The final first teach date for **AS Level Design and Technology: Fashion and Textiles (H005)** is **September 2026**. The final assessment opportunity will be **Summer 2027**.
There is no resit opportunity.

Cambridge OCR Level 3 Advanced Subsidiary GCE in Design and Technology: Fashion and Textiles (H005/01)

Principles of Fashion and Textiles

Sample Question Paper Version 3.3

Date – Morning/Afternoon

Time allowed: 1 hour 45 minutes

You may use:
- a scientific calculator
- a ruler
- geometrical instruments
- pencils/pens

First name									
Last name									
Centre number						**Candidate number**				

INSTRUCTIONS
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Write your answer to each question in the space provided. Additional paper may be used if necessary, but you must clearly show your candidate number, centre number and question number(s).
- Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.
- Do **not** write in the bar codes.

INFORMATION
- The total mark for this paper is **90**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of written communication will be assessed in this paper.
- This document consists of **20** pages.

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1 **Fig.1** shows different views of a pair of running leggings.

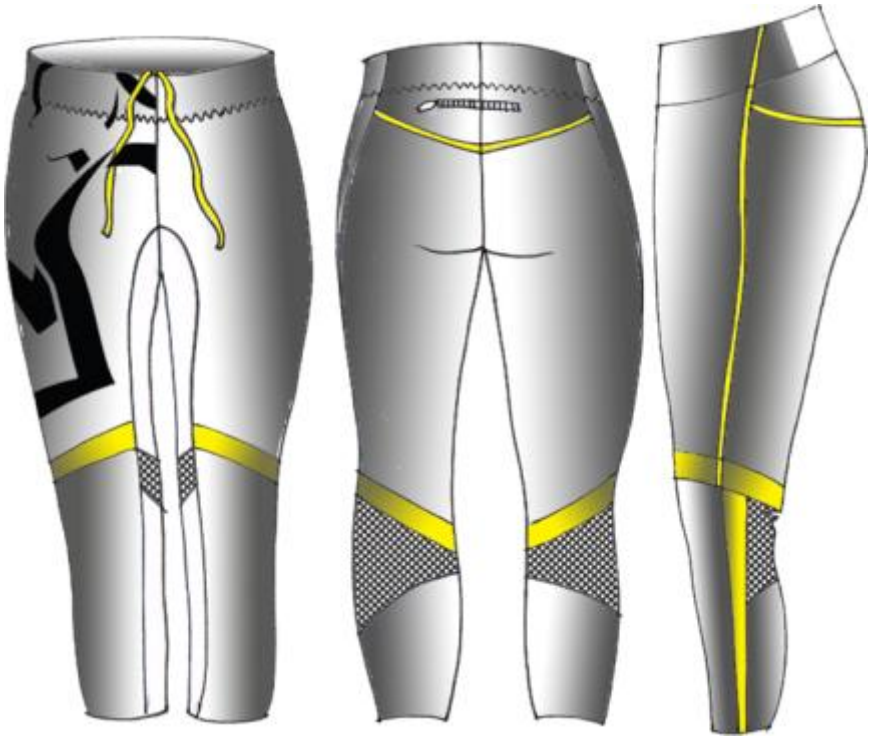

Fig. 1

(a) Give **three** factors to be considered to ensure the running leggings are successfully marketed.

1 ……..

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2 ……

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3 ……

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……**[3]**

(b) The running leggings have been constructed from a warp-knitted fabric that consists of 86% polyester and 14% elastane.

Explain **two** reasons why the described fabric is suitable for the running leggings.

1 ……..

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……...

2 ……

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……**[4]**

(c) Overlocking has been used to join the seams on the running leggings.

Explain **one** reason why this is the most suitable method for joining the fabric.

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……**[2]**

TURN OVER FOR NEXT QUESTION

(d) Yellow piping has been used as a decorative finish along some of the seams on the leggings.

Use sketches and notes to show how the outside leg seam would be completed in a workshop environment, including details of constructing and adding the piping.

[8]

(e) Many sportswear fabrics are constructed using blends. Discuss the benefits to the manufacturer and user of blended fabrics being used in sportswear.

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.....**[6]**

2 **Fig. 2** shows a diagram of a knee length knife pleated skirt with a plain waistband and side zip. The front and back views are the same.

Fig. 3 shows a close up of two knife pleats as would be drawn on the pattern template. The width of each pre-folded knife pleat is 6 cm and the spacing between each pleat is 2 cm.

Fig. 2

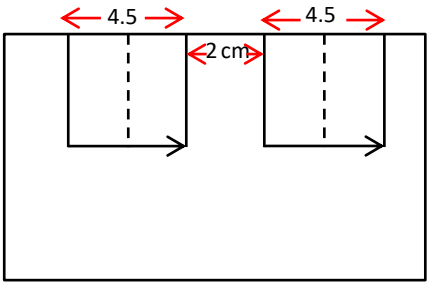


Fig. 3

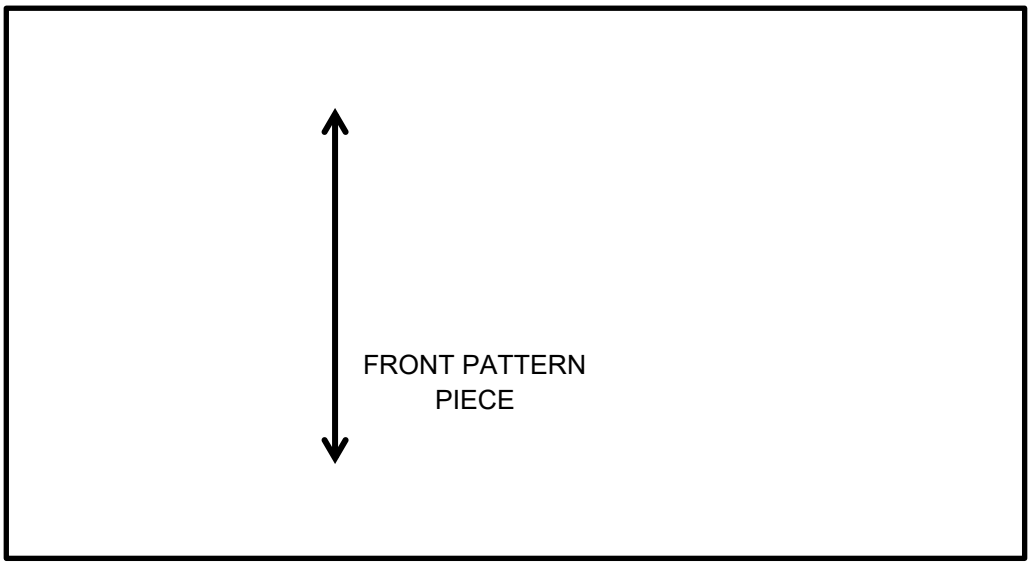
(a) The finished total waist of the skirt for a standard size 12 is 68 cm.

