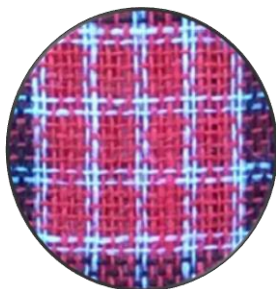
- (a) A suitable material needs to be chosen for the dungarees.
- (i) The materials pictured below show two possible types of woven materials that could be used.

Is the type of weave used to make material A:

- satin weave
- herringbone weave
- plain weave
- pile weave

[1]

Write your answer on the dotted line below the picture.



**Material A:** ..... weave

**Material B:** Twill weave

- (ii) The manufacturer has decided that Material B: Twill weave, is the best choice for the dungarees.

Explain why a twill weave material is the most suitable choice for this product. [3]

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- (iii) To prolong the life of the child's dungarees a stain resistant finish needs to be applied to the material.

Explain how this could be done and how it would prolong the life of the dungarees. [4]

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- (b) Electronic systems can now be integrated into clothing. The manufacturer of the child's dungarees wants to include an electronic system in the dungarees that would give the parent peace of mind when the child is playing outdoors.

State the name of an electronic system that could be integrated into the dungarees and explain how it would give the parent peace of mind when the child is playing outdoors.

Electronic system: .....[1]

Explanation: .....

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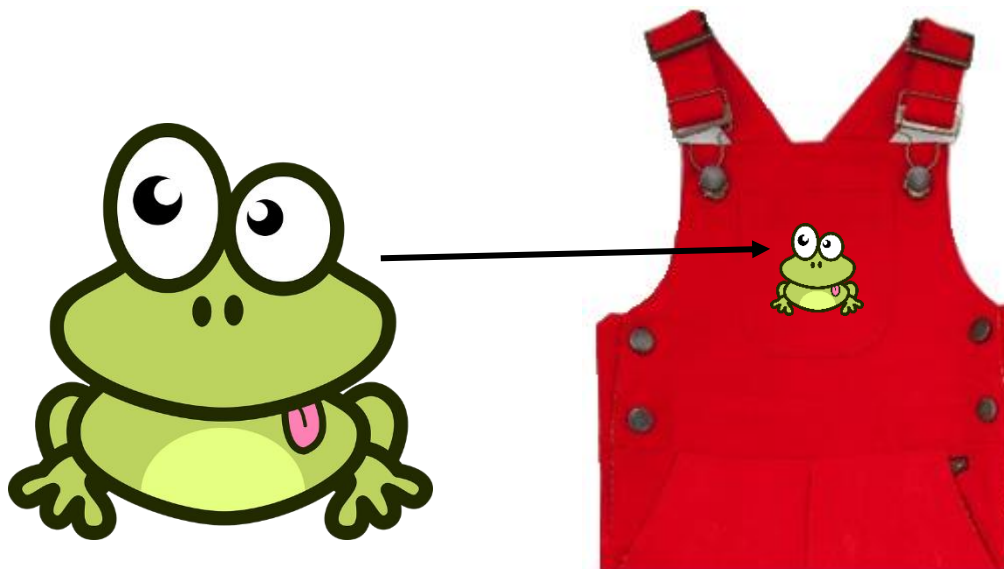
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[3]

- (c) The dungarees are considered too plain and need embellishment.
  - (i) Using notes and sketches explain how the frog design shown below could be appliquéd on to the pocket on the front of the dungarees.

Include all appropriate steps to achieve the desired embellishment, including quality control measures in your answer.

[6]



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- (ii) The manufacturer is considering an alternative method of decorating the dungarees.

Describe how the stitched monkey design shown below could be applied to the dungarees. [2]



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- (d) The personalised dungarees are to be manufactured using batch production.

Explain in detail why batch production is the most suitable scale of production for this product. [5]

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## MARK SCHEME

### Guidance for examiners

#### Positive marking

It should be remembered that learners are writing under examination conditions and credit should be given for what the learner writes, rather than adopting the approach of penalising him/her for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Marks should not be deducted for a less than perfect answer if it satisfies the criteria of the mark scheme.

For questions that are objective or points-based the mark scheme should be applied precisely. Marks should be awarded as indicated and no further subdivision made.

The indicative content states a range of points and / or issues which may be included in learners' answers. It is not exhaustive and credit should be given to any other response that is appropriate to the question set.

#### Banded mark schemes

For band marked questions mark schemes are in two parts, the indicative content and the assessment grid.

The indicative content suggests the range of points and issues which may be included in the learner's answers. It can be used to assess the quality of the learner's response. Indicative content is **not** intended to be exhaustive and learners **do not** have to include all the indicative content to reach the highest level of the mark scheme.

In order to reach the highest level of the mark scheme a learner need not cover all of the points mentioned in the indicative content but must meet the requirements of the highest mark band. Where a response is not creditworthy, that is, it contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

In Design and Technology, each question addresses one assessment objective: either AO3 or AO4. The assessment grid sub-divides the total mark to allocate for a question. These are shown in bands in the mark scheme. For each question, descriptors will indicate the different skills and qualities at the appropriate level.

Examiners should first read and place a tick in the learner's answer/s to indicate the evidence that is being assessed in that question; the mark scheme can then be applied. This is done as a two stage process.

#### Stage 1 – Deciding on the band

Beginning at the lowest band, examiners should look at the learner's answer and check whether it matches the descriptors for that band. If the descriptors at the lowest band are satisfied, examiners should move up to the next band and repeat this process for each band until the descriptors match the answer.

