The final first teach date for **A Level Design and Technology: Fashion and Textiles (H405)** is **September 2026**. The final assessment opportunity for the H405 qualification will be **Summer 2028**. There is no resit opportunity.

Cambridge OCR Level 3 Advanced GCE in Design and Technology

Fashion and Textiles (H405/01)

Principles of Fashion and Textiles

Sample Question Paper Version 3.2

Date – Morning/Afternoon

Time allowed: 1 hour 30 minutes

You may use:
- a scientific calculator
- a ruler
- geometrical instruments

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 **80**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended responses will be assessed in questions marked with an asterisk (*****).
- This document consists of **16** pages.

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1 **Fig. 1** shows the front and back view of a ski jacket.

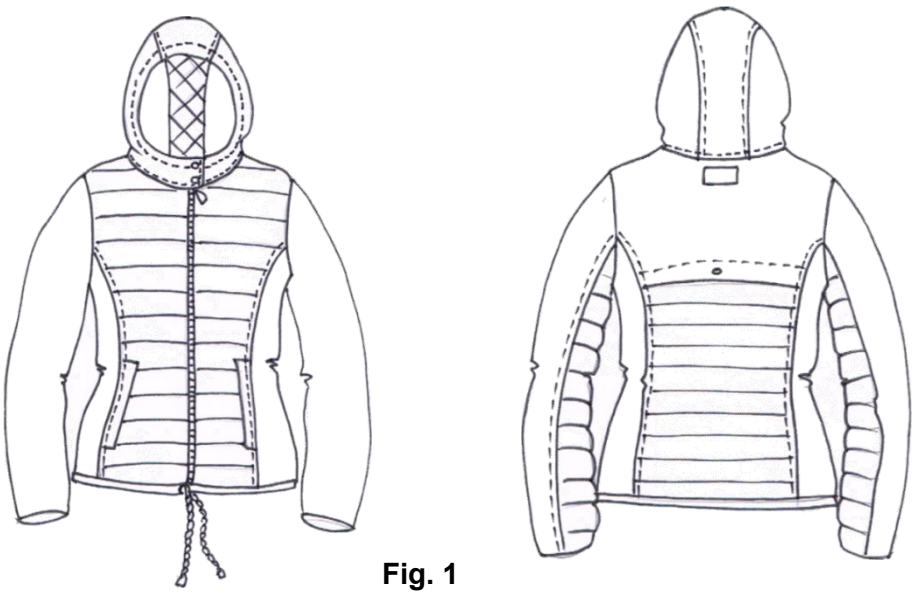

Fig. 1

(a) Ergonomic considerations have an important influence on the design of fashion and textile products.

Explain why ergonomics would have been considered by the designer for **two** features of the ski jacket in **Fig. 1**.

1 ……..

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2 ……

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……**[4]**

(b) The designer has to make a final decision on the choice of fabric for the outer shell of the jacket. The two options to select from are:

- Nylon plain weave 3 layer laminated fabric
- Polyester cotton twill weave with silicone finish

Select the fabric that would be the most appropriate and explain your choice.

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……**[3]**

(c) The designer of the ski jacket in **Fig. 1** has been asked to modify the purpose of the jacket to make it adaptable for cyclist to use in varying weather conditions.

Use sketches and notes to show modifications to make the jacket suitable for this different purpose.

It needs to:

- be adaptable for varying weather conditions
- show consideration of ergonomic changes.

[6]

Fig. 2 shows a front view of a haute couture ski jacket and **Fig. 3** shows a mass manufactured high street ski jacket.

Fig. 2

Figure 3 - Image redacted due to third party copyright restrictions.

Fig. 3

(d) Analyse **Fig. 2** and **Fig. 3** to consider the different manufacturing techniques that would be used for haute couture and mass manufacture.

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……**[6]**

(e) Discuss how the ski jacket manufacturer could implement a project management system into the production process to ensure efficiency and quality.

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2 A manufacturer of tents is looking to repurpose the design of an existing tepee as a play tent for a child's bedroom.

Fig. 4 shows tepees.

Fig. 4

(a) The manufacturer considers making the play tent to the same shape and proportions as a full size tepee. The full size tepee has an inside height of 1.85 m and a floor area of 6.8 m^2. The play tent will have an inside height of 1.05 m.

Calculate the floor area of the play tent.

Floor area = ... m^2 **[3]**

(b) The manufacturer has decided to modify the design of the outdoor tepee when repurposing it for the child's play tent. The re-design is show in **Fig. 5**.

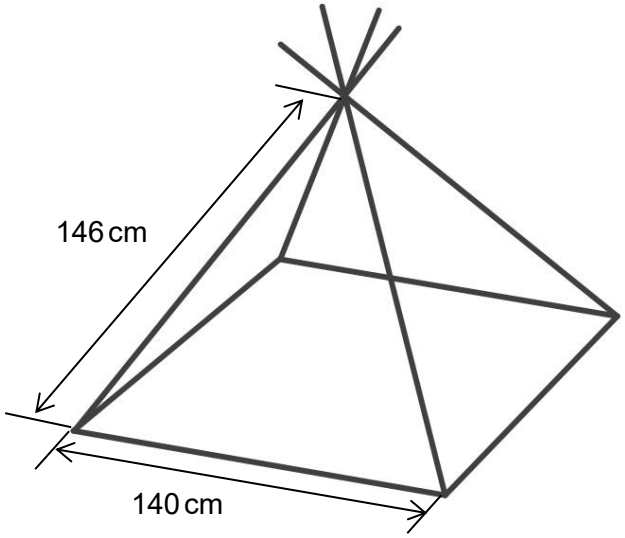

Fig. 5

(i) The four side panels of the re-designed play tent shown in **Fig. 5** are identical isosceles triangles.