(i) Using the information in **Fig. 3**, calculate the correct amount of pleats to be inserted for a front pattern piece of the skirt in **Fig. 2**.

Number of pleats =……**[4]**

(ii) Apply your calculations from part **(i)** to the front pattern template below to show:

- a seam allowance of 1.5 cm
- pattern markings for the correct number of pleats
- The waist measurement for the pattern piece shown.



Not to scale

Waist measurement = ...cm **[3]**

(iii) Pleating is an example of reducing fullness. Another example is gathering.

The overall waist measurement for a size16 skirt is 77 cm. Gathering of the fabric on a skirt is calculated using ratios.

Using a ratio of 1 : 2¾ calculate the width of fabric required for the waist of a size 16 gathered skirt.

Width of fabric = ...cm **[1]**

(iv) A skirt costs £13.47 to manufacture.

A wholesaler uses a mark-up of 2.4 and then rounds to the nearest pound, to set their recommended retail price.

Calculate the retail price the wholesaler would recommend if they were making a 55% profit margin themselves when buying the skirt from the manufacturer.

Retail price = £…… **[2]**

(b) Fashion and textile products are frequently lined.

Give **three** reasons why lining is used.

1 ……..……..

……...

2……...

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3……...

……..**[3]**

3 **Fig. 4a** shows a travelling bag both open and closed.

Fig. 4a

(a) **(i)** State **one** fabric that would be suitable for the main body of the bag.

……**[1]**

(ii) Describe **one** performance characteristic that makes the fabric suitable for this use.

……

……**[2]**

(b) The fabric has been given a chemical finish.

(i) Give an example of a suitable chemical finish for the fabric of the bag.

……**[1]**

(ii) Explain why the chemical finish is suitable for the fabric of the bag and how it would be applied.

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……**[2]**

(c) A manufacturer considers the dimensions of the box required to transport their bags.

30 bags are packaged in each box.

Fig. 5 shows the dimensions of a box.

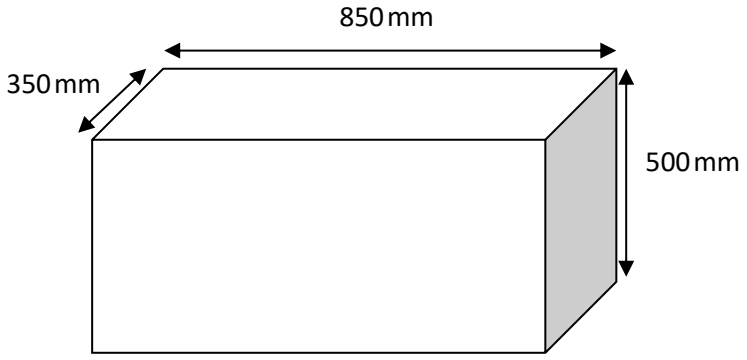

Fig. 5

(i) Using the information in **Fig. 5**, calculate the volume of the box in cm^3.

Volume = ……cm^3 **[1]**

(ii) An order of 450 bags is to be exported in a shipment container with a capacity of 15.95 cubic metres.

Using your answer to part **(i)**, calculate the volume that is left available in the shipment container in m^3.

Volume left available = ……m^3 **[1]**

(d) Explain how technical textiles could be used to enhance the functionality of the bag. Use examples to support your response.

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……**[6]**

4 A sleeping bag manufacturer is looking to expanded its range.

Fig. 6 shows a sleeping bag suitable for both indoor and outdoor use for unisex adults.

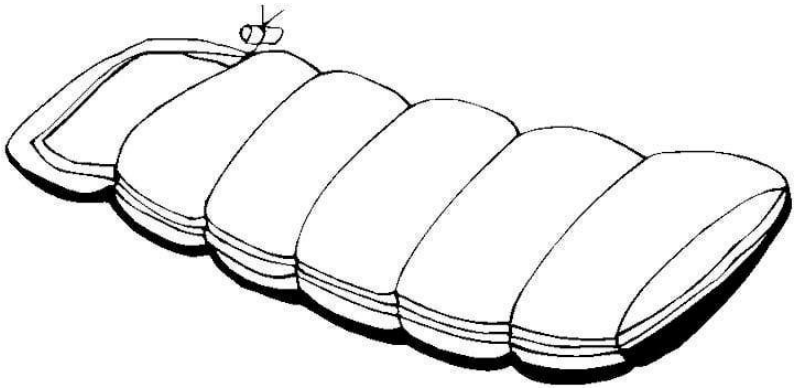

Fig. 6

(a) (i) The manufacturer has collaborated with a cartoon designer to include a range of sleeping bags that feature popular cartoon characters that would appeal to the younger age group. They have decided to use dye sublimation printing to apply the design onto the fabric.

Discuss the implications to the manufacturer and consumer of using dye sublimation printing to make the cartoon printed fabric for the sleeping bag.

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……**[6]**

(ii) When laid flat, the adult sleeping bag has an area of $1.75m^2$.

A child's sleeping bag is of similar proportions to the adult sleeping bag. To determine the dimensions of the child's sleeping bag, a scale factor of 0.7 is applied to the dimensions of the adult sleeping bag.

Calculate the area of the child's sleeping bag when laid flat.

Area =…….m^2 **[1]**

(b) The manufacture of the sleeping bag needs to consider the performance of their products in the environments they are intended to be used.

(i) In order to build the layers of material to ensure good quality thermal insulation, the main body of the sleeping bag is to be quilted.

Using sketches and notes to show how to quilt the sleeping bag shown in **Fig. 6** if made in a workshop.