If an answer covers different aspects of different bands within the mark scheme, a 'best fit' approach should be adopted to decide on the band and then the learner's response should be used to decide on the mark within the band. For instance if a response is mainly in band 2 but with a limited amount of band 3 content, the answer would be placed in band 2, but the mark awarded would be close to the top of band 2 as a result of the band 3 content.

Examiners should not seek to mark learners down as a result of small omissions in minor areas of an answer.

### **Stage 2 – Deciding on the mark**

During standardising (marking conference), detailed advice from the Principal Examiner on the qualities of each mark band will be given. Examiners will then receive examples of answers in each mark band that have been awarded a mark by the Principal Examiner. Examiners should mark the examples and compare their marks with those of the Principal Examiner.

When marking, examiners can use these examples to decide whether a learner's response is of a superior, inferior or comparable standard to the example. Examiners are reminded of the need to revisit the answer as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the response provided.

## GCSE Design and Technology (Fashion and Textiles)

## MARK SCHEME

Question 1		AO3	AO4	Mark								
(a)	Tick <b>two</b> boxes below to show the reasons why a fashion designer might use CAD to develop ideas.		✓	2								
<p><i>Candidates are required to tick <b>two</b> boxes.</i></p> <p><b>Guidance to markers</b></p> <p>The two boxes shown are the only correct answers.            If a candidate ticks three boxes and two are correct, award 1 mark.            If a candidate ticks three boxes and one is correct, award 0 marks.            If a candidate ticks all four boxes, award 0 marks.</p> <table border="1"> <tr> <td>Mistakes can be corrected easily</td> <td>✓</td> </tr> <tr> <td>CAD equipment is cheaper to buy than traditional drawing materials</td> <td></td> </tr> <tr> <td>Fashion designers do not need any training to use CAD</td> <td></td> </tr> <tr> <td>It is easy to present ideas in a range of colourways</td> <td>✓</td> </tr> </table>		Mistakes can be corrected easily	✓	CAD equipment is cheaper to buy than traditional drawing materials		Fashion designers do not need any training to use CAD		It is easy to present ideas in a range of colourways	✓			1
Mistakes can be corrected easily	✓											
CAD equipment is cheaper to buy than traditional drawing materials												
Fashion designers do not need any training to use CAD												
It is easy to present ideas in a range of colourways	✓											
				1								
(b)	Designers often use Computer Aided Design (CAD) programmes to produce virtual or 3D prototypes of new fashion garments. Explain how this process is a more sustainable approach to design.		✓	4								
<p><i>Answers that indicate an understanding of virtual design/3D prototyping should be awarded up to 4 marks based on:</i></p> <p>No actual/physical prototype product is made therefore there are benefits to the environment /sustainability: materials, components, threads for example are not used saving resources; when the product is redesigned or rejected the materials etc are not wasted and will not end up as possible landfill; conservation of energy/ less pollution – saved in manufacturing prototypes; reduced carbon footprint for the prototype therefore more sustainable.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <b>0 marks</b></p> <p><i>Brief description, very little understanding:</i>            No material is used to make a prototype. <b>1 mark</b></p> <p><i>Some detail with some understanding of virtual design for example:</i>            No materials or components are needed as no garment is actually made. <b>2 marks</b></p> <p><i>A more detailed explanation with clear understanding of virtual design for example:</i>            As the prototype is only viewed on screen in a realistic way there is no need to waste materials and components making a prototype. <b>3 marks</b></p> <p><i>Fully detailed explanation with clear understanding of virtual design/sustainability for example:</i>            As the prototype is only viewed on screen in a realistic way there is no need to waste materials and components making a prototype which reduces the carbon footprint and is therefore a more sustainable way of designing products. <b>4 marks</b></p>												

(c)	Global production means fashion products can be designed in one country and made in another. Explain the role and importance of Computer Aided Design (CAD) in supporting this process.		✓	4
<p><i>Answers that indicate an understanding of global production and CAD within it should be awarded up to 4 marks based on:</i></p> <p>When designs are developed using CAD, they can easily and quickly be sent worldwide to wherever they need to be viewed i.e. in factories prior to manufacture/clients, wherever they are based can view the designs and gain approval for or suggest changes/developments which can be made immediately; this speeds up the development process for a fast and efficient service. In the absence of CAD this cannot be achieved as efficiently.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>Brief description, very little understanding for example:</i></p> <p>CAD designs can easily be sent via the internet to the factory. <span style="float: right;"><b>1 mark</b></span></p> <p><i>Some detail with some understanding of CAD used globally for example:</i> CAD designs can easily be sent via the internet to the factory which is a more efficient way of communicating ideas. <span style="float: right;"><b>2 marks</b></span></p> <p><i>A more detailed explanation with clear understanding of CAD used globally for example:</i></p> <p>CAD designs can easily be sent via the internet to the factory or clients which is a more efficient way of communicating ideas, especially if things need to be changed. <span style="float: right;"><b>3 marks</b></span></p> <p><i>Fully detailed explanation with clear understanding of CAD used globally for example:</i></p> <p>CAD designs can easily be sent via the internet to the factory or clients wherever in the world they happen to be. This is a more efficient way of communicating ideas, especially if things need to be changed. This cannot be done in the absence of CAD if an efficient service is required. <span style="float: right;"><b>4 marks</b></span></p>				
<b>Total</b>				<b>10</b>