Calculate the area of one side panel.

Side panel area = ……cm^2 **[2]**

(ii) The four poles that hold up the re-designed play tent are each 160 cm in length. One end of each pole touches the ground in a corner of the tent and the other ends stick out above the panels.

Calculate the overall vertical height of the whole re-designed play tent structure.

Vertical height = ……cm **[3]**

(iii) The material used for the child's tent in **Fig. 5** is supplied in rolls of fabric that are 142 cm wide and 100 m long.

Each tent has 4 side panels and a base constructed from this material.

Use sketches and calculations to show the maximum number of tents that could be made from one roll, using the most efficient use of the fabric.

Minimum number of tents = …….. **[4]**

(c) Describe **one** way in which the use of CAD could benefit the designer in the repurposing the tepee in **Fig. 4**.

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……**[2]**

(d) **Fig. 6** shows the comparison between adult and child tepee sales over a 12 month period.

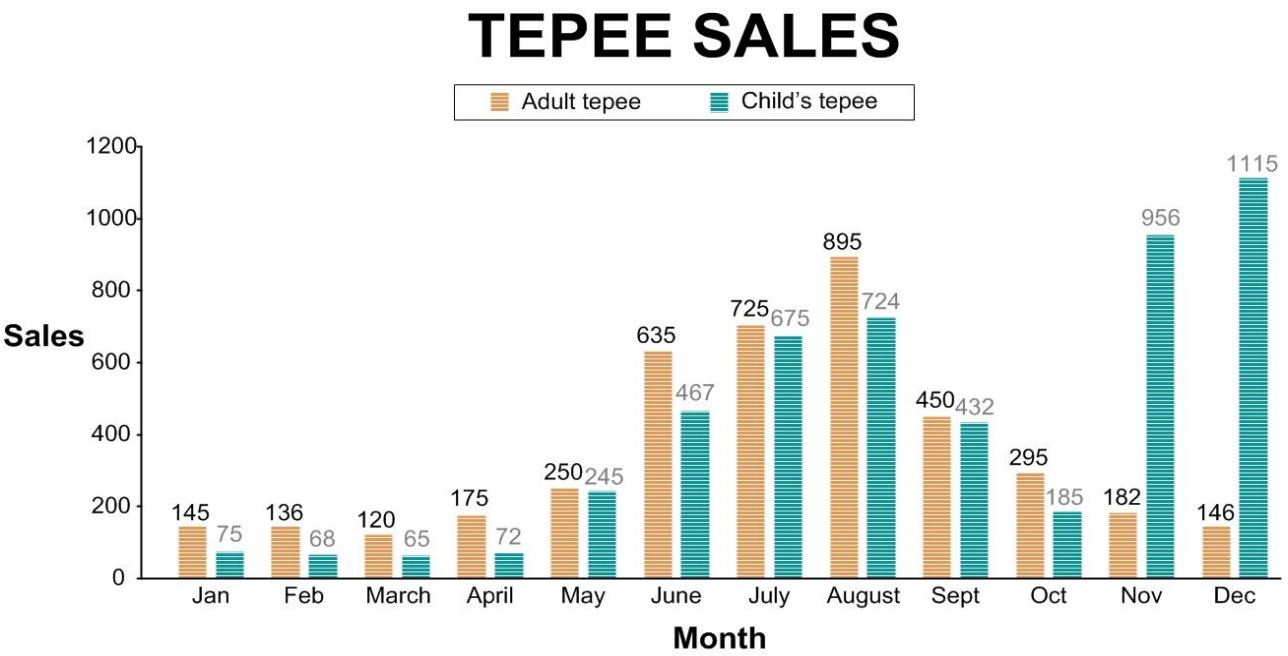

Fig. 6

(i) What is the percentage increase in mean adult tepee sales for June, July and August compared to for March, April and May?

……% **[2]**

(ii) Analyse the data in **Fig.6** to explain **two** reasons for the monthly fluctuation in sales of child's tepees throughout the year.

1……

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2……

……**[2]**

3 The emergence of new technologies in textile garments and accessories can encourage sales.

(a) **(i)** Nanofibres are a new fibre currently used in the development of fashion and textiles products.

Explain **two** benefits to the consumer of incorporating nanotechnology into sportswear clothing.

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_____……**[4]**

(ii)* The emergence of new technologies may lead to an existing product becoming obsolete.

Discuss how the development of new technologies in the fashion and textiles industry can encourage planned obsolescence. Use examples to support your answer.

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4 **Fig. 7** shows a pair of wool crêpe trousers that feature a front zip fly fastening, back darts, belt loops, welt back pockets and front pleats.

