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# **GCE AS MARKING SCHEME**

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**SUMMER 2024**

**AS  
DESIGN AND TECHNOLOGY - COMPONENT 1  
FASHION AND TEXTILES  
B601U10-1**

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## About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

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# EDUQAS GCE AS DESIGN AND TECHNOLOGY - COMPONENT 1

## FASHION AND TEXTILES

### SUMMER 2024 MARK SCHEME

#### Question 1

The cotton fibre shown opposite is one of the textile industry's most important and widely used fibres.

- An important property of cotton is absorbency. Using notes and a simple sketch explain how the cotton fibre is able to absorb moisture.
- Describe in detail **one** other property of the cotton fibre.
- Towels, like the ones shown below, are constructed from cotton yarns in a pile weave. Explain how the construction of the pile weave supports the towel's main function.

| Q 1 | Science | Maths |  | AO3 |  | AO4 |    |    |    |    | Total |
|-----|---------|-------|--|-----|--|-----|----|----|----|----|-------|
|     |         |       |  |     |  | 1a  | 1b | 1c | 2a | 2b |       |
| (a) | ✓       |       |  |     |  | 2   | 2  |    |    |    | 4     |

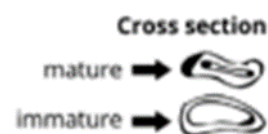
Candidates should demonstrate knowledge and understanding and be awarded up to 4 marks.

Candidates should produce a sketch with appropriate supporting notes to be awarded the full 4 marks. Award up to 3 marks for appropriate notes without a sketch. Award up to 3 marks for a detailed sketch but without notes.

No response or an inappropriate response – 0 marks

Responses may include:

- A kidney shaped cross section of the cotton fibre [1]
- Middle of kidney shape labelled as a hollow cavity [1]
- Moisture can penetrate outer skin on fibre [1]; fibre is hydrophilic [1]
- Moisture is stored in middle cavity, resulting in absorbency property [1]



*Credit other appropriate responses. Candidates may draw more than one diagram. Assess the work as a best fit and award marks accordingly.*

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |  |  |  |  |  |   |   |  |  |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|--|--|--|--|---|---|--|--|---|
| (b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ✓ |  |  |  |  |  | 1 |   |  |  | 1 |
| <p>Candidates should demonstrate understanding and be awarded 1 mark for a correct response.</p> <p>No response or an inappropriate response – 0 marks</p> <p>Award one mark for a response which may include:</p> <ul style="list-style-type: none"> <li>• Non-static as it contains moisture [1]</li> <li>• Fairly strong due to twisted nature of fibre [1]</li> <li>• Non-elastic, as it has little stretch [1]</li> <li>• Resistant to abrasion, long lasting [1]</li> <li>• Biodegradable so will decompose [1]</li> <li>• Highly flammable and will burn [1]</li> <li>• Creases easily because it is non elastic [1]</li> <li>• Poor insulator as it is a single elongated fibre [1]</li> <li>• Soft/cool as the fibres are breathable [1]</li> <li>• Natural fibre from plants that ensures non allergenic reaction [1]</li> </ul> <p><i>Credit any other appropriate descriptive response.</i></p> |   |  |  |  |  |  |   |   |  |  |   |
| (c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |  |  |  |  |  | 1 | 2 |  |  | 3 |
| <p>Candidates should demonstrate knowledge and understanding and apply it and be awarded up to 3 marks.</p> <p>No response or an inappropriate response – 0 marks</p> <p>Responses may include:</p> <ul style="list-style-type: none"> <li>• Pile weave has a raised surface effect [1]</li> <li>• Constructed by an additional weft row of 'loops' in the weave [1]</li> <li>• This increases the surface area of the towelling [1]</li> <li>• Increased surface area improves its ability to absorb moisture, supporting function [1]</li> </ul> <p><i>Credit any other appropriate response.</i></p>                                                                                                                                                                                                                                                                                                     |   |  |  |  |  |  |   |   |  |  |   |

## Question 2

Many different items of modern clothing contain the fibre elastane.

- (a) Using notes and sketches explain how the elastane fibre is incorporated into a yarn.
- (b) (i) Elastane is often incorporated into materials used in modern clothing and sportswear.  
The outfit worn by the professional cyclist pictured below, contains elastane. Describe the advantages to the cyclist of wearing clothing that contains elastane.
- (ii) Describe **one** way that elastane can improve the performance of a linen dress.
- (c) (i) Study the chart below which shows the sales figures for two types of cycle shorts over a six-month period.  
Using the data from the table state which type of shorts had the least number of sales over the six-month period.
- (ii) Calculate as a percentage (%) the increase in sales of cycle shorts for May and June when compared to the sales in the first four months.  
*Show all your workings.*

|     | Science | Maths |  | AO3 |    | AO4 |    |    |    |    | Total |
|-----|---------|-------|--|-----|----|-----|----|----|----|----|-------|
|     |         |       |  | 2a  | 2b | 1a  | 1b | 1c | 2a | 2b |       |
| (a) | ✓       |       |  |     |    |     | 3  |    |    |    | 3     |

Candidates should demonstrate understanding and be awarded up to 3 marks.