[6]

(ii) The manufacturer of the sleeping bags trials 50 different materials to test their warmth and water-resistance.

27 passed the warmth test
32 passed the water-resistance test
12 did not pass either

Find the probability that a material selected at random from those that passed the warmth test also passed the waterproof test.

Probability = ……**[2]**

(iii)* Discuss how the environment in which a product is used affects material choice in terms of practicality and durability.

Use examples to support your response.

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……**[8]**

(c) The manufacturer is to expand their core range of sleeping bags to a range of hammock sleeping bags suitable for varied weather conditions and that can be fixed to trees with different diameters.

Give **four** justified modifications that could be made to the current design to make it suitable for the outlined requirements.

Modification 1……..

……..…

……..

Modification 2……..

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Modification 3……..

……..…

……..

Modification 4……..

……..…

……..**[4]**

5 **(a)** 'Many high street fashion garments have a very short lifecycle'

Explain **two** reasons why this is the case.

1……..……

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……..……

2……..……..…

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……..……**[4]**

(b)* Discuss possible ways in which the lifecycle of a purchased garment from a high street retailer could be extended and in doing so, limit environmental damage.

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……**[8]**

END OF QUESTION PAPER

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Summary of updates

Date	Version	Details
April 2022	3.2	Updated copyright acknowledgements.
March 2026	3.3	Withdrawal information of qualification, including final first teach date and final assessment opportunity date.

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TravelMall

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…day June 20XX – Morning/Afternoon

Cambridge OCR Level 3 Advanced Subsidiary GCE in Design and Technology: Fashion and Textiles

H005/01 Principles of Fashion and Textiles

SAMPLE MARK SCHEME

Duration: 1 hour 45 minutes

MAXIMUM MARK 90

This document consists of 32 pages

PREPARATION FOR MARKING

SCORIS

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *scoris assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to scoris and mark the **required number** of practice responses ("scripts") and the **required number** of standardisation responses.

   YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the scoris 50% and 100% (traditional 50% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone, email or via the scoris messaging system.

5. Work crossed out:
   a. where a candidate crosses out an answer and provides an alternative response, the crossed out response is not marked and gains no marks
   b. if a candidate crosses out an answer to a whole question and makes no second attempt, and if the inclusion of the answer does not cause a rubric infringement, the assessor should attempt to mark the crossed out answer and award marks appropriately.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there then add a tick to confirm that the work has been seen.

7. There is a NR (No Response) option. Award NR (No Response)
   - if there is nothing written at all in the answer space
   - OR if there is a comment which does not in any way relate to the question (e.g. 'can't do', 'don't know')
   - OR if there is a mark (e.g. a dash, a question mark) which isn't an attempt at the question.

   Note: Award 0 marks – for an attempt that earns no credit (including copying out the question).

8. The scoris **comments box** is used by your Team Leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**
   If you have any questions or comments for your Team Leader, use the phone, the scoris messaging system, or email.

9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.

10. **Annotations**

Annotation	Meaning
BP	Blank page
✔	Point where mark is awarded
✘	Incorrect response
L1	Level one response
L2	Level two response
L3	Level three response
ECF	Error carried forward
BOD	Benefit of doubt accepted
REP	Repetition
SEEN	Noted, but no credit given
PD	Poor Diagram offering unclear response

11. **Subject-specific Marking Instructions**

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:

- the specification, especially the assessment objectives
- the question paper
- the mark scheme.

You should ensure that you have copies of these materials.

You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet **Instructions for Examiners**. If you are examining for the first time, please read carefully **Appendix 5 Introduction to Script Marking: Notes for New Examiners**.

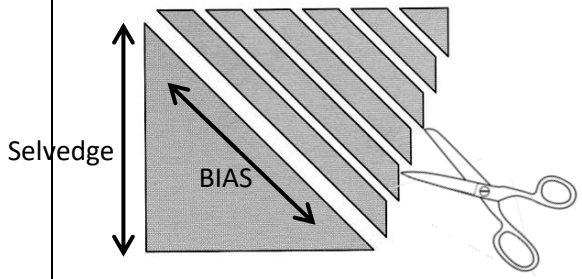
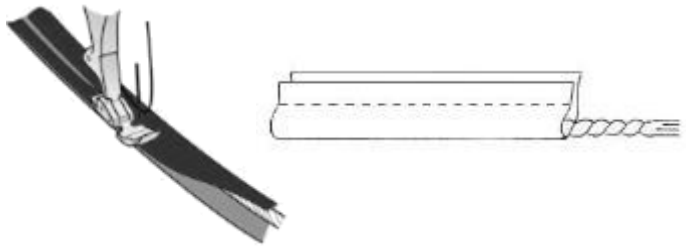
Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

The breakdown of Assessment Objectives for AS Level in Design & Technology.

	Assessment Objective
AO3	**Analyse and evaluate –** • **design decisions and outcomes, including for prototypes made by themselves and others** • **wider issues in design and technology**
AO3.1a	Analyse design decisions and outcomes, including for prototypes made by themselves and others
AO3.1b	Evaluate design decisions and outcomes, including for prototypes made by themselves and others
AO3.2a	Analyse wider issues in design and technology
AO3.2b	Evaluate wider issues in design and technology
AO4	**Demonstrate and apply knowledge and understanding of –** • **technical principles** • **design and making principles**
AO4.1a	Demonstrate knowledge of technical principles
AO4.1b	Demonstrate understanding of technical principles
AO4.1c	Apply knowledge and understanding of technical principles
AO4.2a	Demonstrate knowledge of design and making principles
AO4.2b	Demonstrate understanding of design and making principles
AO4.2c	Apply knowledge and understanding of design and making principles

Question			Answer	Marks	Guidance
1	(a)		Factors to ensure the successfully marketing of the running leggings, e.g.: Considering appropriate methods to attract the market ensuring a link to sports and fitness is promoted (✓). Knowing the typical demographic of the target market to ensure the cost of the leggings fits into a bracket they will be able to afford (✓). The manufacturer could successfully brand the leggings by establishing the target market and creating a mission statement; similar to Nikes – 'To bring inspiration and innovation to every athlete in the world.' (✓). Other considerations may include: • Sports personalities promoting the product • Focusing on a USP that highlights their superiority to similar leggings • Make sure that the leggings reflect trends in the market that could inform decision-making • Develop a logo and tag line that is specific to sportswear and that would create an identity that would encourage runners/athletes to purchase them. **Award credit for any other appropriate response.**	**3** **AO4 2c**	1 mark for each of three factors that ensure the successful marketing of the running leggings. Specific reference to marketing references in relation to the running leggings is needed for the marks.
1	(b)		Reasons why the warp-knitted polyester fabric is suitable for the running leggings, e.g.: Knitted construction allows the fabric to stretch two ways (✓) and fit close to the body making it more comfortable for the wearer whilst running (✓) Warp knitted fabric construction prevents the fabric from	**4** **AO4 1c**	1 mark for each of two reasons why the warp-knitted polyester fabric is suitable for the running leggings. 1 mark for explaining the why the reasons is suitable. Specific reference to the warp-knitted polyester fabric in relation to the running leggings is needed for the marks.