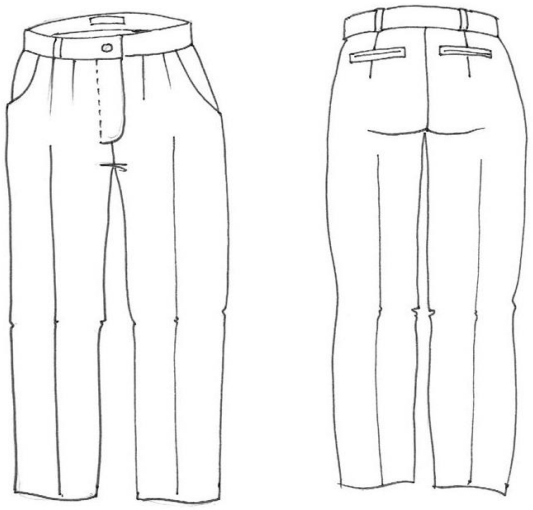

Fig. 7

(a) **(i)** Give **two** justified advantages and disadvantages of using 100% wool crêpe for the trousers in **Fig. 7**.

One set of justifications should relate to the aesthetics and one reason to the performance.

Aesthetic advantage

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Aesthetic disadvantage

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Performance advantage

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Performance disadvantage

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.....**[4]**

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(ii) Explain how the manufacturer of the crêpe trousers could utilise CAD and CAM throughout the design and manufacturing process.

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_____…….**[6]**

(b) The trouser manufacturer has allowed a specific amount of time for a range of processes.

- the outer leg seam requires 60 seconds to stitch and 50 seconds to overlock
- the inner leg seam requires 55 seconds to stitch and 30 seconds to overlock.

These times are correct to the nearest five seconds.

The production division allocates exactly 2 440 seconds of stitching time and exactly 1 680 seconds of overlock time for a quantity of 20 trousers.

(i) Calculate the maximum time for stitching and overlocking the inner and outer leg seams for 20 trousers.

Maximum time for stitching =……, Maximum time for overlocking = ……. **[2]**

(ii) State whether the production division's time allocation is appropriate and why.

……

…….. **[1]**

(c) **“**Product assurance is important for reasons of consumer safety.”

(i) Explain the implications of this statement in relation to fashion and textiles products using examples in your response.

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……..**[4]**

(ii) Discuss the implications of all forms of product labelling within the fashion and textile industry. You should consider both the consumer and manufacturer in your response.

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……..**[6]**

END OF QUESTION PAPER

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Summary of updates

Date	Version	Details
April 2022	3.1	Updated copyright acknowledgements. Figure 3 – Image redacted due to third party copyright restrictions.
March 2025	3.2	Withdrawal information for **A Level Design and Technology: Fashion and Textiles (H405)** including final first teach date and final assessment opportunity date. Updated copyright acknowledgements

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Oxford Cambridge and RSA

…day June 20XX – Morning/Afternoon

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

H405/01 Principles of Fashion and Textiles

SAMPLE MARK SCHEME

Duration: 1 hour 30 minutes

MAXIMUM MARK 80

This document consists of 24 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 A Level in Design & Technology

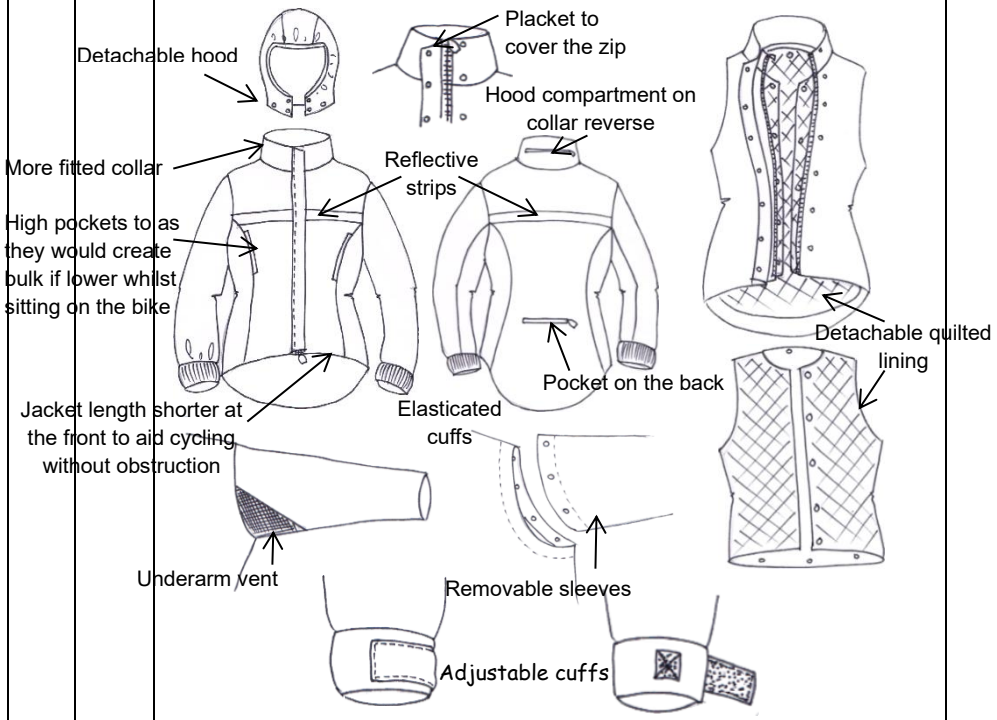
	Assessment Objective
AO3	**Analyse and evaluate –** • **design decisions and outcomes, including for prototypes made by themselves and others** • **wider issues in design and technology**
AO3.1a	Analyse design decisions and outcomes, including for prototypes made by themselves and others
AO3.1b	Evaluate 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)		Reasons why ergonomics will have been considered, e.g.: The hood size is important as it needs to stay on the head but may have to fit a helmet underneath but still stay in position (✓). The size must therefore have an adjustable fastening to allow flexibility in use. (✓) The fit of body of the jacket is important (✓) as the skier needs ease of movement while skiing whilst remaining warm and protected. (✓) Other possible ergonomic considerations could come from: • length of the jacket; it mustn't be too long otherwise it could hinder movement and too short would be uncomfortable as the user would be cold and want to pull the jacket down. • length of the sleeve; they are usually designed to be longer than standard sleeve lengths as the arm is bent for skiing action. The sleeve should also allow for other layers of clothing under and should not be constrictive. • pocket size and position of them; they should be easy to access belonging like the ski pass/ goggles etc. but not be bulky or hinder movement. • ease of fastening; the fastening of the jacket needs to protect the skier from cold air etc. but must be easy to open and close. This should also be the case if hands are cold and therefore the fastening may be more difficult to operate. • comfort of the cuff; the cuff should allow the skier to wear gloves that should fit neatly under the cuff. Or the cuff may include a glove. The cuff could be elasticated of have an adjustable fastening to allow it to be fitted individual to the skier for comfort.	**4** **AO4 2c**	1 mark for each of two identified features where ergonomics would have been considered when designing the ski jacket. 1 mark for explaining why ergonomics would have been considered for this feature. Specific reference to ergonomics in relation to the ski jacket is needed for the marks.