Candidates should produce a sketch with appropriate supporting notes to be awarded the full 3 marks. Award up to 2 marks for appropriate notes without a sketch. Award up to 2 marks for a detailed sketch without notes.

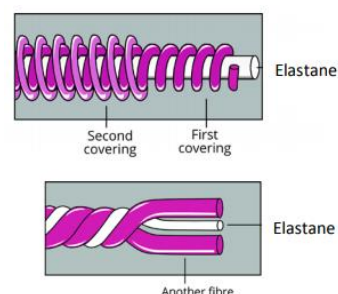
No response or an inappropriate response – 0 marks

Responses may include:

- Elastane fibre should be central in any sketch [1]
- A first covering of a different fibre could spiral around the elastane [1]
- A second covering of a different fibre wound spirally over first and elastane fibres to create one yarn [1]

Responses that relate to weaving the elastane into a fabric are **not** acceptable.

*Credit other appropriate responses. Candidates may draw more than one diagram. Assess the work as a best fit and award marks accordingly.*



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |  |  |  |   |   |   |  |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|--|--|--|---|---|---|--|---|
| <b>(b) (i)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |   |  |  |  | 2 |   | 2 |  | 4 |
| <p>Candidates should demonstrate knowledge and understanding and be awarded up to 4 marks for each advantage to the cyclist.</p> <p>No response or an inappropriate response – 0 marks</p> <p>Responses may include:</p> <ul style="list-style-type: none"> <li>• It allows the clothing to fit really well and close to the body – snug fitting [1]</li> <li>• Snug fitting clothing will potentially enhance your enjoyment of cycling [1]</li> <li>• Tight fitting clothing containing elastane won't snag on equipment, or fill up with air and act like a parachute to slow you down [1]</li> <li>• Elastane based fabrics are also efficient at wicking away sweat from your skin and acting as a barrier to bacteria [1]</li> <li>• The alternative to elastane kit is baggy shorts and a football type shirt, which could potentially defeat the object of going for a bike ride in the first place [1]</li> <li>• An aim in sports cycling is to get to destination fast, close fitting clothing allows for this [1]</li> <li>• It makes the cyclist/clothing aerodynamic – speed is important to cyclists [1]</li> <li>• Baggy clothing creates discomfort when cycling [1]</li> <li>• Elastane allows clothing to stay in place despite arm or leg movements when cycling [1]</li> <li>• Elastane/snug fitting clothes limits rubbing and chafing which will keep you more comfortable when riding [1]</li> </ul> <p><i>Credit any other appropriate response.</i></p> |   |   |  |  |  |   |   |   |  |   |
| <b>(ii)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ✓ |   |  |  |  | 1 |   |   |  | 1 |
| <p>Candidates should demonstrate knowledge and be awarded up to 1 mark.</p> <p>Only acceptable response:</p> <ul style="list-style-type: none"> <li>• Improves crease resistance of the linen material [1]</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |   |   |  |  |  |   |   |   |  |   |
| <b>(c) (i)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   | 1 |  |  |  |   | 1 |   |  | 1 |
| <p>Candidates should demonstrate understanding and be awarded up to 1 mark.</p> <p>Only acceptable response:</p> <ul style="list-style-type: none"> <li>• Nylon lycra® cycle shorts [1] (8500)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |   |  |  |  |   |   |   |  |   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |   |  |  |  |  |  |   |  |  |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---|--|--|--|--|--|---|--|--|---|
| (ii)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 4 |  |  |  |  |  | 4 |  |  | 4 |
| <p>Candidates should demonstrate knowledge and understanding and its application in this context to be awarded up to 4 marks based on:</p> <p>No response or an incorrect response – 0 marks</p> <p>Responses may include:</p> <ul style="list-style-type: none"> <li>Jan to April Total = 7,000      May to June Total = 10,300 [1]</li> <li> <math display="block">\frac{\text{May to June} - \text{Jan to April}}{\text{Sales over sixth month period}} \times 100 \text{ (correct formula)}</math> [1] </li> <li> <math display="block">\frac{10300 - 7000}{17300} \times 100\%</math> [1] </li> <li>Correct answer: 19.1% (rounded up) [1]</li> </ul> <p><i>Accept other methods of calculation.</i></p> <p><i>All calculations need to be shown for full marks.</i></p> |  |   |  |  |  |  |  |   |  |  |   |

### Question 3

The children's shorts pictured below feature an asymmetrical patch pocket.