Question 2		AO3	AO4	Mark
(a)	Name <b>two</b> fossil fuels.		✓	2
	<i>Candidates are required to name any two fossil fuels (1 mark per fuel).</i> <b>Guidance to markers</b> Accept any two fuels from coal, oil, gas			
	<i>Incorrect / no answer</i>			0
(b)	Textile manufacturers are increasingly turning to renewable energy to power their factories. Explain how the use of renewable energy in the textile manufacturing industry improves the carbon footprint of textile products.		✓	4
	<p><i>Answers that indicate an understanding of renewable / carbon footprint should be awarded up to 4 marks based on:</i></p> <p>An understanding of renewable energy, based on infinite resources which is readily available provided certain external factors are met; energy is generated then stored, to be used as when as a power source; 'greener' energy as no pollution/reduces carbon emissions; globally, the fashion and textile industry is one of the largest contributors to carbon emissions due to the size and scale and the complex supply chain.</p> <p><i>NOTE: Credit can be given to naming renewables (geothermal, hydro, wave, solar and wind).</i></p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <b>0 marks</b></p> <p><i>Brief description, very little detail for example:</i> Renewable energy is less polluting. <b>1 mark</b></p> <p><i>Some detail with some understanding of for example:</i> Renewable energy is considered better for the environment because it does not pollute the atmosphere. <b>2 marks</b></p> <p><i>A more detailed explanation with clear understanding of renewable energy/carbon footprint for example:</i> Renewable energy is considered much better for the environment because it does not pollute the atmosphere as carbon emissions are reduced which would be an improvement. <b>3 marks</b></p> <p><i>Fully detailed explanation with clear understanding of renewable energy/carbon footprint for example:</i> Renewable energy is considered much better for the environment because it does not pollute the atmosphere as carbon emissions are reduced. As the textile industry is vast (globally) renewable energy would dramatically improve the carbon footprint of textiles. <b>4 marks</b></p>			

(c)	Stella McCartney is known as a high-end fashion designer with strong animal welfare and environmental beliefs. Describe how it influences the choices she makes throughout her work.		✓	4
<p><i>Answers that indicate an understanding various aspects of Stella McCartney's work in relation to animal welfare and/or environmental issues should be awarded up to 4 marks based on:</i></p> <p>Fabrics she uses in her collections – strong anti-fur beliefs, no leather used, no PVC or materials that are highly polluting when processed; chooses materials that are more eco-friendly and manufactured more ethically and sustainably.</p> <p><i>Answers might elaborate more on environmental issues and less on material choices, award accordingly.</i></p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <b>0 marks</b></p> <p><i>Brief description, very little detail for example:</i>          McCartney does not use leather in her designs. <b>1 mark</b></p> <p><i>Some detail with some understanding of McCartney's beliefs, for example:</i>          McCartney does not use leather or fur in her designs as she has strong anti-fur / anti-animal hide beliefs <b>2 marks</b></p> <p><i>A more detailed explanation with clear understanding of McCartney's beliefs, for example:</i>          McCartney does not use leather or fur in her designs as she has strong anti-fur / anti-animal hide beliefs. She prefers to use natural materials rather than synthetic. <b>3 marks</b></p> <p><i>Fully detailed explanation with clear understanding of McCartney's beliefs, for example:</i>          McCartney does not use leather or fur in her designs as she has strong anti-fur / anti-animal hide beliefs, she doesn't use materials such as PVC because the processes used in their manufacture are highly toxic to the environment. <b>4 marks</b></p>				
<b>Total</b>				<b>10</b>

Question 3		AO3	AO4	Mark									
(a)	Tick the boxes to show if the following statements about smart materials are true or false.		✓	2									
<p><i>Candidates are required to tick <b>two</b> boxes.</i></p> <p><b>Guidance to markers</b> The two boxes shown are the only correct answers. If a candidate ticks both the true box and the false box for a statement, award 0 marks for that part of the question.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>True</th> <th>False</th> </tr> </thead> <tbody> <tr> <td>Smart materials change their properties depending on the environment.</td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td>Changes in the properties of smart materials are reversible.</td> <td style="text-align: center;">✓</td> <td></td> </tr> </tbody> </table>			True	False	Smart materials change their properties depending on the environment.	✓		Changes in the properties of smart materials are reversible.	✓				1 1
	True	False											
Smart materials change their properties depending on the environment.	✓												
Changes in the properties of smart materials are reversible.	✓												
<i>Incorrect / no answer</i>				0									
(b)	Complete the table below about colour changing smart materials. Describe each smart material and the benefits to the user when each of the smart materials is incorporated into a textile product.		✓	6									
<p><i>Answers that indicate an understanding of the colour changing smart materials should be awarded up to <b>6</b> marks based on:</i></p> <p>Photochromic – changes colour in response to changes in light conditions. Benefits to user include: military clothing changes according to environment and background i.e. camouflage; reaction to sunlight in children’s wear, sun is intense/UV indicators.</p> <p><b>Guidance to markers</b> <i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span> <i>Award one mark for the correct description of photochromic:</i> It changes colour in response to changes in the light. <span style="float: right;"><b>1 mark</b></span> <i>Award up to two marks for the benefits to the user:</i> In children’s clothing a change in light could mean UV levels have increased. <span style="float: right;"><b>1 mark</b></span> In children’s clothing a change in light could mean UV levels have increased. This could be seen as a warning for children to go indoors avoiding over exposure. <span style="float: right;"><b>2 marks</b></span></p> <p>Thermochromic – changes colour in response to changes in temperature. Benefits to the user include: in sportswear during training, specific areas of the body being worked the most; taking a person’s temperature; thermochromic dyes in wound dressing, indicate infection.</p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span> <i>Award one mark for the correct description of thermochromic:</i> It changes colour in response to changes in temperature. <span style="float: right;"><b>1 mark</b></span> <i>Award up to two marks for the benefits to the user:</i> Heat is generated when a wound is infected, a colour change would occur in a thermochromic dressing. <span style="float: right;"><b>1 mark</b></span> Heat is generated when a wound is infected, a colour change occurs in a thermochromic dressing that might not have been so easily detected with a traditional dressing indicating a need for additional medication. <span style="float: right;"><b>2 marks</b></span></p> <p>NOTE: Candidates might elaborate more on the description of the term and lessen the benefits to the user – award accordingly.</p>													