Question			Answer	Marks	Guidance
			• insulation used as the jacket needs to be lightweight and not hinder the skier by being heavy to wear; goose down tends to be lighter than polyester wadding. • stand up collar needs to protect the neck from snow, cold air etc. but must not be bulky or rough against the skin. **Award credit for any other appropriate response**		

Question			Answer	Marks	Guidance
1	(b)		The most suitable fabric for the outer shell of the jacket, e.g.: Nylon plain weave 3 layer laminated fabric would be the most suitable (✓) as the nylon fibre is non-absorbent so won't soak up water and the textured filaments transport moisture away from the body (✓) and it is very strong; having excellent abrasion resistance, tear resistance and durability which makes it excellent to use for skiing as it will be subjected to knocks. (✓) Other possible considerations of the nylon selection could be: • if a textured filament fibre was produced, it would trap air so keep the skier warm, • it is windproof so excellent for skiing and hydrophobic so will keep the user dry. • it can be manufactured to be easy to care for however. • it has good elasticity so won't crease easily. • can be engineered to provide breathable comfort which is vital in a high energetic activity. • the 3 layer laminated structure is the same as Gore-Tex. This allows the outer layer to be nylon and the middle layer to be a PTFE membrane which is air permeable. The final layer is a micro grid. The 3 layers result in the fabric being waterproof as the pores in the fabric are too small for water to pass through but it is breathable. **Award credit for any other appropriate response**	**3** **AO4 1c**	1 mark for selecting the nylon fabric as the most appropriate for a ski jacket from the selection. 1 mark for each of two explanations for why the selection they have made is most appropriate for a ski jacket. (If nylon was not selected as most suitable, candidates should still be awarded marks for justifications that are relevant for polyester cotton in relation to the context). Specific reference to the suitability in relation to the ski jacket is needed for the marks.

Question			Answer	Marks	Guidance	
1	(c)		Indicative content: Be adaptable for varying weather conditions: • removable lining • removable sleeves • removable hood or could fold away into the collar • elasticated wrist and waist for the wind and rain • zipped underarm vents • attached gloves that fold away. Show consideration of ergonomics: • pocket at the back for personal belongings • shorter length so cyclist is not sitting in the jacket • elasticated around the waist to prevent riding up • reflective panels or strips • fit of the hood so it doesn't come down • attached gloves.	6 AO4 3 x 1c AO4 3 x 2c	Content All processes demonstrated in the candidate's response must be in relation to a cycling jacket and have full consideration of ergonomics and varying weather conditions. If a candidate only produces notes or only produces sketches they can only access marks within Level 1. Candidates can draw on practical experience from iterative designing and critical evaluation to support their response to this question.	Levels of response **Level 3 (5–6 marks)** The candidate will demonstrate a thorough understanding of the modifications that would be made to the ski jacket to make it suitable for use when cycling in varying weather conditions, including consideration of adaptability and ergonomics. The explanation is supported by clear sketches and notes. **Level 2 (3–4 marks)** The candidate will demonstrate a sound understanding of the modifications that would be made to the ski jacket to make it suitable for use when cycling in varying weather conditions, including consideration of adaptability and ergonomics. The explanation is supported by sketches and/or notes. **Level 1 (1–2 marks)** The candidate demonstrates a limited understanding of the modifications that would be made to the ski jacket to make it suitable for use when

Question			Answer	Marks	Guidance	
			Possible sketch solutions:  **Award credit for any other appropriate response**			cycling in varying weather conditions, including consideration of adaptability and ergonomics. Sketches and/or notes are used, but are not coherent. **Level 0 (0 marks)** No response or no response worthy of credit.
1	**(d)**		Indicative content: Haute couture: • made to measure • bespoke tailoring • quality of materials and components • high quality • maintaining traditional techniques • machinery used for specific techniques • tools and equipment maybe less automated.	**6** **AO3** **2 x 1a** **AO4** **4 x 1c**	**Content** All processes demonstrated in the candidate's response must be in relation to the manufacturing techniques associated with the products shown in Fig.2 and Fig.3.	**Levels of response** **Level 3 (5–6 marks)** The candidate will demonstrate a thorough understanding of the manufacturing process for both haute couture and mass manufacture. There is a sophisticated line of analysis comparing the different