- (a) Using notes and sketches, describe in detail the construction process of making and attaching the patch pocket to the shorts.
- (b) As the shorts are to be mass produced the manufacturer has decided to use an overlocker to finish all the internal seams. Explain why this is the best method to use.

| Q 3 | Science | Maths |  | AO3 |    | AO4 |    |    |    |    | Total |
|-----|---------|-------|--|-----|----|-----|----|----|----|----|-------|
|     |         |       |  | 2a  | 2b | 1a  | 1b | 1c | 2a | 2b |       |
| (a) |         |       |  |     |    |     |    |    | 4  |    | 4     |

Candidates should demonstrate knowledge of the design and make principle and be awarded up to 4 marks.

Candidates should produce sketches with appropriate supporting notes to be awarded the full 4 marks. Award up to 3 marks for appropriate notes without sketches. Award up to 3 marks for detailed sketches without notes.

No response or an inappropriate response – 0 marks

Responses should be based on:

- Cut small 'snips' in the smaller curved edge which forms the open edge of the pocket; this will allow it to fold over flat on the inside [1]
- Neaten the smaller curved to prevent fraying [1] **OR**  
A facing could be applied to the smaller curved edge [1]
- Top stitch this smaller curved edge [1]
- 'Snip' the deeper curved edge (on the curved corner) and fold to the inside [1]
- Place the pocket on the shorts, top stitch in place along deeper curved side [1]

**Note.** The deeper curved side does not require neatening only the short opening. The question does not require candidates to consider the waistband edge or side seam in their responses.

*Credit other appropriate responses. Candidates may only draw one diagram but has detail in the annotation. Assess the work as a best fit and award marks accordingly.*

|     |  |  |  |  |  |   |  |  |  |  |   |
|-----|--|--|--|--|--|---|--|--|--|--|---|
| (b) |  |  |  |  |  | 4 |  |  |  |  | 4 |
|-----|--|--|--|--|--|---|--|--|--|--|---|

Candidates should demonstrate knowledge and be awarded up to 4 marks.

No response or an inappropriate response – 0 marks

Responses should be based on:

- It's a fast and efficient method of joining seams, ideal for mass production [1]
- It cuts the fabric as it sews to produce a clean straight edge [1]
- It over-sews the edge creating a neat finish [1]
- It prevents the materials fraying – helps the durability of the product [1]
- The complete overlocked seam is done by one operator - efficient [1]
- It is not considered a bulky finish, will not cause the wearer discomfort [1]
- It is a cost-effective method of joining materials – one process [1]

*Credit other appropriate responses.*

#### Question 4

A textile designer is developing a new range of soft furnishing products.

- (a) (i) State the full name of the regulation that all soft furnishing products must comply with.  
(ii) Describe in detail what this regulation means and how it protects consumers.

- (b) The designer needs to develop a template for an eight-sided cushion that is part of the new collection. The cushion is symmetrical along the lines **a-b** and **c-d** as shown below.

Calculate the length in centimetres of the diagonal side marked 'X'.

Show all your workings.

- (c) The front of the eight-sided cushion will be embellished with circles encrusted with sequins, as shown below.

- 25,000 sequins are needed to cover one square metre of fabric.
- The sequins are sold in boxes containing 5,000 sequins.

Calculate how many boxes of sequins will be needed to complete a batch of 50 cushions.

Show all your workings.