(c)	<p>Micro-encapsulation is an example of a smart material used in textiles.                  Explain what this term means and describe the benefits to the consumer/wearer.</p>		✓	7
<p><i>Answers that indicate an understanding of micro-encapsulation in textiles should be awarded up to 7 marks based on:</i></p> <p><b>Meaning of the term:</b> Nano-sized particles are added to/stored in the fibres/fabrics; activated when friction is applied; the contents of the capsules are released through movement. In medical textiles capsules contain medicines, antibacterial agents, insect repellents.</p> <p><b>Benefits in textiles:</b> in wound dressings it eliminates the need to change dressings; antibiotics are slowly/regularly released; antibiotics can be applied through bandages to the exact point of need – speeds healing process; reduces further infection as wounds don't need constant redressing; as a result healing is quicker; antibacterial agents can be encapsulated into bedding reducing further infections. Perfume, moisturisers, aromatic essences, essential oils can all be encapsulated and released slowly through friction improving the well-being of the user. Deodorants can be encapsulated improving personal hygiene.</p> <p>Answers must address <b>both parts of the question</b>                  Award up to <b>3 marks</b> for a clear and detailed understanding of the term.                  Award up to <b>4 marks</b> for an appropriate example.                  Assess the answer as a whole and award accordingly.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>A basic understanding or brief description of term micro-encapsulation.</i> <span style="float: right;"><b>1 mark</b></span></p> <p><i>Tiny particles such as perfume are stored in the fabric.</i> <span style="float: right;"><b>1 mark</b></span></p> <p><i>More detailed description of term, no example.</i></p> <p><i>Tiny particles such as perfume are stored in the fabric and are released when friction is applied to the materials.</i> <span style="float: right;"><b>2 mark</b></span></p> <p><i>More detailed description of term, with one clearly described example.</i></p> <p><i>Nano particles of for example moisturiser are stored in the material and released when friction is applied to help moisturise skin.</i> <span style="float: right;"><b>3 marks</b></span></p> <p><i>More detailed understanding and description of term, with one clearly described example.</i></p> <p><i>Nano sized particles are stored within the fibres of the materials and are released under friction. Particles encapsulated onto bandages could contain anti-biotics that are released slowly to help healing.</i> <span style="float: right;"><b>4-5 marks</b></span></p> <p><i>Very detailed understanding of the term, full and detailed description of a highly suitable appropriate example.</i></p> <p><i>Nano sized particles are stored within the fibres of the materials and are released under friction or through wear. Particles encapsulated into for example bandages could contain anti-biotics that are released slowly and regularly which would help the healing process, avoiding further infection.</i> <span style="float: right;"><b>6-7 marks</b></span></p>				
<b>Total</b>				<b>15</b>



Question 4		AO3	AO4	Mark
(a)	The coat shown below has been quilted. Explain the benefits of quilting when developing winter coats.		✓	4
	<p><i>Answers that indicate an understanding of quilting should be awarded up to 4 marks based on:</i></p> <p>Quilting generally has 3 layers – outer, middle, lining - body heat gets trapped between layers and cannot escape – keeps body heat in, insulates against cold; more layers less heat can escape; each layer could have additional thermal qualities such as a brushed material as a lining which also traps warm body heat; middle layer could be a fibre fill with lots of air pockets to trap heat which insulates; fibrefill available in different weights and thicknesses which give varying levels of heat insulation; middle layer could be a 'down' with good insulation properties. 3 separate layers stitched together provides a good level of protection against the elements. All factors would be effective means of keeping warm when used in a winter coat.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <b>0 marks</b></p> <p><i>Brief description, very little detail for example:</i> Quilting has a few layers to keep the wearer warm <b>1 mark</b></p> <p><i>Some detail with some understanding of quilting for example:</i> A more detailed level of understanding of quilting for example: Warm body heat cannot escape through the layers, so quilting is effective in keeping you warm in winter. <b>2 marks</b></p> <p><i>Detailed explanation of the use of quilting for example:</i> Warm body heat gets trapped in between the three layers in quilting and cannot escape, this effectively insulates against the cold and is therefore ideal when making winter coats. <b>3 marks</b></p> <p><i>Full and detailed knowledge and understanding of quilting for example:</i> Warm body heat gets trapped in between the three layers in quilting and cannot escape. This insulates against the cold. The different layers could also have additional properties such as a brushed lining – additional insulation. The quilting is therefore an effective method of insulating the wearer against the cold and is therefore ideal when making winter coats. <b>4 marks</b></p> <p><i>For full marks candidates must show evidence of drawing conclusions in their answer.</i></p>			