Question			Answer	Marks	Guidance	
			Mass manufacture: • use of different manufacturing systems • automated production • use of standard production patterns • specialised equipment and control to monitor production • quality control checks throughout manufacture. • overseas manufacture to reduce costs • quality of materials and components. **Award credit for any other appropriate response**		A candidate operating at Level 3 would be expected to access all 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 two 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 two of the AO4(1c) marks.	techniques involved, drawing extensively on Fig 2 and Fig 3. **Level 2 (3–4 marks)** The candidate will demonstrate a sound understanding of the manufacturing process for both haute couture and mass manufacture. There is an adequate line of analysis comparing the different techniques involved, drawing on Fig 2 and Fig 3. **Level 1 (1–2 marks)** The candidate demonstrates a limited understanding of the manufacturing process for haute couture and/or mass manufacture. There are generic unsupported statements related to the techniques used. **Level 0 (0 marks)** No response or no response worthy of credit.

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th colspan="2">Guidance</th></tr>
<tr><td>1</td><td>(e)</td><td></td><td>Indicative content:

• Examples of how critical path analysis is used by companies to complete large orders. There could be reference to the fact that the jacket would be mass manufactured.
• Analysis by the company to analyse each stage of production of the jacket to ensure efficiency throughout the process.
• A list of all activities required to undertake to complete the jacket and the time that each activity should take to complete.
• Any stages that may need completing between each activity. This could be pressing of seams for example.
• Each stage of manufacture would be analysed to establish the earliest and latest possible starting and finishing times to complete. Time management implemented to ensure efficiency.
• Six Sigma could be implemented during any stage of manufacture to ensure there is a consistent output by removing any defects to ensure quality.
• By implementing Six Sigma the manufacturer would follow a sequence of steps to reduce costs for example. This candidate could also refer to reducing the whole process time, reducing pollution throughout manufacture,
• By implementing six sigma the manufacturer would be aiming to increase customer satisfaction and profit.
• If the manufacturer has been awarded the six sigma certificate it projects an image of quality and efficiency.</td><td>8

AO3
2 x 2a

AO3
2 x 2b

AO4
1 x 1c

AO4
3 x 2c</td><td>Content

All discussion in the candidate’s response must be in relation to ski jacket manufacture and have full consideration of project management systems that ensure efficiency and quality.

A candidate operating at Level 3 would be expected to access the AO4 (1c/2c) marks, at least one of the AO3 (2a) marks and at least one of the AO3 (2b) marks.

A candidate operating at Level 2 would be expected to access at least two of the AO4 (1c/2c) marks, and least one of the AO3 (2a/2b) marks.

A candidate operating at Level 1 would only be expected to access AO4 (1c/2c) marks.</td><td>Levels of response

Level 3 (6–8 marks)

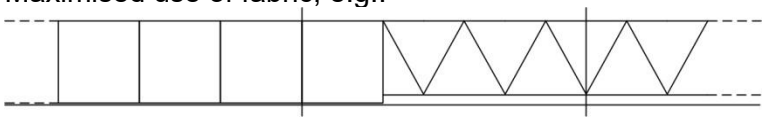
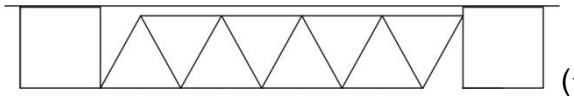
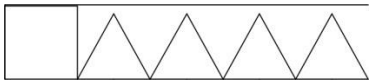
The candidate will produce a thorough discussion of how manufacturers implement strategies throughout production to improve efficiency and quality. Candidate shows a mature understanding and analysis of the wider issues in the question, considering efficiency and quality through production in their response. 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 and technical terms.

Level 2 (3–5 marks)
The candidate will produce a sound discussion of how manufacturers implement strategies throughout production to improve efficiency and quality.</td></tr>
</table>

Question			Answer	Marks	Guidance	
						Candidate shows a reasonable understanding and analysis of the wider issues in the question, considering efficiency and quality through production 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. **Level 1 (1–2 marks)** The candidate will demonstrate basic knowledge of how manufacturers implement strategies throughout production to improve efficiency and/or quality. Any understanding is limited with little consideration of wider issues. There is no analysis or evaluation. The information has some relevance and is presented with limited structure or detail. The information is