| Q 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Science | Maths |  | AO3 |    | AO4 |    |    |    |    | Total |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|--|-----|----|-----|----|----|----|----|-------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |       |  | 2a  | 2b | 1a  | 1b | 1c | 2a | 2b |       |
| (a) (i)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |       |  |     |    | 1   |    |    |    |    | 1     |
| Candidates should demonstrate knowledge and be awarded 1 mark.<br>Only acceptable response:<br><ul style="list-style-type: none"> <li>• The Furniture and Furnishings (Fire Safety) Regulation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |       |  |     |    |     |    |    |    |    |       |
| (ii)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ✓       |       |  |     |    | 1   | 2  |    |    |    | 3     |
| Candidates should demonstrate knowledge and understanding to be awarded up to 3 marks.<br><br>No response or an inappropriate response – 0 marks<br><br>Responses should be based on: <ul style="list-style-type: none"> <li>• Definition of regulation – relates to all fabrics and padding materials used to cover or make settees, cushions, pillows and loose furnishings [1]; they must be resistant to 'smouldering from cigarette ignition'. [1]</li> <li>• Furnishings must be sold with a label identifying the regulation has been adhered to during manufacture [1]</li> <li>• Confidence in knowing the product meets the requirements should a fire break out in a home [1]; knowing it will not ignite instantly and spread [1]; allows time to escape or to extinguish the fire [1]; knowing that only materials which have gone through rigorous testing have been used - to keep you safe [1]</li> </ul> Candidates must address both parts of the question.<br><br>Credit other appropriate responses. |         |       |  |     |    |     |    |    |    |    |       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |   |  |  |  |  |  |   |  |  |   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---|--|--|--|--|--|---|--|--|---|
| (b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 5 |  |  |  |  |  | 5 |  |  | 5 |
| <p>Candidates should demonstrate knowledge and understanding and its application in this context to be awarded up to 5 marks.</p> <p>No response or an incorrect response – 0 marks</p> <p>Responses should be based on:</p> <ul style="list-style-type: none"> <li>Calculate the two sides of the 'virtual' triangle<br/>15cm horizontal along top<br/>14cm vertical side [1]</li> <li>Formula: to calculate remaining side <math>a^2 + b^2 = c^2</math> [1]</li> <li><math>c^2 = 15^2 + 14^2</math>    <math>c^2 = 225 + 196</math>    <math>c^2 = 421</math> [1]</li> <li>Correct calculation formula: <math>\sqrt{421}</math> (square root) [1]</li> <li>Correct answer: 20.25cm [1]</li> </ul> <p><i>Accept other methods of calculation.</i><br/><i>All calculations need to be shown for full marks.</i></p> |  |   |  |  |  |  |  |   |  |  |   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |   |  |  |  |  |  |   |  |  |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---|--|--|--|--|--|---|--|--|---|
| (c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | 5 |  |  |  |  |  | 5 |  |  | 5 |
| <p>Candidates should demonstrate knowledge and understanding and its application in this context to be awarded up to 5 marks.</p> <p>No response or an incorrect response – 0 marks</p> <p>Responses should be based on:</p> <ul style="list-style-type: none"> <li>Surface area of one circle: Surface area of one circle: <math>\pi r^2</math><br/><math>3.142 \times 0.05 \times 0.05 = 0.007855</math> [1]</li> <li>12 circles x 50 cushions x surface area one circle [1]</li> <li>Correct Answer: 4.713m<sup>2</sup> [1]</li> <li><math>4.713 \times 25000 = 117,825</math> sequins divided by 5000 (25,000 sequins for one square metre) [1]</li> <li>(23.565 boxes) rounded up to 24 whole boxes [1]</li> </ul> <p><i>Accept other methods of calculation.</i><br/><i>All calculations need to be shown for full marks.</i></p> |  |   |  |  |  |  |  |   |  |  |   |

### Question 5

The children's pyjamas pictured below are made from a polyester cotton fibre blend.

- (a) Describe the advantages of using a fibre blend such as polyester cotton to make the pyjamas.
- (b) An alternative fabric to use for the pyjamas is brushed cotton.
- (i) Describe the industrial process of brushing the cotton material.
- (ii) Describe the advantages to the wearer of using a brushed material for the pyjamas.

| Q 5 | Science | Maths |  | AO3 |    | AO4 |    |    |  |  | Total |
|-----|---------|-------|--|-----|----|-----|----|----|--|--|-------|
|     |         |       |  | 2a  | 2b | 1a  | 1b | 1c |  |  |       |
| (a) | ✓       |       |  |     |    | 1   | 4  |    |  |  | 5     |

Candidates should demonstrate knowledge and understanding and be awarded up to 5 marks.

No response or an inappropriate response – 0 marks

Responses should be based on:

- Combining fibres, provides best properties from each fibre in the blend [1]
- Polyester is cheaper than cotton so reduces the price of the fibre [1] which means a cheaper material for the pyjamas [1] competitively priced product for consumer [1]
- Cotton creases easily but polyester does not [1] makes for an easy care/less ironing for pyjamas [1]
- Polyester is stronger than cotton [1] so the blend becomes more hardwearing [1]
- Polyester is not absorbent/breathable, but cotton is [1] polyester dries quickly – ease of care [1]
- Cotton is comfortable next to the skin polyester less so (less breathable) [1]
- Polyester is not inherently incendiary so is difficult to ignite [1]

In order to gain full marks candidates must show knowledge of the combined properties of **BOTH** fibres.

*Credit other appropriate responses.*

|         |  |  |  |  |  |   |   |  |  |  |   |
|---------|--|--|--|--|--|---|---|--|--|--|---|
| (b) (i) |  |  |  |  |  | 1 | 1 |  |  |  | 2 |
|---------|--|--|--|--|--|---|---|--|--|--|---|

Candidates should demonstrate knowledge and understanding and be awarded up to 2 marks.

No response or an inappropriate response – 0 marks

Responses should be based on:

- Flat fabrics are passed through a series of rollers [1]
- The rollers have wire brushes that lift the fibres to form a nap [1]
- This creates the 'brushed' feel making them soft and fluffy [1]

*Credit other appropriate responses.*

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |  |  |  |  |  |   |  |  |  |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|--|--|--|--|---|--|--|--|---|
| (ii)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ✓ |  |  |  |  |  | 3 |  |  |  | 3 |
| <p>Candidates should demonstrate knowledge and understanding and be awarded up to 3 marks.</p> <p>Responses should be based on:</p> <ul style="list-style-type: none"> <li>• Brushed fabric is soft to the touch [1] making it very comfortable to wear [1]</li> <li>• During the process of creating the fabric it leaves a soft face that helps to trap heat (from the body) [1] which in turn keeps the wearer warm [1]</li> <li>• Fabrics can be brushed on both sides [1] making the fabric of the pyjamas even warmer to wear [1]</li> </ul> <p><i>Credit other appropriate responses.</i></p> |   |  |  |  |  |  |   |  |  |  |   |

### Question 6

The dress shown below is part of an Haute Couture collection.