(b)(i)	The products shown in the table below have been made from materials with specific properties that are considered essential for that product. Describe the properties of the material and explain why it is suitable for each product.		✓	6
	<p><i>For full marks BOTH parts of the question for <u>each product</u> must be answered. Assess each answer and apply up to 3 marks for each product on a best fit approach for example:</i></p> <p style="padding-left: 40px;"><i>1 correct property with a detailed explanation = 1 + 2 marks</i>  <i>2 properties with a less detailed explanation = 2 + 1 mark</i></p> <p><i>Answers that indicate an understanding of the properties of linen should be awarded up to 3 marks based on:</i></p> <p><b><u>LINEN SHORTS</u></b> -</p> <p><b><u>Main properties:</u></b> absorbent; durable and strong even when wet; ease of care; various weights; resistant to sunlight; not static; no pilling; abrasion resistant.  <b><u>Explanation:</u></b> Being absorbent will keep wearer cool in the heat – shorts are summer clothing; dries quite easily; strong so the product will withstand a lot of wear; will not be affected by summer sun; surface will not be affected by wear. <i>(Answers for the explanation will be dependent on the correctly named property).</i></p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>Brief description of a property:</i>  Property: Linen is absorbent. <span style="float: right;"><b>1 mark</b></span></p> <p><i>Award up to 2 marks for some understanding of the properties of linen explained:</i></p> <p>As linen is absorbent and will soak up moisture from perspiration <span style="float: right;"><b>[1 mark]</b></span>  this will be better to wear in the hot weather and will help to keep the wearer cooler. <span style="float: right;"><b>[2 mark]</b></span></p>			
(ii)	<p><i>Answers that indicate an understanding of nylon should be awarded up to 3 marks based on:</i></p> <p><b><u>NYLON KITE</u></b></p> <p><b><u>Main properties:</u></b> durable, strong, elasticity, poor absorption.  <b><u>Explanation:</u></b> Needs to withstand the elements in use i.e. strong winds/rain; has some elasticity when subjected to winds so has a little ‘give’ in it which will prevent it from tearing; durable – stands up to a lot of wear and tear; would not fly if it absorbed moisture. <i>(Answers for the explanation will be dependent on the correctly named property).</i></p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>Brief description of a property:</i>  Nylon is quite a tough material. <span style="float: right;"><b>1 mark</b></span></p> <p><i>Some understanding of the properties of nylon</i></p> <p>A kite is subjected to strong winds and therefore needs to be tough <span style="float: right;"><b>[1 mark]</b></span>  so that it will not break or rip under tension when it is being flown. <span style="float: right;"><b>[2 marks]</b></span></p>			

(c)	Analyse the importance of using anthropometric data to develop clothing and footwear in a range of sizes. Use the above products to outline specific issues that would need to be considered when developing the sizes.	✓		10
<p><i>Answers that indicate an understanding of anthropometrics should be awarded up to 10 marks based on:</i></p> <p>Knowledge and understanding that anthropometrics is based on average human measurements to give standard sizes; it allows designers to develop products that fit as intended and allow for the products to be used/ worn comfortably and are fit for purpose.</p> <p><u>Coat:</u> average height of people for the length; also allows for the development of shorter/taller than average clothing to be developed; arm lengths - differ according to height of average person; bust, waist, hip measurement are all based on standard sizes. Petite sizes are generally smaller averages for bust, waist etc but short people are not necessarily petite but clothing still needs to fit. Depth of armholes need to be considered so that arms can move freely without restriction; width of arms – no restrictions; head sizes for hood – head sizes often differ alongside average height.</p> <p><u>Boots:</u> Adult boots usually made in a range of sizes 3 – 11 for example. Feet are different lengths. Foot width can differ – ill-fitting shoe widths can cause problems for the wearer. Heel height needs to be considered for comfort; heel too high can make wearer imbalanced and give poor posture – causes other problems for user. Calf width fitting on a boot as people with wider legs may not be able to get a boot on or would be restricted in some way. Length of boot from ankle to knee – shape of body of boot should mirror leg shape and fit as design intends it to be worn.</p> <p>Candidates need to show understanding of the specific issues relating to <u>both products in their answer</u>. Each anthropometric point identified should be fully explained in terms of user/comfort/fitness for purpose.  <i>Award up to 3 marks for knowledge of anthropometrics</i>  <i>Award up to 7 marks for <b>specific details</b> on both products.</i></p>				
<b>Guidance to markers</b>				
No answer or no relevant issues described or discussed.				0
<p>Simple understanding of anthropometrics.          Little, if any, understanding of the application of relevant data in either of the 2 products shown.          Little understanding of the term anthropometrics          Quality of Written Communication is limited, presenting material with limited coherence, many errors of grammar, punctuation and spelling.</p>				1-2
<p>Some description of anthropometrics.          Some understanding of the application of relevant data in the 2 products shown, may apply some knowledge to one product. Some understanding of the term anthropometrics but tends to be superficial.          Quality of Written Communication is basic, presenting occasionally appropriate material with some coherence, some errors of grammar, punctuation and spelling.</p>				3-4
<p>Description and understanding of anthropometrics.          More detailed knowledge and understanding of the application of relevant data in the 2 products shown, may apply more knowledge to one of products. Information is relevant and there is a clear understanding of the term anthropometrics.          Quality of Written Communication is good, presenting mainly appropriate material in a coherent manner, few errors of grammar, punctuation and spelling.</p>				5-7
<p>Clear and very detailed understanding and description of anthropometrics.          Clear and detailed knowledge and understanding of the application of relevant data in the 2 products shown, detailed knowledge applied to both products – detailed understanding of anthropometrics is clearly evident.          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>				8-10
<b>Total</b>				<b>20</b>