Question			Answer	Marks	Guidance
					supported by limited evidence. **Level 0 (0 marks)** No response or no response worthy of credit.
2	**(a)**		Ratio of lengths = 1.05 : 1.85 (✓) = 1 : 1.76 Ratio of areas = 1 : 3.10 (or 1.05^2 : 1.85^2 = 1.10 : 3.42) (✓) Floor area of the play tent = 6.8 ÷ 3.10* = 2.19 (✓) **Award credit for any other appropriate method of calculation**	**3** **AO4 1c**	1 mark for finding ratio of lengths 1 mark for squaring the ratio 1 mark for calculating floor area *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**
2	**(b)**	**(i)**	$h^2 = x^2 + y^2$ $146^2 = 70^2 + y^2$ y = 128.1 cm (✓) 2(½ x 128.1* x 70) = 8969 cm^2 (✓) **Award credit for any other appropriate method of calculation**	**2** **AO4 1c**	1 mark for using Pythagoras' theorem (with half base length) to calculate the height of a side panel. 1 mark for calculating total area of side panel (by calculating area of ½ side panel and doubling). *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**
2	**(b)**	**(ii)**	Distance from corner to centre of square base = ½ ($\sqrt{140^2 + 140^2}$) = 99.0 (✓) Angle of pole: cosθ = 99.0* ÷ 146 θ = 47.3° (✓) Height of structure: sin47.3* = height ÷ 160 Height = 117.6 cm (✓) **Award credit for any other appropriate method of calculation**	**3** **AO4 1c**	1 mark for using Pythagoras' theorem to calculate distance 1 mark for calculating angle of pole 1 mark for calculating vertical height *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**

2	**(b)**	**(iii)**	Maximised use of fabric, e.g.:  (✓)(✓) (3 ×140)n + 70 = 10 000 (✓) n = (10 000 – 70) ÷ 420 = 23.64 = 23 (✓) **Award credit for any other appropriate method of calculation.** Alternative response 1 – 3 marks (with an attempt to maximise waste that isn't the most efficient):  (✓) (x) (((6 × 140) + 70) ÷ 2) n = 10 000 (✓) n = 10 000 ÷ (910 ÷ 2), n = 23.64 = 23 (✓) Alternative response 2 – 2 marks (with no attempt to maximise waste):  (x) (x) (5 × 140) n = 10 000 (✓) n = 10 000 ÷ 700, n = 14.28 = 14 (✓) **Award credit for any other appropriate method of calculation**	**4** **AO4 1c**	2 marks for a sketch showing play tent panels laid out on the material in a way that reduces the amount of fabric used and considering the most efficient layout to minimise waste. Or 1 mark for a sketch showing play tent panels laid out on the material in a way that reduces the amount of fabric, but doesn't fully minimise waste. Additionally 1 mark for formulating an equation 1 mark for rearranging and calculating the number of tents and rounding down **Correct answer with appropriate sketches scores full marks.**

2	**(c)**		How CAD could benefit the designer in the repurposing the tepee, e.g.: Repeat patterns can be created accurately and quickly using CAD (✓) which can then be used to illustrate the completed effect on the tepee. (✓) Other possible uses of CAD could include: • Ideas can be shared with stakeholders more easily • accuracy • colour ways • digitising the basic patterns • ensuring patterns fit together correctly • grading patterns for size ranges • creating pattern lays to ensure economical use of the fabric. Other possible benefits could include: • reduces order time due to greater accuracy and speed of creating colourways • reduction in time to create and alter patterns to customer requirements • more economical once CAD setup as created economic patterns lays.	**2** **AO4 1c**	1 mark for identifying a way that CAD could benefit the designer when repurposing the tepee. 1 mark for describing how this use benefits the designer. Specific reference to the benefits of CAD in relation to the design of the repurposed tepee is needed for the marks.
2	**(d)**	**(i)**	$\frac{635 + 725 + 895}{3} = 752$, $\frac{120 + 175 + 250}{3} = 182$ (✓) $\frac{752^* - 182^*}{182^*} \times 100 = 314\%$ (✓) **Award credit for any other appropriate method of calculation**	**2** **AO4 1c**	1 mark awarded for calculating means. 1 mark awarded for calculating percentage increase. *Allow error carried forward (ECF) where correct working out is shown. **Correct answer scores full marks.**

2	**(d)**	**(ii)**	Reasons for fluctuation in sales, e.g.: Sales could be higher in the summer, (August) as they may be purchased for holiday use. (✓) Sales of children's tepees are higher in November and December due to them being purchased as a Christmas presents. (✓) Other responses could include: • sales in January to March are lower due to the winter weather • sales pick up from May when the weather improves and they could start to be used for playing in the garden.	**2** **AO3** **2a**	1 mark for each of two explanations for the monthly fluctuation in sales of child's tepees throughout the year.
3	**(a)**	**(i)**	Benefits to the consumer of incorporating nanotechnology into sportswear clothing, e.g.: Synthetic construction means they can be combined with other fibres to make the fabric more suitable for its purpose. (✓) This means the nanofibres can be introduced to elastane for sportswear. (✓) The nanofibres can have extremely strong properties (✓) making them suitable for sportswear activities where the fabric will be subjected to a lot of strain. (✓) Other possible benefits could include: • nanofibres can be combined to make the fabric more water resistant which lends itself to water based sport activities. Or outdoor sport activities to resist rain • the nanofibres can resist bacteria which can help with sports footwear/socks • Teflon coating tom repel water • antibacterial agents incorporated into the fibres or	**4** **AO4** **2 x 1c** **2 x 2c**	1 mark for identifying each of two benefits in relation to nanofibres being used in sportswear. 1 mark for explaining the relevance of the benefits in relation to sportswear. Specific reference to nonfibres in relation to the emergence of new technologies is needed for the marks.