Explain what is meant by Haute Couture and how it differs from Prêt-à-Porter.

| Q 6 | Science | Maths |  | AO3 |  | AO4 |  |    |    |    | Total |
|-----|---------|-------|--|-----|--|-----|--|----|----|----|-------|
|     |         |       |  |     |  |     |  | 2a | 2b | 2c |       |
|     |         |       |  |     |  |     |  |    | 5  |    | 5     |

Candidates should demonstrate understanding design and make principles and be awarded up to 5 marks.

No response or an inappropriate response – 0 marks

Responses should be based on:

- The main difference: 'Prêt-à-Porter' means 'Ready-to-Wear'. 'Haute Couture' is generally used to describe anything 'High Fashion' [1]
- Haute Couture is made to order for a private client [1], expensive and exclusive. [1]
- Haute Couture garments are made at the top level of hand customised fashion design and clothing construction made by a couture design house [1]
- Technically Haute Couture is made in Paris in a fashion house or Atelier [1]
- Couture designers have to show their collections twice a year and not less than 35 outfits in one collection. That rule makes the Couture collection more desirable [1]
- Haute Couture garments are made specifically for the wearer's measurements and body stance [1]
- Haute Couture garments are virtually made by hand, carefully interlined, stay taped and fitted to perfection for each client [1]
- Nowadays Haute Couture applies to all handmade and/or made-to-order garments, whether manufactured by seamstresses at Dior or aspiring fashion design students, [1] although not technically correct [1]
- The French system was historically based on its luxury textile industry and its ancillary industries of beading, embroidery, ribbons, and lace as well as its highly skilled artisans [1]
- Prêt-à-Porter (ready to wear) clothes are made in standard sizes [1]
- Prêt-à-Porter (ready to wear) clothes are not made to fit a particular person [1]
- Prêt-à-Porter garments are made for ordinary less affluent target market [1]
- The material and the intensity of labour of the ready-to-wear collections are much more moderate than the couture collections [1] making them more affordable to the masses [1]
- Prêt-à-Porter clothing is more casual, informal and practical and can be worn daily [1]

In order to gain full marks candidates must show knowledge and understanding of **both** Haute Couture and Prêt-à-Porter, and clearly show the differences.

*Credit any other appropriate response.*

### Question 7

Nano Technology has led to many innovative new developments in fibre and material technology.

- (a) Analyse the impact that microencapsulation has had in medical textiles.
- (b) Evaluate the use of electronics when incorporated into sportswear.

| Q 7 | Science | Maths |  | AO3 |    | AO4 |    |    |    |    | Total |
|-----|---------|-------|--|-----|----|-----|----|----|----|----|-------|
|     |         |       |  | 2a  | 2b | 1b  | 1c | 2a | 2b | 2c |       |
| (a) | ✓       |       |  | 4   |    |     | 2  |    |    |    | 6     |

Candidates should show evidence of logical reasoning or deconstruct information and apply this to technical principles to be awarded up to 6 marks.

Responses should be based on:

- Microencapsulated fabrics are the latest generation of intelligent textiles.
- Microencapsulation involves encapsulating liquid or solid substances in tiny thin-walled natural or synthetic bubbles.
- Microspheres gradually release active agents simply by mechanical rubbing, which ruptures the membrane over time.
- Microencapsulation has allowed moisturisers, therapeutic oils, antibiotics and antiseptics to be incorporated into fabrics.
- Medical application of encapsulation has centred on the delivery of drug treatments through clothing, to patients.
- One example is the delivery of antimicrobial treatments to cut down the bugs causing the hospital super-infection MRSA.
- The use of microencapsulated anti-bacterial has been encouraged by the difficulty in eliminating bacteria from clothing.
- Micro-encapsulated dressings cut down infections, dressings change less often, improves healing of wounds.
- Encapsulating drug molecules into microspheres in textiles enables controlled and sustained release, as well as targeted drug delivery.

*Encapsulating substances/liquids do not last the life of the product. Once substances/liquids are released they cannot be renewed or replaced.*

Candidates need to demonstrate an understanding of the principles of microencapsulation alongside analysing the impact in medical textiles to be awarded full marks.