Question 5		AO3	AO4	Mark
(a)(i)	The shirt shown below is made from a 50% polyester and 50% cotton material. Evaluate why polyester is commonly mixed with cotton to make textile products like the shirt.	✓		5
	<p><i>Answers that indicate an understanding of mixing polyester with cotton should be awarded up to 4 marks based on:</i></p> <p><u>An understanding of properties of BOTH fibres:</u>  <b>Cotton:</b> absorbent; comfortable to wear, reasonably strong, creases.  <b>Polyester:</b> durable, strong, good elasticity, crease resistant, easy care.  Combining the properties of both fibres makes a new material with its own unique properties; it combines the best properties for a superior material which can mean improved performance properties; comfort during use; improved aftercare of fabric.</p> <p><i>Candidates will need to demonstrate knowledge of the <u>individual properties</u> of the <u>named fibres</u> to illustrate what the <u>specific improvements/reasons</u> would bring to the 50/50 polyester cotton material.</i></p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span>  <i>Brief evaluation with little detail in the improved qualities of the new material/properties named.</i>  Cotton is absorbent and polyester is crease resistant. <span style="float: right;"><b>1 mark</b></span>  <i>More detail in the evaluation with some reasoning:</i>  Cotton is absorbent but creases easily but polyester is crease resistant so it improves the material. <span style="float: right;"><b>2 marks</b></span>  <i>Detailed evaluative description of the properties with more reasoning:</i>  Cotton is absorbent but creases easily but polyester is crease resistant so it improves the material. By combining the different fibres you are improving the function of the material. <span style="float: right;"><b>3 marks</b></span>  <i>Detailed evaluative description of the properties with detailed reasoning:</i>  As cotton is absorbent it is cool and comfortable to wear but it creases. Polyester is crease resistant but not absorbent, so combining it with cotton improves the material with the best of both fibres. <span style="float: right;"><b>4 marks</b></span>  <i>Fully detailed evaluative description of the properties with detailed reasoning:</i>  As cotton is absorbent it is cool and comfortable to wear but it creases. Polyester is crease resistant but not absorbent, so combining it with cotton improves the material with the best of both fibres – the shirt for example is still cool to wear but does not crease. <span style="float: right;"><b>5 marks</b></span></p>			
(ii)	Shown below are cycling shorts made from elastane. Evaluate the suitability of this material for the cycling shorts.	✓		5
	<p><i>Answers that indicate an understanding of the properties of elastane should be awarded up to 2 marks based on:</i></p> <p>Elastane has excellent recovery when stretched; this can be achieved repeatedly; when incorporated into clothing it helps support a closer fit; the wearer can move freely without restriction from clothing as the clothing will move/stretch with movement.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span>  <i>Brief evaluation with little detail:</i>  Elastane allows clothing to stretch and fit better. <span style="float: right;"><b>1 mark</b></span>  <i>A more developed evaluative response with detail:</i>  Elastane allows clothing to fit snugly to the body and will not restrict the movement of the wearer. <span style="float: right;"><b>2 marks</b></span></p>			

	<p><i>Detailed evaluative description of the properties with more reasoning:</i> Elastane has excellent recovery when stretched; this can be achieved repeatedly; when incorporated into clothing it helps support a closer fit. <b>3 marks</b></p> <p><i>Detailed evaluative description of the properties with detailed reasoning:</i> Elastane has excellent recovery when stretched; this can be achieved repeatedly; when incorporated into clothing it helps support a closer fit; the wearer can move freely without restriction. <b>4 marks</b></p> <p><i>Fully detailed evaluative description of the properties with detailed reasoning:</i> Elastane has excellent recovery when stretched; this can be achieved repeatedly; when incorporated into clothing it helps support a closer fit; the wearer can move freely without restriction from clothing as the clothing will move/stretch with movement. <b>5 marks</b></p>				
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(b)(i)	State the name of the edge finish that has been used on both cushions and give a reason for its use.		✓	2
	<p><i>Only acceptable answer for edge finish:</i> Edge finish: piping <b>1 mark</b></p> <p>Accept reasons based on the following : Reason: aesthetics – looks better; adds some strength – more hardwearing; helps keep the shape of the product. <b>1 mark</b></p>			
(ii)	Explain why it is important to lay templates out following pattern language in the construction of the two cushions. [2]		✓	3
	<p><i>Responses could be based on:</i> Pattern language gives guidance on how products will fit together (1). Pattern markings tell you how to lay templates correctly on material (1). Markings followed correctly will ensure the finished product ‘hangs’ correctly (clothing especially) (1). Grain lines (runs parallel to the selvedge edge) should run through the middle of the pattern piece ensuring it is straight in the final piece (1). Ignoring pattern marking will lead to an inferior final product (1).</p> <p><b>Guidance to markers</b> Pattern language gives guidance on how products will fit together. <b>1 mark</b> Pattern language gives guidance on how products will fit together and markings tell you how to lay templates correctly on material. <b>2 marks</b> Pattern language gives guidance on how products will fit together and markings tell you how to lay templates correctly on material. Markings followed correctly will ensure the finished product ‘hangs’ correctly (clothing especially). <b>3 marks</b></p> <p><i>Credit any other appropriate response.</i></p>			