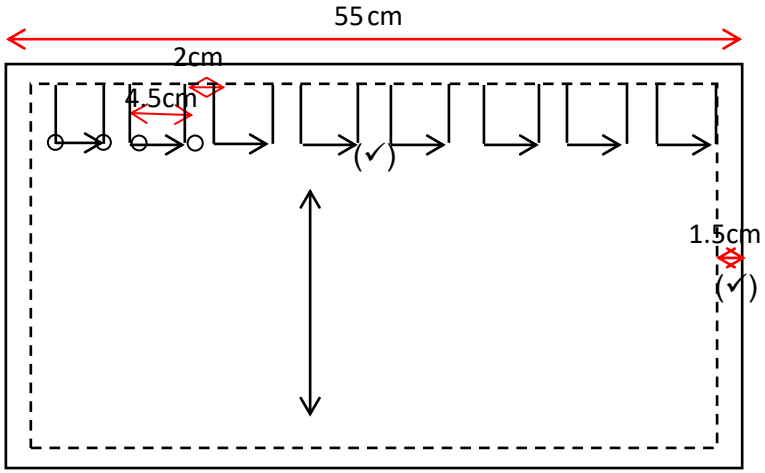
Question			Answer	Marks	Guidance
			laddering (✓) which is important in a garment that will be worn both in and outdoors and needs to be hardwearing. (✓) Other responses could include: • polyester content makes the fabric hardwearing • polyester is easy to care for; particularly for washing, drying and less likely to crease • elastane allows the fabric to return to its original shape when worn and gives it further stretch • elastane gives added comfort, softness and crease resistance. • warp knitted fabrics are less likely to shrink which is vital for leggings that would be frequently washed due to sweating during exercise. **Award credit for any other appropriate response.**		
1	**(c)**		Why overlocking is suitable for the running leggings, e.g.: Overlocking allows the stitching to stretch with the fabric without breaking (✓) which is more suitable for stretch fabrics and particularly needs to stretch as the leggings are tight fitting (✓). Other possible reasons why overlocking is suitable could include: • As the leggings are likely to be made in higher quantities, overlocking is a neater and faster process as it joins the fabric, neatens the edges and cuts the excess in one process. • Overlocking leaves less seam allowance and therefore is more comfortable and less bulky against the skin which is particularly importance with sportswear. **Award credit for any other appropriate response.**	**2** **AO4 1c**	1 mark for a reason overlocking is used on the running leggings. 1 mark for explaining why overlocking is a suitable method. Specific reference to overlocking in relation to the seams of the running leggings is needed for the marks.

Question			Answer	Marks	Guidance	
1	(d)		Indicative Content: The answer should include a mix of drawings and annotation to explain the key stages. • Fabric to cover the piping cord should be cut on the bias at a 45°angle.  • Bias strips are pinned over the cord • Piping is stitched to the cord using a zipper foot attachment to be able to stitch close to the cord.  • Piping is then sandwiched between the front and back side leg seam of the leggings and pinned into place. • Edges are joined in the same manner using a zipper foot. **Award credit for any other appropriate response.**	**8** **AO4** **8 x 1c**	**Comments** All processes demonstrated in the candidate's response must be in relation to the running leggings and have full consideration of the workshop processes involved in production. Candidates can draw on practical experience from the workshop to support their response to this question. If a candidate only produces notes or only produces sketches they can only access marks within Level 1.	**Levels or response** **Level 3 (6–8 marks)** The candidate will demonstrate a thorough knowledge of the piping process used to make the leggings in a workshop, applying this knowledge to how the outside leg seam of the running leggings would be completed with accurate technical terms and detailed consideration of any equipment required. Sketches used will be clear and supported with relevant notes. **Level 2 (3–5 marks)** The candidate will demonstrate a sound knowledge of some aspects of the piping process used to make the leggings in a workshop, applying this knowledge to how the outside leg seam of the running leggings would be completed with a reasonable use of technical terms and

Question			Answer	Marks	Guidance	
						consideration of any equipment required. Sketches used will for the most part be clear and supported with notes, most of which are relevant. **Level 1 (1–2 marks)** The candidate will demonstrate a limited knowledge of the piping process used to make the leggings in a workshop, applying this knowledge in a basic way to how the outside leg seam of the running leg seams would be completed with a limited use of technical terms and basic consideration of any equipment required. Sketches and/or notes will be unclear. **Level 0 (0 marks)** No response or no response worthy of credit.
	(e)		Indicative content: • By using a blend or a mix allows the manufacturer to develop a fabric that is suitable for its purpose. This means that many sportswear fabrics can have the benefit of being easy to wash and care for whilst at the same time being able to perform as required.	**6** **AO3** **2 x 1b** **AO4**	**Comments** All benefits demonstrated in the candidate's response must be in relation to sportswear.	**Levels or response** **Level 3 (5–6 marks)** The candidate will demonstrate a thorough