			fabrics to reduce odours • water repellent nano particles which increase efficiency of athletes in water; reduces drag • nano filaments integrated into weaving to reduce static. **Award credit for any other appropriate response**			
3	**(a)**	**(ii)***	Indicative content: Explanation and exemplification of planned obsolescence: Planning or designing a product that has a limited life. It will become unfashionable or obsolete thus generating long-term sales. The consumer will be encouraged through marketing to buy the new style of sportswear that incorporates new fabrics, features and components. Also through repeated wear and washing a product will 'wear out'. Exemplification of new technologies: One Gore-Tex Active Jacket has permanent beading surface, allowing the garment to be shaken dry but remains lightweight and breathable. This sportswear will out-perform other jackets causing them to become obsolete. Identification of commercial impact: • new technologies are in demand • manufacturers will produce a product that will only last or be desired for a certain length of time • functional sportswear manufacturers rely on the consumers wanting the new technologies	**8** **AO3** **1 x 2a** **2 x 2b** **AO4** **1 x 1a** **2 x 2a** **2 x 2b**	**Content** If a candidate demonstrates generic knowledge of planned obsolescence and does not apply this to new technologies, candidates should not be awarded higher Level 1. A candidate operating at Level 3 would be expected to access the majority of the AO4 (1a,1b/2b) marks and at least one of the AO3 (2a,2b) marks. A candidate operating at Level 2 would be expected to access at least two AO4 (1a,1b/2b) marks, at least one of the AO3 (2a,2b) marks. A candidate operating at	**Levels of response** **Level 3 (6–8 marks)** The candidate will produce a thorough discussion the effect of how new technologies impact on planned obsolescence. Candidate shows a mature understanding and analysis of the wider issues in the question, considering the effect on the fashion and textiles industry. 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 and technical terms.

			incorporated into their products, making the old technologies obsolete • the manufacturer does this so the consumer will purchase again and again • manufacturers will use marketing and advertising to encourage the consumer to want these new products. Identification of environmental impact: • the synthetic and natural fibres, dyeing/ finishing processes • energy used in production/transportation • the disposal of the products in terms of incinerating or landfills and the pollution this causes. **Award credit for any other appropriate response**		Level 1 would be expected to access at least one of the AO4 (1b/2b) marks.	**Level 2 (3–5 marks)** The candidate will produce a sound discussion the effect of how new technologies impact on planned obsolescence. Candidate shows a reasonable understanding and analysis of the wider issues in the question, considering the effect on the fashion and textiles industry. 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. **Level 1 (1–2 marks)** The candidate will demonstrate basic knowledge relating to the effect of how new technologies impact on planned obsolescence. Any understanding is limited with little consideration of wider 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.
4	**(a)**	**(i)**	Justified advantages and disadvantages of using wool crêpe for the trousers, e.g.: *Aesthetics* Advantages: Excellent drape for the trousers; hang well which adds to the aesthetics (✓) Other advantages could include: • particularly suitable for unstructured designs • the surface of the fabric has a wavy effect which adds to the aesthetics. Disadvantages: The weave structure can be loose which can result in the fabric getting easily snagged. (✓) Other disadvantages could include: • the fabric can pill with frequent wear which looks shabby • the fabric can slack overtime and therefore they can lose their shape.	**4** **AO4 1a**	1 mark for giving a justified advantage in relation to the aesthetics of the 100% wool crêpe trousers. 1 mark for giving a justified disadvantage in relation to the aesthetics of the 100% wool crêpe trousers. 1 mark for giving a justified advantage in relation to the performance of the 100% wool crêpe trousers. 1 mark for giving a justified disadvantage in relation to the performance of the 100% wool crêpe trousers. Specific reference to 100% crêpe in relation to the trousers is needed for the marks. Candidates can draw on experience from product analysis to support their response to this question.	

			Performance Advantages: Insulation properties so the trousers would keep the wearer warm in cool conditions. (✓) Other advantages could include: • naturally resistant to static which means the trousers won't cling and stick • as the fabric is natural, it will be breathable making the trousers more comfortable to wear • the trousers could last longer and therefore there will be less need to buy new clothes. Disadvantages: The fabric cannot be machine washed as it is pure wool and likely to shrink therefore, the trousers would need to be dry cleaned which is inconvenient and costly. (✓) Other disadvantages could include: • could be itchy next to the skin. **Award credit for any other appropriate response**			
4	**(a)**	**(ii)**	Indicative content:	**6**	**Content**	**Levels of response**