(iii)	Discuss the use of specialist attachments on the sewing machine when carrying out certain processes in the construction of textile products.		✓	5
<p><i>Answers that indicate an understanding of specialist machine attachments should be awarded up to 5 marks based on:</i></p> <p>There are a number of standard specialist attachments for use on a sewing machine without which many processes cannot be carried out with a high level of success; zips require different special presser foot according to type of zip i.e. cannot insert invisible zip without special presser foot attachment – it will not lie flat or be near invisible as it should; some presser feet allow you to stitch very close to a specific point such as the edge on piping; quilting requires specialist attachment because of the bulk of material under the foot. All examples lead to a high level of accuracy; specialist feet allow processes to be conducted more easily and are there as a support for the process; QC issues.</p> <p><i>Candidates may give additional examples all of which must be explained and a conclusion drawn.</i></p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>Brief description, very little detail for example:</i></p> <p>Using a specialist foot allows you to put a zip in place properly. <span style="float: right;"><b>1 mark</b></span></p> <p><i>Some detail with some understanding of specialist feet for example:</i></p> <p>Using a special foot allows you to put a zip in place properly and allows you to stitch exactly where you need to. <span style="float: right;"><b>2 marks</b></span></p> <p><i>A more detailed level of understanding of specialist feet for example:</i></p> <p>Using specialist presser feet allows the process to be done properly for example an invisible zip needs a special foot otherwise you will see the zip from the outside which is not acceptable. <span style="float: right;"><b>3 marks</b></span></p> <p><i>Detailed explanation of the use of specialist feet for example:</i></p> <p>Using specialist presser feet allows whatever process is being carried out to be done neatly and correct. The attachments are made to support the machinist in achieving a better finish for example you need to stitch in a specific place on a zip, the attachment allows this to be done. <span style="float: right;"><b>4 marks</b></span></p> <p><i>Full and detailed knowledge and understanding of specialist feet for example:</i></p> <p>Using specialist presser feet allows whatever process is being carried out to be done neatly and correct. The attachments are made to support the machinist in achieving a better finish for example you need to stitch in a specific place on a zip, the attachment allows this to be done. It is essential to the success of the product that during manufacture where specialist attachments are needed for the process they are used to get the best finish possible. <span style="float: right;"><b>5 marks</b></span></p> <p><i>For full marks candidates must show evidence of drawing conclusions in their answer.</i></p>				
<b>Total</b>				<b>20</b>

Question 6		AO3	AO4	Mark
(a)(i)	<p>Is the type of weave used to make material A:</p> <ul style="list-style-type: none"> <li>• satin weave</li> <li>• herringbone weave</li> <li>• plain weave</li> <li>• pile weave</li> </ul>		✓	1
<p><i>Award 1 mark for the correct answer:</i> Plain (weave) <b>Guidance to markers</b> <i>Incorrect / no answer</i> <b>Only correct answer:</b> Plain</p>			<b>0 mark</b>	
			<b>1 mark</b>	
(ii)	<p>The manufacturer has decided that Material B: Twill weave, is the best choice for the dungarees. Explain why a twill weave material is the most suitable choice for this product.</p>		✓	3
<p><i>Answers that indicate an understanding of the properties of a twill weave should be awarded up to 3 marks based on:</i> Twill weave is considered a stronger weave, more hardwearing; dungarees are for children playing/crawling around so the materials needs to withstand wear and tear; soiling and stains are less noticeable on the uneven surface of a twill weave unlike a smooth surface – useful feature in children’s wear. <b>Guidance to markers</b> <i>Incorrect/no answer</i> <i>Brief description of a twill weave, limited detail for example:</i> It’s quite a strong weave so will last a long time. <i>Some detail and understanding of the properties of a twill weave for example:</i> As it is a strong weave it will withstand a lot of wear and tear from children playing/crawling around. <i>A more detailed explanation with clear understanding of the properties of a twill weave for example:</i> As it is a strong and hardwearing weave it will withstand a lot of wear and tear from children playing/crawling around so the garment will last longer.</p>			<b>0 marks</b>	
			<b>1 mark</b>	
			<b>2 marks</b>	
			<b>3 marks</b>	

(iii)	To prolong the life of the child's dungarees a stain resistant finish needs to be applied to the material. Explain how this could be done and how it would prolong the life of the dungarees.		✓	4
<p><i>Answers that indicate an understanding of an appropriate stain resistant finish should be awarded up to 4 marks based on:</i></p> <p>Finish: a fluoro-chemical resin/chemical coating silicone / synthetic resin is applied to the surface of the material; scotch guard finish; Teflon coating; all aim at preventing clothing from staining and therefore prolonging the life of the product as it will remain in good condition for longer; children are likely to spill food/drinks on their clothing.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>Brief description, very little detail for example:</i></p> <p>Apply a finish that stops stains. <span style="float: right;"><b>1 mark</b></span></p> <p><i>Some detail with some understanding of stain resistance for example:</i></p> <p>Apply a chemical finish that will prevent stains from permanently ruining the dungarees. <span style="float: right;"><b>2 marks</b></span></p> <p><i>A more detailed explanation with clear understanding of stain resistance for example:</i></p> <p>Apply a chemical finish such as Teflon which will prevent food/drink spillages permanently staining the dungarees. <span style="float: right;"><b>3 marks</b></span></p> <p><i>Fully detailed explanation with clear understanding of stain resistance for example:</i></p> <p>Apply a chemical finish such as Teflon which will prevent food/drink spillages permanently staining the dungarees and as a result the dungarees would look good for longer – prolonging the life of the garment. <span style="float: right;"><b>4 marks</b></span></p>				
(b)	State the name of an electronic system that could be integrated into the dungarees and explain how it would give the parent peace of mind when the child is playing outdoors.		✓	4
<p><i>Answers that indicate an understanding of wearable electronics should be awarded up to 4 marks based on:</i></p> <p>Named electronic system is a GPS tracking system (accept any other technology tracking system).</p> <p>GPS tracking devices can be discreetly hidden within clothing or can be integrated into the material itself; an effective means allowing parents to monitor the child's movements if out of sight while allowing the child some independence; alerts the parent if the child moves too far away.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>Award 1 mark for correctly naming the electronic system:</i></p> <p>GPS tracker <span style="float: right;"><b>1 mark</b></span></p> <p><i>Explanation</i></p> <p><i>Brief description, very little detail for example:</i></p> <p>The system tracks the child's movement. <span style="float: right;"><b>1 mark</b></span></p> <p><i>Some detail with some understanding for example:</i></p> <p>As the GPS tracking device monitors the child's movement, the parent knows where the child is even if the child is not visible to them. <span style="float: right;"><b>2 marks</b></span></p> <p><i>A more detailed explanation with clear understanding of wearable electronics for example:</i></p> <p>The GPS tracking device could be included so that it monitors the child's exact movements when playing out of sight of a parent but would alert the parent if the child strayed too far away – peace of mind. <span style="float: right;"><b>3 marks</b></span></p>				