Question			Answer	Marks	Guidance	
			E.g. fabric that is a cotton and elastane. Cotton is breathable and therefore less likely to make you sweat when exercising and elastane allows the fabric to stretch and therefore making it comfortable for sportswear. • By using a mix or a blend the manufacturer can benefit from using less of a more expensive fibre but that could still be a selling point when marketing and that could be mixed or blended with a cheaper fibre that wouldn't hinder the fabrics performance. E.g. polyester is cost effective but very hardwearing and easy to care for but when blended with more expensive cotton makes it more suitable for sportswear as it is breathable. • New developments can be used that are specific for sportswear by blending and mixing fibres. e.g.; synthetic fibres that have UV resistance and having anti-microbial properties. • It is possible to combine the consumer requirements of aesthetics, design and function in sportswear for different end-use applications through the successful mix or blend if fibres. • The performance requirements of many sportswear products demand the balance of fibres to make full use of widely different properties of drape, thermal insulation, barrier to liquids, antistatic, stretch and physiological comfort.	**4 x 1c**	A candidate operating at Level 3 would be expected to access the majority of the AO4 (1c) marks and at least one of the AO3 (1b) marks. A candidate operating at Level 2 would be expected to access at least two of the AO4 (1c) marks, and at least one of AO3 (1b) marks. A candidate operating at Level 1 would only be expected to access AO4 (1c) marks.	discussion of the benefits to the manufacturer and user of blended fabrics being used in sportswear. The candidate shows a mature understanding and evaluation of the wider issues in the question through the use of examples and their discussion is more cohesive and well considered as a result. **Level 2 (3–4 marks)** The candidate will demonstrate a sound discussion of the benefits to the manufacturer and user of blended fabrics being used in sportswear. The candidate shows a reasonable understanding and evaluation of the wider issues in the question through the use of examples and their discussion for the most part is cohesive and well considered. **Level 1 (1–2 marks)** The candidate will demonstrates only knowledge of the benefits to the manufacturer and/or user of blended fabrics being

Question			Answer	Marks	Guidance	
						used in sportswear. Any understanding is limited with little consideration given to wider issues. There is no evaluation. **Level 0 (0 marks)** No response or no response worthy of credit.
2	**(a)**	**(i)**	68 ÷ 2 = 34 (one front panel from waist size) (✓) 4.5 (one pleat) ÷ 2 (because folded) = 2.25 (✓) 2.25* + 2 = 4.25 (total size of folded pleat and space) (✓) 34* ÷ 4.25* = **8** (number of pleats) (✓)	**4** **AO3** **1 x 1a** **AO4** **3 x 2c**	1 mark for deducing that the front panel is only half of the waist size. 1 mark for analysing the information in **Fig.3** and deducing that the pleat will be folded in half. 1 mark for calculating the total size of a folded pleat and the space to the next pleat. 1 mark for calculating the number of pleats from dividing the waist by the pleat requirements. *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**	

Question			Answer	Marks	Guidance
2	(a)	(ii)	 (8* × 4.5) + (8 × 2) + (2 × 1.5) = 55 cm (✓)	3 AO4 2c	* **Error carried forward from 2(a)(i)** 1 mark for illustrating the 1.5 cm seam allowance and for including it in the mathematical calculation. If either are not considered mark **must** not be awarded. 1 mark for illustrating 8 pleats on the template with appropriate consideration of the position (to one side with a 2cm space to the other side) 1 mark for the mathematical calculation of the measurement of the waist Candidates can draw on practical experience from pattern cutting and the workshop to support their response to this question. **Correct answer scores full marks.**
2	(a)	(iii)	77 x 2.75 = 211.75 cm = 212 cm	1 AO4 1c	1 mark awarded for correct calculation of the width of the fabric required.
2	(a)	(iv)	13.47 x 1.55 = 20.88 (✓) 20.88* x 2.4 = £50.11 = £50.00 (✓)	2 AO4 1c	1 mark for calculating the wholesale price. 1 mark for calculating the recommend retail price. *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**

Question			Answer	Marks	Guidance
2	(b)		Reasons why lining is used, e.g.: Creates a neater finish as the seams inside are covered on the inside by the lining (✓). Improved appearance as the lining allows extra weight to the skirt so drapes/hangs better (✓). Protects the outer more expensive fabric from perspiration as the lining fabric is touching the skin rather than the outer fabric (✓). Other responses could include: • Helps the skirt to have an improved shape by allowing the pleats to stay in position and hang well (✓). • Extra warmth if a winter garment as there will be two layers of fabric (✓). • Improved performance as the two layers of fabric will make the fashion or textiles product harder wearing (✓). **Award credit for any other appropriate response**	**3** **AO4 1a**	1 mark for each of three reasons why lining is used in fashion and textiles products
3	(a)	(i)	suitable fabrics for the main body of the bag *:* Polyamide (✓) Other possible response could include: • Polyester • Cotton • Cotton/polyester • Nylon **Award credit for any other appropriate response**	**1** **AO4 1c**	1 mark for identifying a suitable fabric for the main body of the bag. A fabric suitable for the travel bag is needed for the marks.

Question			Answer	Marks	Guidance
3	(a)	(ii)	Performance characteristics that make the fabric suitable for the travel bag, e.g.: Strong and hardwearing (✓); this is important for a bag that will be used frequently and will have to endure long journeys and temperatures (✓). Other possible performance characteristics could include: • Wipeable as the bag will have to carry a wide range of items including toiletries etc. • Cotton is strong when wet so will retain its structure in bad weather. **Award credit for any other appropriate response**	**2** **AO4 1c**	1 mark for identifying a performance characteristic of the fabric. 1 mark for describing its suitability in relation to the travel bag. Specific reference to the travel bag in relation to performance characteristics is needed for the marks.
3	(b)	(i)	Suitable chemical finish for the fabric of the bag, e.g.: water repellent coating (✓). Other possible responses may include: • easy care coating • stain resistant coating **Award credit for any other appropriate response**	**1** **AO4 1c**	1 mark for identifying a suitable chemical finish. (specific finishing products should be given credit when appropriate to the application). Suitability to the travel bag is needed for the marks.
3	(b)	(ii)	Explanation of use and application of chemical finish, e.g.: Water repellent finishes are suitable to ensure the fabric is non-absorbent and won't rot, (✓) the fabric is sprayed with water repellent chemicals (✓). Other possible responses may include: • Easy care – achieved by applying and curing by heat a resin finish making fabrics dry fast and smooth, with little need for ironing	**2** **AO4 1c**	1 mark for explaining why the chemical finish is suitable for the fabric of the bag. 1 mark for explaining how it is applied. Specific reference to a chemical finish suitable for the travel bag is needed for the marks.