*Credit any other appropriate response.*

| Band | Marks | AO3 2a                                                                                                                                                                                                                                                                   | Marks | AO4 1c                                                                                                    |
|------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------|
| 2    | 3-4   | Good analysis of the impact that microencapsulation has had in medical textiles. A sound discussion, which deconstructs information and provides adequate connections and reasoning. Generally well-considered and relevant factors used as a context for the discussion | 2     | Applies a sound knowledge and understanding of technical principles in the context of microencapsulation. |
|      |       | There is a line of reasoning which is generally coherent, mainly relevant and with some evidence and structure.                                                                                                                                                          |       |                                                                                                           |
| 1    | 1-2   | Limited analysis of the impact that microencapsulation has had in medical textiles. Little evidence of deconstructing information and limited connections are made. Few factors are identified.                                                                          |       | Applies a basic knowledge and understanding of technical principles in the context of microencapsulation. |
|      |       | There is limited evidence of relevant examples or structure.                                                                                                                                                                                                             |       |                                                                                                           |
|      | 0     | No response or work that is worthy of a mark.                                                                                                                                                                                                                            |       |                                                                                                           |

| Q 7 | Science | Maths |  | AO3 |    | AO4 |    |    |    | Total |    |
|-----|---------|-------|--|-----|----|-----|----|----|----|-------|----|
|     |         |       |  | 2a  | 2b | 1b  | 1c | 2a | 2b |       | 2c |
| (b) | ✓       |       |  |     | 4  |     |    |    |    | 2     | 6  |

Candidates should show clear evidence of appraisal and/or make judgements and apply this to designing and making principles to be awarded up to 6 marks.

Responses should be based on:

- Smart clothing is currently being developed to use embedded electronics to keep track of the health and performance of athletes.
- Electronic-equipped sports clothing already on the market include for example sports bras or T-shirts that register heart rate using conductive textiles.
- Sports clothing might also incorporate devices such as sensors and microprocessors which monitor an athlete's health, such as impact on the body, electrical information from the heart, the nervous system, sweat pH, blood pressure, gait, and strain on joints.
- These electronic devices process the data to generate information about metabolism and athletic performance and send it wirelessly to another device such as the athlete's smart phone or a trainer's laptop.
- Shoes can have electronic sensors that work with technology to help users work out smarter, more targeted improvement.
- Sensors could be simply counting steps to measure the distance travelled or the number of reps completed.
- New wearable technology is currently being developed where the garment itself becomes an active motion sensor. This uses a bend-sensitive fibre-optic that is stitched inside the clothing to provide intelligent feedback for athletes without them being encumbered by bulky electronics.
- Electronic devices can be bulky and uncomfortable to wear. They can be damaged easily and are expensive to replace.

Candidates need to demonstrate an understanding of the principles of designing and making sports clothing that incorporates electronics and how it impacts on athletes in order to be awarded full marks.

*Credit any other appropriate response.*

| Band | Marks | AO3 2b                                                                                                                                                                                                                                                                        | Marks | AO4 2c                                                                                                                                                                        |
|------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2    | 3-4   | Good evaluation of the use of electronics when incorporated into sportswear. A sound discussion which appraises and/or makes judgements about electronics when incorporated into sportswear. Generally well-considered, relevant issues used as a context for the discussion. | 2     | Applies a sound knowledge and understanding of design and make principles in the context of electronics in sportswear. Generally well-considered, relevant issues identified. |
|      |       | There is a line of reasoning which is generally coherent, mainly relevant and with some evidence and structure.                                                                                                                                                               |       |                                                                                                                                                                               |
| 1    | 1-2   | Limited evaluation of the use of electronics when incorporated into sportswear. Little evidence of appraising or making judgements about the use of electronics when incorporated into sportswear.                                                                            | 1     | Applies a basic knowledge and understanding of design and make principles in the context of electronics in textiles.                                                          |
|      |       | There is limited evidence of relevant examples or structure.                                                                                                                                                                                                                  |       |                                                                                                                                                                               |
|      | 0     | No response or work that is worthy of a mark.                                                                                                                                                                                                                                 |       |                                                                                                                                                                               |

## Question 8

Designers gain inspiration and ideas from the study of existing products.

Evaluate how a disassembly activity might benefit a designer when developing new fashion and textile products.

| Q 8 | Science | Maths |  | AO3 |    | AO4 |    |    |    |    | Total |
|-----|---------|-------|--|-----|----|-----|----|----|----|----|-------|
|     |         |       |  | 2a  | 2b | 1b  | 1c | 2a | 2b | 2c |       |
|     |         |       |  |     | 6  |     | 3  |    |    |    | 9     |

Candidates should provide evidence of appraisal and/or make judgements on technical principles to be awarded up to 9 marks based on:

Candidates need to show an understanding of what a disassembly activity is and the reasons a designer could benefit, should be based on:

- Taking a product apart to gain valuable information on a number of features.
- Virtual disassembly – studying a product without physically taking it apart.
- To source ideas and gain inspiration for new products.
- Ideas could come from shape and style of garments/products and style details.
- Pattern cutting techniques.
- Supports the development of new pattern templates.
- Evaluate successful techniques and processes (or otherwise).
- Understanding/testing of manufacturing processes.
- Construction techniques.
- Details of embellishments on clothing/products.
- Materials and components used and why.
- Evaluate a number of processes in a product – look for improved methods.
- Testing of materials and components.
- Improve safety.
- Helps development of superior / more competitive products.