			• CAD could be used for modelling the trousers prior to manufacture. • The level of production for the trousers can be directly linked to the size of the order. • Specialist CAM sewing machines to complete bar tacking that would be done at the base of the zip and edges of the welt pockets to strengthen stress points. • The button holes on the trouser waistband would be done through CAM as it is more accurate and quicker. The sewing and cutting of the buttonhole would be done by one machine rather than two operations manually. • CAM could have been used to produce the woven crêpe fabric through the use of CNC controlled weaving machines. • Fabric spreading and cutting could be fully automated in the cutting room. Some machines incorporate a 'smart' knife that adjusts to the weight of the fabric and wouldn't drag the fabric. • It is likely that the trousers would be batch produced as they are made from wool and therefore could be a seasonal product. Therefore, the level of CNC machines are ideal for a changeover of production and fast turnaround of orders. • The manufacturing costs could be estimated more accurately with the use of CAM as production rates are more consistent than humans.	**AO4 1c**	If a candidate demonstrates generic knowledge about CAD and CAM and does not apply this knowledge to the manufacturer of the crêpe trousers, they should not be awarded 0 marks. Candidates can draw on practical experience to support their response to this question.	**Level 3 (5–6 marks)** The candidate will demonstrate a thorough understanding of the use of CAD and CAM in the manufacture of the crêpe trousers. There is a well-developed explanation in context which is clear and logically structured. The information presented is relevant and substantiated with the use of examples. **Level 2 (3–4 marks)** The candidate will demonstrate a sound understanding of the use of CAD and CAM in the manufacture of the crêpe trousers. There is a reasonable explanation in context with some structure. The information presented is in the most-part relevant and supported by some evidence. **Level 1 (1–2 marks)** The candidate will demonstrate limited knowledge of CAD and/or CAM in the manufacture of the crêpe trousers. 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.
4	**(b)**	**(i)**	Stitch: 20 x (62.5 + 57.5) = 2400 (✓) Overlock: 20 x (52.5 + 32.5) = 1700 (✓) **Award credit for any other appropriate method of calculation**	**2** **AO4 1c**	1 mark for identifying the maximum time for stitching of the trousers (outer and inner seam), summing and multiplying by 20. 1 mark for identifying the maximum time for overlocking of the trousers (outer and inner seam), summing and multiplying by 20. **Correct answer scores full marks.**	
4	**(b)**	**(ii)**	Reason for appropriate time allocation, e.g.: No, with valid reason, e.g. overlock time for 20 trousers being greater* than the allocated time. Or Yes, with valid reason, e.g. overall time being very close*, the allocation is against maximum times. Therefore it is plausible to make up the 20 seconds.	**1** **AO4 1c**	1 mark for giving a valid reason why their judgement on the time allocation is appropriate. *Allow error carried forward (ECF) where correct working out is shown.	
4	**(c)**	**(i)**	The implications of product assurance for reasons of consumer safety in relation to fashion and textiles products, e.g.:	**4** **AO4**	1 mark for each of two implications identified in relation to the statement provided.	

			Product assurance gives the consumer confidence that safety checks and testing have taken place throughout the manufacture of a product. (✓) Product assurance is also a safety check for the supplier and retailer so they are confident that their work meets a particular standard. (✓) This would be important in the instance of children's products being tested to ensure small parts are not going to create a choking hazard. (✓) It is important for the consumer to have assurance that appropriate flammability testing has been undertaken. (✓) when upholstering furniture that goes into different environment there is a requirement to meet regulations and breaching these regulations can impact on their insurance policies. (✓) Possible examples may be: • the product does not contain dyestuffs that may be toxic • components on product do not contain nickel or if they do that this information is given to consumer checks to ensure product has not been contaminated with pins or needles during manufacture have been carried out. **Award credit for any other appropriate response**	**1c**	1 mark for developing the explanation of each identified implication either with specific examples or through further clarity of the point. Specific reference to product assurance supporting consumer safety in relation to fashion and textiles products is needed for the marks.

4	**(c)**	**(ii)**	Indicative content: Implications for the consumer: • sizing • fibre content/blend • flammability • finishes applied • aftercare including washing, drying, dry cleaning, ironing etc. • country of manufacture • trademarks, brand names or company names • British Standards Institute 'Kitemark' assurance. Implications for the manufacturer: • barcodes to enable the manufacturer to track the product throughout production, sales and organise their stock • quality assurance symbols or codes will also have implications for the manufacturer to assure the consumer and promote sales.	**6** **AO3** **2 x 2a** **2x 2b** **AO4** **1 x 1a** **1 x 1b**	**Comments** If a candidate can only discuss product labelling in terms of the care of a product they should not be awarded higher than Level 1. Candidates can draw on experience from product analysis to support their response to this question. A candidate operating at Level 3 would be expected to access the AO4 (1a) mark, the AO4 (1b) marks, at least one of the AO3 (1a) marks and at least one of the AO3 (1b) marks. A candidate operating at Level 2 would be expected to access the AO4 (1a) mark, the AO4 (1b) mark, at least one of the AO3 (1a) marks and at least one of the AO3 (1b) marks. A candidate operating at Level 1 would be expected to access the AO4 (1a) mark and the AO4 (1b) mark.	**Levels of response** **Level 3 (4–6 marks)** Candidate produces a thorough discussion of the implications of product labelling within the fashion and textile industry. Candidate shows a mature understanding and analysis of the wider issues in the question, considering both the consumer and manufacturer in the response. This creates a discussion that is both cohesive and well-considered. **Level 2 (3–4 marks)** Candidate produces a sound discussion of the implications of product labelling within the fashion and textile industry. Candidate shows a reasonable understanding and analysis of the wider issues in the question, considering the consumer and/or manufacturer in the response. This creates a discussion that is for the most part cohesive and well-

						considered. **Level 1 (1–2 marks)** Candidate demonstrates a basic knowledge of the implications of product labelling within the fashion and textile industry. Any understanding is limited with little consideration of wider issues. There is no analysis or evaluation. **Level 0 (0 marks)** No response or no response worthy of credit.

Assessment Objectives (AO) grid

Question	AO3	AO4
1a		4
1b		3
1c		6
1d	2	4
1e	4	4
2a		3
2bi		2
2bii		3
2biii		4
2c		2
2di		2
2dii	2	
3ai		4
3aii*	3	5
4ai		4
4aii		6
4bi		2
4bii		1
4ci		4
4cii	4	2
Totals	15	65
Overall Totals	80	