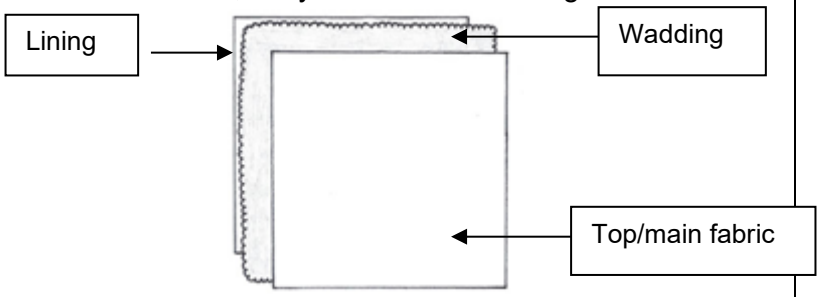
Question			Answer	Marks	Guidance
			• Stain-resistant – A fluorochemical resin is applied to make fabrics stain resistant. Synthetic resins are applied to resist oil based stains. • Hygienic – anti bacterial chemicals that hinder the growth of bacteria are sprayed onto to the surface of the fabric. **Award credit for any other appropriate response**		
3	**(c)**	**(i)**	$350 \times 850 \times 500 = 148\,750\,000 \div 1000 = 1.4875 \times 10^5\,cm^3$	**1** **AO4 2c**	1 mark for correctly calculating the volume of the box and converting units to cm^3. Accept $1.49 \times 10^5\,cm^3$ or $148\,750\,cm^3$ **Correct answer scores full marks.**
		(ii)	$(450 \div 30) \times 1.4875 \times 10^5\,cm^3$* $= 2.23125 \times 10^6\,cm^3 = 2.23125\,m^3$ (✓) $15.95 - 2.23125$* $= 13.71875\,m^3$ (✓)	**2** **AO4 2c**	*** Error carried forward from 3(c)(i)** 1 mark for correctly calculating the volume of the boxes required for 450 bags and converting units to m^3. 1 mark for correctly calculating the volume left available in the shipment container. *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**

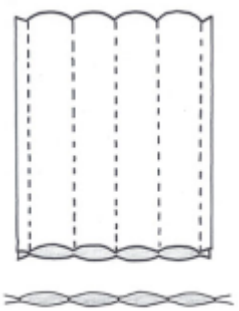
Question			Answer	Marks	Guidance	
3	(d)		Indicative content: • Gore-Tex; would make the bag suitable for a wide range of climates and holidays. • Kevlar; resistant to cutting and tearing. • Nano-technology self-cleaning fabrics triggered by sunlight would be suitable as the bag would be used in different conditions. • Fabrics that can generate solar power when exposed to sunlight; this could be useful for charging phones etc. when on holiday. Particularly when camping. • Fabrics that include GPS systems that can sense and track movement. • Phosphorescent textiles; this would enable the bag to glow and therefore easy to see in the dark. • Reflective textiles using glass beads. **Award credit for any other appropriate response.**	**6** **AO3** **2 x 1a** **AO4** **2 x 1b** **AO4** **2 x 1c**	**Comments** Answers need to be specific about the type of material and the enhancements it will deliver. Candidates can draw on practical experience from product analysis of products using technical textiles to support their response to this question. A candidate operating at Level 3 would be expected to access all of the AO4(1b) marks, all of the AO4(1c) marks and at least one of the AO3(1a) marks A candidate operating at Level 2 would be expected to access at least one of the AO4(1b) marks, at least one of the AO4(1c) marks and at least one of the AO3(1a) marks A candidate operating at Level 1 would be expected to access at least one of the AO4(1b) marks and at least one of the AO4(1c) marks	**Levels of response** **Level 3 (5–6 marks)** The candidate will demonstrate a thorough understanding of how technical textiles can be used to enhance the functionality of the bag. This understanding will be supported by an accurate use of technical terms and extensive use of examples which will indicate that the candidate is able to analyse design decisions from a number of different perspectives. **Level 2 (3–4 marks)** The candiate will demonstrate a sound understanding of how technical textiles can be used to enhance functionality of the bag. This understanding will be supported by a reasonable use of technical terms and some examples which will indicate that the candidate is able to analyse design decisions, albeit within a narrower focus.

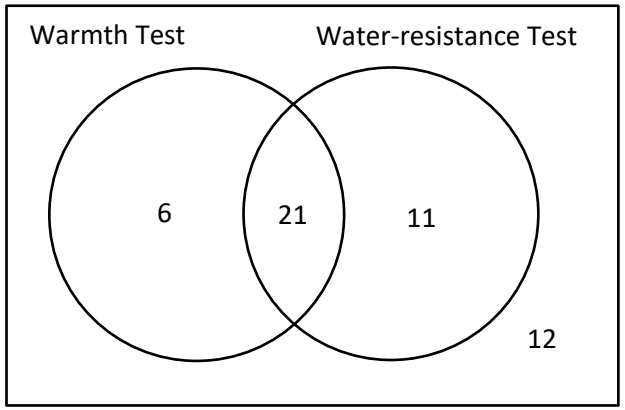
Question			Answer	Marks	Guidance	
						Level 1 (1–2 marks) The candidate will demonstrate a limited understanding and/or application of how technical textiles can be used to enhance functionality of the bag. This basic understanding will not contain any supporting analysis. **Level 0 (0 marks)** No response or no response worthy of credit.