*Accept other examples where candidates put forward links and explain the impact.*

| Band | Marks | AO3 2b                                                                                                                                                                                                                                                                                         | Marks | AO4 1c                                                                                                                                                                                                               |
|------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3    | 5-6   | Excellent evaluation of the use of a disassembly activity to a designer within the textile industry. A thorough discussion which appraises and/or makes judgements about the use of a disassembly activity. Well-considered, relevant wider issues used as a context for the discussion        | 3     | Applies a thorough knowledge and understanding of the technical principles of a disassembly activity in the context of designers developing new ideas. Well-considered, relevant wider issues identified.            |
|      |       | There is a sustained line of reasoning which is coherent, relevant, substantiated and logically structured.                                                                                                                                                                                    |       |                                                                                                                                                                                                                      |
| 2    | 3-4   | Good evaluation of the use of a disassembly activity to a designer within the textile industry. A generally sound discussion which appraises and/or makes judgements about the use of a disassembly activity. Generally well-considered, relevant issues used as a context for the discussion. | 2     | Applies a generally sound knowledge and understanding of the technical principles of a disassembly activity in the context of designers developing new ideas. Generally well-considered, relevant issues identified. |
|      |       | There is a line of reasoning which is generally coherent, mainly relevant and with some evidence and structure.                                                                                                                                                                                |       |                                                                                                                                                                                                                      |
| 1    | 1-2   | Limited evaluation of the use of a disassembly activity to a designer within the textile industry. Little evidence of appraising or making judgements about the use of a disassembly activity.                                                                                                 | 1     | Applies a basic knowledge and understanding of technical principles of a disassembly activity in the context of designers developing new ideas.                                                                      |
|      |       | There is limited evidence of relevant examples or structure.                                                                                                                                                                                                                                   |       |                                                                                                                                                                                                                      |
|      | 0     | No response or work that is worthy of a mark                                                                                                                                                                                                                                                   |       |                                                                                                                                                                                                                      |

### Question 9

Sustainable design is the philosophy of designing with the intention of reducing or eliminating environmental impact.

Analyse what a fashion and textile designer should consider when developing new products in order to comply with this philosophy. Exemplify your answer.

| Q 9 | Science | Maths |  | AO3 |    | AO4 |    |    |    |    | Total |
|-----|---------|-------|--|-----|----|-----|----|----|----|----|-------|
|     |         |       |  | 2a  | 2b | 1a  | 1b | 2a | 2b | 2c |       |
|     | ✓       |       |  | 6   |    |     |    |    |    | 3  | 9     |

Candidates should provide evidence of either deconstructing information, find connections and/or logical chains of reasoning and apply it appropriately to design and make principles to be awarded up to 9 marks based on:

A sustainable design will seek to incorporate environmentally preferable outcomes in any area of the textile industry:

- Energy and water consumption through the products life cycle – energy efficient.
- Use of carbon neutral activities – minimise the impact by reducing greenhouse gases.
- Use of renewable resources and emphasise a preference for recycling when and where possible.
- Reduce or eliminate waste by reducing consumption; re-use when possible; recycle where possible.
- Give preference to non-toxic materials and those that will contribute to the health and wellbeing of humanity.
- Emphasize quality and durability over price.
- Consider ease of repair for products over planned obsolescence.
- Consider upcycling of textile products - saving water, energy, chemicals, other resources.
- Organic materials and dyes.
- Reduce waste at pattern cutting stage – use materials economically, 15% of textiles intended for clothing ends up as waste.
- Less processes in products – minimise energy consumption in manufacture.
- Consider multi-functional products - reversible, worn in multi ways or add/edit components for a different look.
- Design for disassembly – design to take apart and reassembly as new style – reduces environmental impact.
- Consider using recycled materials.
- Ethical and moral issues.
- Impact on final disposal of products.
- Source of materials, finite resources, recycled materials, locally sourced.
- No fur or leather – ethical issues.