(c)(i)	Using notes and sketches explain how the frog design shown below could be appliquéd on to the pocket on the front of the dungarees. Include all appropriate steps to achieve the desired embellishment, including quality control measures in your answer.		✓	6
<p><i>Answers that indicate an understanding of appliqué should be awarded up to 6 marks based on:</i></p> <p>Methods for appliqué:</p> <ul style="list-style-type: none"> <li>• traditional appliqué using either interfacing or bondaweb;</li> <li>• using CAD to design shapes then cutting the shapes on the laser cutter using bondaweb.</li> </ul> <p><i>Either method must be fully explained and in a logical sequence to be awarded full marks.</i></p> <p>Appliqué: 1. Iron bondaweb to top piece of material (green) - <b>QC</b> point, bondaweb reinforces top material and keeps it in place. 2. Draw the frog shape and cut it out. 3. Peel off backing paper and iron it onto the pocket. 4. Stitch around the frog using a satin stitch. <b>QC</b> check stitch 5. Repeat the process for the white eyes. 6. Little details – nose, tongue could repeat appliqué or hand or machine embroider.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>Brief description, diagrams with little detail of the named process.</i> <span style="float: right;"><b>1 – 2 marks</b></span></p> <p><i>More detailed description, with some explanation of the named process included alongside basic sketches, may indicate QC.</i> <span style="float: right;"><b>3 - 4 marks</b></span></p> <p><i>Detailed descriptions and explanation, including clear understanding of the named process with clear sketches. Logical sequence. QC noted.</i> <span style="float: right;"><b>5 - 6 marks</b></span></p> <p><i>Answers will vary depending on the sketches/method used. Assess the work as a whole, look for the key points listed above, and apply marks for notes and sketches based on above mark descriptors.</i></p>				
(c)(ii)	The manufacturer is considering an alternative method of decorating the dungarees. Describe how the stitched monkey design shown below could be applied to the dungarees.		✓	2
<p><i>Answers that indicate an understanding of a suitable alternative method should be awarded up to 2 marks based on:</i></p> <p>The monkey design could be digitised from a drawing on suitable software; then transferred to a computerised sewing machine for stitching. The material would have to be clamped in an embroidery frame for this process. Accept that some computerised sewing machines also digitise images for stitching directly onto material.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <span style="float: right;"><b>0 marks</b></span></p> <p><i>A basic response:</i> <span style="float: right;"><b>1 mark</b></span></p> <p>Use the computerised sewing machine.</p> <p><i>A more developed response:</i> <span style="float: right;"><b>2 marks</b></span></p> <p>Digitise the image on the computerised sewing machine and stitch it on.</p>				

(d)	The personalised dungarees are to be manufactured using batch production. Explain in detail why batch production is the most suitable scale of production for this product.		✓	5
<p><i>Answers that indicate an understanding of batch production should be awarded up to 5 marks based on:</i></p> <p>The product is aimed at a specific target market so limited numbers would be required; customers would only want/need one of this garment type in this style; once it has a personalised feature – name on embroidery – this limits the market; doing embroidery such as that shown restricts the scale of manufacture; it is not specifically a seasonal product but could be perceived as such because of the long trouser length – autumnal/winter; it is not a bespoke garment.</p> <p><b>Guidance to markers</b></p> <p><i>Incorrect/no answer</i> <b>0 marks</b></p> <p><i>Brief description, very little detail for example:</i> Limited appeal so only a few would be needed. <b>1 mark</b></p> <p><i>Some detail with some understanding of batch production for example:</i> Target market is limited so they would only want one pair of dungarees, this limits numbers. <b>2 marks</b></p> <p><i>A more detailed level of understanding of batch production for example:</i> The design is only likely to appeal to a relatively small number of people so batch production seems the most suitable scale. Also the design is too complicated for mass production. <b>3 marks</b></p> <p><i>Detailed explanation for the use of batch production for example:</i> The design is only likely to appeal to a relatively small number of people so batch production seems the most suitable scale. Also the design of the embroidery is too complicated for mass production but could be done on a smaller scale. <b>4 marks</b></p> <p><i>Full and detailed knowledge and understanding of batch production fully explained for example:</i> The design is only likely to appeal to a relatively small number of people so batch productions seems the most suitable scale. Also the design of the embroidery is too complicated and it has been personalised consequently it is unsuitable for mass production but could be done quite easily on a smaller scale of a few hundred – batch. <b>5 marks</b></p>				
<b>Total</b>				<b>25</b>