Question			Answer	Marks	Guidance	
					Content	Levels of response
4	(a)	(i)	Indicative content: • Dye sublimation printing is a fast process when used in industry. This could be advantageous to the manufacturer and consumer as it allow for a very quick turn-around of manufacture and therefore it the cartoon designs could be updated quickly if a new character were launched, ensuring the products remain current. • As many popular cartoon characters and children's film characters are produced to an extremely high quality and clarity, dye sublimation printing would produce a higher quality and more realistic image. This is because the image is not printed in dots and a continuous tone which gives a brighter and smoother photographic finish which is synonymous with cartoon characters. • Many dye sublimation printers have the heated rollers integrated into the system so the fabric is fed through as it is being printed. This is more effective for large orders as it is quicker but a more expense is needed in the initial outlay. Also, the parts are very expensive to replace if anything goes wrong. • There can be a production problem as the fabric can get a wrinkle or crease in it whilst being fed through the rollers. This would result in a fault in the image and therefore the fabric would be wasted. • The highest clarity of print tends to be on polyester fabrics for dye sublimation printing which could be used for the sleeping bag as it makes it a cheaper fabric to purchase for the manufacturer and it is hardwearing and easy to wash. Manufactures will be able to do quick tests to see what materials the dye sublimation printing works well on. • As the ink becomes part of the structure of the fabric	**6** **AO3** **3 x 2b** **AO4** **3 x 1c**	Answers need to be specifically about the use of dye sublimation printing in relatoin to a child's sleeping bag. A candidate operating at Level 3 would be expected to access all of the AO4(1c) marks and the majority of the AO3(1a) marks. A candidate operating at Level 2 would be expected to access the majority of the AO4(1c) marks and at least one of the AO3(1a) marks. A candidate operating at Level 1 would be expected to access the majority of the AO4(1c) marks.	**Level 3 (5–6 marks)** The candidate will produces a thorough discussion of the implications to the manufacturer and consumer of using dye sublimation priniting. Candidate shows a mature understanding and evaulation of the wider issues in the question considering suitability of the printing process to its application on the child's sleeping bag. This creates a discussion that is both cohesive and well considered. **Level 2 (3–4 marks)** The candidate will produces a sound discussion of the implications to the manufacturer and consumer of using dye sublimation priniting. Candidate shows a reasonable understanding and evaulation of the wider issues in the question considering suitability of the printing process to its application on the child's sleeping bag. This creates a discussion that is for the

Question			Answer	Marks	Guidance	
					Content	Levels of response
			rather than on the surface, it is excellent for washing for the consumer as the image won't crack or fade. As the sleeping bag may need regularly washing if used by children this point would be advantageous for the manufacturer and consumer.			most part cohesive and well considered. **Level 1 (1–2 marks)** The candidate demonstrates a basic knowledge of the implications to the manufacturer and consumer of using dye sublimation priniting. Any understanding is limited with little consideration of the wider issues. There is no evaluation. **Level 0 (0 marks)** No response or no response worthy of credit.
4	**(a)**	**(ii)**	Max area = 1.75×0.7^2 $= 0.8575\ m^2$ (✓)	**1** **AO4 1c**	1 mark for calculating area using scale factor. **Correct answer scores full marks.**	

Question			Answer	Marks	Guidance	
					Content	Levels of response
4	(b)	(i)	Indicative content: 1. The fabric would be quilted before cutting out the pattern pieces to allow for shrinkage after quilting. If it was quilted after cutting out the pieces, the measurements should allow for shrinkage. 2. There would be a lining fabric for inside the sleeping bag, the wadding for the middle and the top fabric that would be visible. Therefore, 3 layers with the wadding in the middle.  3. All three layers need pinning and tacking to reduce slippage when sewing. 4. The sewing machine would need to be set up with a quilting foot and set to a suitable length to ensure parallel lines of stitching. 5. The sewing machine stitch length would need to be long, 6. The sewing machine foot pressure would need to be on minimum to allow the thickness of fabric. 7. Depending on the design of the quilting, (the one in the diagram is parallel rows), the first row of stitching would be done, reversing at the beginning and end of each row.	**6** **AO4 1c**	All processes demonstrated in the candidate's response must be in relation to the sleeping bag in **Fig. 6** and have full consideration of the workshop processes involved in production. Candidates can draw on practical experience from the workshop to support their response to this question. If a candidate only produces notes or only produces sketches they can only access marks within Level 1.	**Level 3 (5–6 marks)** The candidate will demonstrate a thorough knowledge of the quilting process used to make the sleeping bag in a workshop, applying this knowledge to how the process would be completed with accurate technical terms and detailed consideration of any equipment required. Sketches used will be clear and supported with relevant notes. **Level 2 (3–4 marks)** The candidate will demonstrate a sound knowledge of some aspects of the quilting process used to make the sleeping bag in a workshop, applying this knowledge to how the process would be completed with a reasonable use of technical terms and consideration of any equipment required. Sketches used will for the most part be clear and supported with notes, most of which are relevant.

			 Parallel quilted design 8. The next row would be sewn positioning the quilting foot guide on the previous row of stitching and taking care to remain on the line.			**Level 1 (1–2 marks)** The candidate will demonstrate a limited knowledge of the quilting process used to make the sleeping bag in a workshop, applying this knowledge in a basic way to how the process would be completed with a limited use of technical terms and basic consideration of any equipment required. Sketches and/or notes will be unclear. **Level 0 (0 marks)** No response or no response worthy of credit.

Question			Answer	Marks	Guidance
4	(b)	(ii)	50 – 12 = 38 passed at least 1 (✓) 38* – 27 = 11 $\frac{32 - 11}{27} = \frac{21}{27}$ $(= \frac{7}{9})$ (✓) Responses may be given through the use of a Venn diagram.  	**2** **AO4 2c**	1 mark for calculating the number that passed at least one test. 1 mark for calculating the number of those that passed at least one test that did not pass the 'waterproof' test and calculating the required probability (accept a non-cancelled down answer). *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**

Question			Answer	Mark	Guidance	
4	(b)*	(iii)	Indicative Content: Candidates will link their answer to extending the lifetime of the product and subsequently offering better value for money. Aesthetics may also come into the answer. The choice of materials should be discussed in terms of the environment. Construction workers will be outdoors for extended periods doing a manual job, working with tools that will snag the fabric and substances that will stain and damage, so the choice of fabric should be hard wearing, strong, have thermal qualities? They may mention the finish or features such as high visibility, knee pads built in. May choose a 100% polyester fabric, 65% polyester/35% cotton mix. Any suitable fibre or fibre blend should be accepted. The teenagers hold all will be made in a hard wearing fabric that is appropriate and strong as it will support the weight of devices it also needs to be have a finish applied that prevents damage from drinks and food, there will also need to be a flammability finish added as it will be used in their bedroom. The aesthetics will need to be considered as it will be reflecting the style of the room. May choose a 100% nylon fabric or a cotton canvas as long as the properties reflect the function. **Award credit for any other appropriate response.**	**8** **AO3** **2 x 1a** **3 x 1b** **AO4** **2 x 1b** **1 x 2b**	**Content** Candidates must use examples from their own experience to support their answer. Candidates can draw on practical experience from the product analysis to support their response to this question. A candidate operating at Level 3 would be expected to access the AO4 (1b/2b) marks, at least one of the AO3 (1a) marks and the majority of the AO3 (1b) marks A candidate operating at Level 2 would be expected to access most of the AO4 (1b/2b) marks and at least one of the AO3 (1a/1b) marks. A candidate operating at Level 1 would be expected to access AO4 (1b/2b) marks.	**Levels of response** **Level 3 (6–8 marks)** The candidate produces a thorough discussion of how the environment in which a product is used affects material choice in terms of practicality and durability. Candidate shows a mature understanding and analysis of the choice of materials in relation to their suitability in a product in relation to the environment they are designed for. This creates a discussion that is both cohesive and well-considered. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated with the use of examples. **Level 2 (3–5 marks)** The candidate produces a sound discussion of how the environment in which a product is used affects material choice in terms of