*Credit any other appropriate response.*

| Band | Marks | AO3 2a                                                                                                                                                                                                                                                                                           | Marks | AO4 2c                                                                                                                                                                                         |
|------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3    | 5-6   | Excellent analysis of sustainable design and what designers should consider in order to comply. A thorough discussion, which deconstructs information and demonstrates logical connections and reasoning throughout. Well-considered, relevant examples used to support the discussion.          | 3     | Applies a thorough knowledge and understanding of designing and making principles to illustrate, with well- considered, relevant examples, how fashion designers can design sustainably.       |
|      |       | There is a sustained line of reasoning which is coherent, relevant, substantiated and logically structured.                                                                                                                                                                                      |       |                                                                                                                                                                                                |
| 2    | 3-4   | Good analysis of sustainable design and what designers should consider in order to comply. A generally sound discussion, which deconstructs information and provides adequate connections and reasoning throughout. Generally well considered, relevant examples used to support the discussion. | 2     | Applies a generally sound knowledge and understanding of designing and making principles to illustrate, with generally well considered examples, how fashion designers can design sustainably. |
|      |       | There is a line of reasoning which is generally coherent, mainly relevant and with some evidence and structure.                                                                                                                                                                                  |       |                                                                                                                                                                                                |
| 1    | 1-2   | Limited analysis of sustainable design and what designers should consider in order to comply. Little evidence of deconstructing information and limited connections are made. Few examples used to support the discussion.                                                                       | 1     | Applies a basic knowledge and understanding of designing and making principles to partly demonstrate, with limited exemplification, how fashion designers can design sustainably.              |
|      |       | There is limited evidence of relevant examples or structure.                                                                                                                                                                                                                                     |       |                                                                                                                                                                                                |
|      | 0     | No response or work that is worthy of a mark.                                                                                                                                                                                                                                                    |       |                                                                                                                                                                                                |

### Question 10

The iterative process of design through modelling and testing is essential in developing new clothing ranges.

Explain how a fashion designer should utilise the iterative process when developing a new range of fashion products.

| Q 10 | Science | Maths |  | AO3 |  | AO4 |    |    |    |    | Total |
|------|---------|-------|--|-----|--|-----|----|----|----|----|-------|
|      |         |       |  |     |  | 1a  | 1b | 1c | 2b | 2c |       |
|      | ✓       |       |  |     |  |     | 8  |    | 4  |    | 12    |

Candidates should demonstrate knowledge and understanding **and** apply it to designing and making principles and technical principles to be awarded up to 12 marks based on:

Candidates need to demonstrate an understanding of different methods of modelling and testing throughout the development stage of a fashion product.

- Iterative design process based on a cyclic process of modelling, prototyping, analysing and refining a product or process – repetition.
- Confronting the reality of unpredictable user needs.
- Abandoning old ideas in favour of new ones – as a result of a wearer/user trial or opinion.
- Development of form through a toile or mock-ups – physical modelling.
- Construction of full prototype for clothing products– test for suitability.
- Development of ‘fit’ through a wearer trial toile - physical modelling.
- Testing of material suitability through the development of a toile - physical modelling – drape, elasticity, stretch, distortion, physical/working characteristics.
- Testing of materials and components for example: flammability, creasing, wash ability, shrinkage, stain resistance etc.
- Dimensions, proportions and sizes considered – ergonomics, anthropometrics.
- Functional development – focusing on details to improve/develop product.
- Aesthetic development – focussed on embellishments and trims.
- Development of component parts – aesthetic, functional incremental changes.
- Testing of construction process – individual parts, suitability against material choice.
- Rapid prototyping of 3D parts.
- Virtual prototyping through 3D or 2D design simulations.
- Empathy modelling – simulate user capability (physical or cognitive).
- Experience modelling – wearer trial, user interaction.

*Accept other viable appropriate suggestions.*

| Band | Marks | AO4 1b and 1c                                                                                                                                                                                               | Marks | AO4 2b and 2c                                                                                                                                                                                                                           |
|------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3    | 6-8   | Demonstrates and applies a thorough knowledge and understanding of the iterative process and how it informs the work of the fashion designer. Well-considered, relevant wider issues identified.            | 4     | Demonstrates and applies a thorough knowledge and understanding of designing and making, and technical principles in the context of the iterative process of design in fashion, drawing upon well-considered, relevant examples.        |
|      |       | There is a sustained line of reasoning which is generally coherent, relevant, substantiated and logically structured.                                                                                       |       |                                                                                                                                                                                                                                         |
| 2    | 3-5   | Demonstrates and applies a generally sound knowledge and understanding of the iterative process and how it informs the work of the fashion designer. Generally well-considered, relevant issues identified. | 2-3   | Demonstrates and applies a generally sound knowledge and understanding of designing and making, and technical principles in the context of the iterative process of design in fashion. Generally well-considered examples are provided. |
|      |       | There is a line of reasoning which is generally coherent, mainly relevant and with some evidence and structure.                                                                                             |       |                                                                                                                                                                                                                                         |
| 1    | 1-2   | Demonstrates and applies a basic knowledge and understanding of the iterative process and how it informs the work of the fashion designer. Few issues are identified.                                       | 1     | Demonstrates and applies a basic knowledge and understanding of designing and making principles and technical principles in the context of the iterative process of design in fashion. Few examples are provided.                       |
|      |       | There is limited evidence of relevant examples or structure.                                                                                                                                                |       |                                                                                                                                                                                                                                         |
|      | 0     | No response or work that is worthy of a mark                                                                                                                                                                |       |                                                                                                                                                                                                                                         |