						practicality and durability. Candidate shows a reasonable understanding and analysis of the choice of materials in relation to their suitability in a product in relation to the environment they are designed for. This creates a discussion that for the most part is cohesive and well-considered. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence. **Level 1 (1–2 marks)** The candidate demonstrates a basic knowledge of how the environment in which a product is used affects material choice in terms of practicality and durability. Any understanding is limited in terms of the choice of materials in relation to their suitability in a product in relation to the environment they are designed for. There is no analysis or evaluation. The information has some

						relevance and is presented with limited structure or detail The information is supported by limited evidence. **Level 0 (0 marks)** No response or no response worthy of credit.

Question			Answer	Marks	Guidance
4	(c)		Justified modifications to the sleeping bag to make it suitable for a hammock sleeping bag in varied weather conditions, e.g.: Seams would have to be very strong to take the 'hanging' weight of a person. The seams could be flat fell or could be bound to strengthen them further. (✓) The 'base' of the sleeping bag would have to be very strong material or to take the weight. This could be high denier ripstop nylon (✓) A bought in component would need to be used to attach or the sleeping bag strap to the tree. This would need to be made from a material that is able to withstand varied weather conditions (✓) There would need to be a detachable cover that can be supported above the hammock to protect the user from insects and tree debris. (✓) Other responses could relate to: • Changing the length of the sleeping bag	**4** **AO3 1b**	1 mark for each of four justified modifications that cover the changed requirement of the sleeping bag to be modified as a hammock sleeping bag. Specific reference to suitability of the modifications in relation to the hammock sleeping bag in a varied weather outdoor environment is needed for the marks.

Question			Answer	Marks	Guidance
			• Material choices that are waterproof • Plastic zips so that they are rust proof • Adjustable webbing straps to support the position and size of the user. **Award credit for any other appropriate response.**		

Question			Answer	Marks	Guidance	
5	(a)		Why high street fashion garments have a very short lifecycle, e.g.: Fashion trends change rapidly (✓) and therefore the garment would have gone out of fashion and the buyer would replace with the 'latest' garment. (✓) The garment maybe a seasonal product (✓) and therefore would only be purchased and used at certain times of the year. (✓) Other possible responses could include: • Planned obsolescence. • Fast fashion garments from high street retailers may not be high quality. • Low cost garments results in them being easy to replace. • Changes in the latest technological developments can result in improved products being manufactured. **Award credit for any other appropriate response**	**4** **AO4** **2b**	1 mark for each of two reasons why high street fashion garments have a very short lifecycle 1 mark for explaining the reasons.	
5	(b)*		Indicative Content: • Ensuring the quality of the fabric from the fibres to the yarn ensure longevity of the product. • Construction methods carried out by trained operatives. • Colour fastness of the fabric to ensure the colour won't fade or 'run' in the wash. • Quality of manufacture from the seam allowance to the correct stitch. • Destructive testing for abrasion resistance prior to production to ensure product is suitable for its	**8** **AO3** **2 x 2a** **3 x 2b** **AO4** **1 x 2a** **2 x 2b**	**Comments** Candidates must only reflect on high street garments to support their answer. A candidate operating at Level 3 would be expected to access all of the AO4 (2a/2b) marks and the majority of the	**Level of response** **Level 3 (6–8 marks)** The candidate produces a thorough discussion of the ways in which the lifecycle of a high street garment could be extended and in doing so limit environmental damage. The candidate shows a mature understanding and analysis of the wider issues in the question considering positives and

Question			Answer	Marks	Guidance	
			purpose. • Correct washing and laundering instructions on the care label. • Making a garment that has appeal across seasons. • The use of recycled materials and components, passing on to charity shops. • Designing and making garments that are 'timeless' and classic to ensure they won't go out of fashion quickly. **Award credit for any other appropriate response.**		AO3 (2a/2b) marks. A candidate operating at Level 2 would be expected to access the AO4 (2a) mark, at least one of the AO4 (2b) marks and at least one of the AO3 (2a/2b) marks. A candidate operating at Level 1 would only be expected to access the AO4 (2a/2b) marks.	negatives in their response. This creates a discussion that is cohesive and well considered. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated with the use of examples. **Level 2 (3–5 marks)** The candidate produces a sound discussion of the ways in which the lifecycle of a high street garment could be extended and in doing so limit environmental damage. The candidate shows a reasonable understanding and analysis of the wider issues in the question considering positives and negatives in their response. This creates a discussion that is for the most part cohesive and well considered. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.

Question			Answer	Marks	Guidance	
						Level 1 (1–2 marks) The candidate demonstrates a basic knowledge of the ways in which the lifecycle of a high street garment could be extended. Any understanding is limited with little consideration given to wider environmental issues. There is no analysis or evaluation. The information has some relevance and is presented with limited structure or detail The information is supported by limited evidence. **Level 0 (0 marks)** No response or no response worthy of credit.

Assessment Objectives (AO) grid

Question	AO3	AO4
1a		3
1b		4
1c		2
1d		8
1e	2	4
2ai	1	3
2aii		3
2aiii		1
2aiv		2
2b		3
3ai		1
3aii		2
3bi		1
3bii		2
3ci		1
3cii		2
3d	2	4
4ai	3	3
4aii		1
4bi		6
4bii		2
4biii*	5	3
4c	4	
5a		4
5b*	5	3
Total	22	68
Overall Total	90	

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