

GCE

Design & Technology

H005/01: Principles of fashion and textiles

AS Level

Mark Scheme for June 2023

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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**PREPARATION FOR MARKING
RM ASSESSOR**

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM 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 RM Assessor and mark the **required number** of practice responses (“scripts”) and the **number of required** 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 RM Assessor 50% and 100% (traditional 40% 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 or the RM Assessor messaging system, or by email.
5. **Crossed Out Responses**
Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Rubric Error Responses – Optional Questions

Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses

When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).

Contradictory Responses

When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)

Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. (*The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.*)

Short Answer Questions (requiring a more developed response, worth **two or more marks**)

If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)

Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

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. Award No Response (NR) if:
 - there is nothing written in the answer space.

Award Zero '0' if:















- anything is written in the answer space and is not worthy of credit (this includes text and symbols).

Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor **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 RM Assessor messaging system, or e-mail.
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. For answers marked by levels of response:
 - a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
 - b. **To determine the mark within the level**, consider the following:

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. Annotations

Annotation	Meaning
	Blank Page – this annotation must be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
	Tick
	Cross
	Confused (replaces the question mark)
	Benefit of doubt
	AO1 – Knowledge and understanding
	AO2 – Apply knowledge and understanding
	AO3 - Analyse
	AO4 - Evaluation
	Omission
	Not answered question
	Noted but no credit given
	Too vague
	Own figure rule

REP	Repetition
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12. 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.

Question	Answer	Mark	Guidance
1 (a)	<p>Possible responses may include:</p> <ul style="list-style-type: none"> • Durable (strong) (1) holds up well to resist wear and tear/long lasting (1). • Stable (1) will not stretch/mis-shape easily (1). • Wrinkle-resistant (1) fabric stays smooth for longer during use (1). • Pleasant/delicate to the touch (1) comfortable to sit on/use (1) • Filled with decorative aesthetics (1) so can be produced in lots of different colours/prints (1). • Helps to disguise stains (1) so needs cleaning less frequently (1). • Resistant to fading (1) looks good for longer (1). • Colour-fast (1) as colours/patterns don't fade during washing/ cleaning (1). • Has dimensionality (1) which enhances the appearance (1). • Low-pile fabric (1) makes jacquard fabrics easier to clean/ less likely to trap dust (1). • Any other suitable response. 	4	<p>In each case:</p> <p>One mark for identifying why jacquard woven fabric is suitable for the upholstered stool.</p> <p>One mark for justifying why the fabric is suitable for its intended purpose.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p>
(b)	<p>Possible impacts may include:</p> <ul style="list-style-type: none"> • Fibres can be highly biodegradable/sustainable resources (1) which can have a positive impact on the environment as the fibres can be decomposed by micro-organisms (1). • Fibres can be environmentally friendly (1) – for example if cotton it is possible to cultivate cotton using sustainable and organics processes (1). • Fibres can be non-biodegradable (1) – for example synthetic fibres such as polyester/rayon use dangerous/toxic chemicals to process (1). 	4	<p>In each case:</p> <p>Up to two marks for explaining the impact the fibres from jacquard woven fabric will have on the environment.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p>

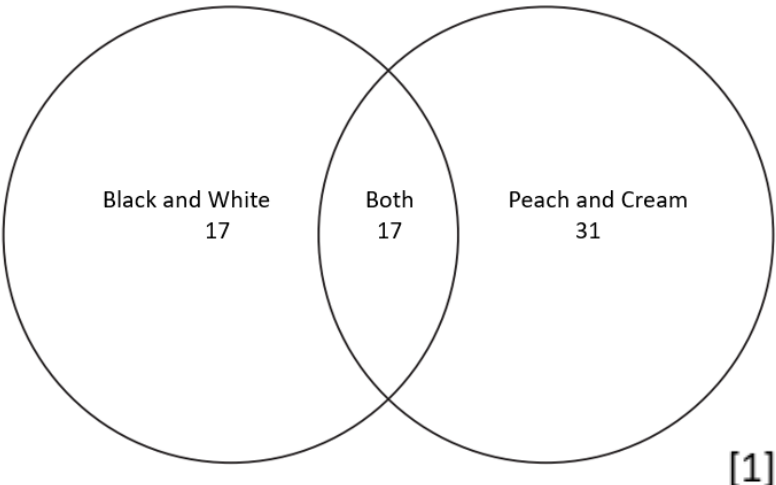
		<ul style="list-style-type: none"> • Production processes involving the fibres can cause inefficient water usage/waste (1) which can impact negatively on local communities (1). • Production processes involving the fibres can cause soil erosion (1) which impact on the landscape in a number of ways (1). • Fibres can be dyed using toxic dyes (1) which when washed can result in the dyes being washed into the rivers/oceans and harming the habitat. • Any other suitable response. 		
	(c)	<p>Possible considerations may include:</p> <ul style="list-style-type: none"> • Environments/surroundings (1). • User requirements (1). • Consumer wants/fashion/trends (1). • Economic/market considerations (1). • Any other suitable response. 	4	<p>In each case:</p> <p>One mark for identifying a consideration that a designer needs to take into account when exploring contexts in which the upholstered stool is to be used.</p> <p>One mark for justifying point made.</p>
	(d) *	<p>Indicative Content:</p> <p>The exemption of raw cotton from the 1721 Calico Act saw 2,000 bales of cotton imported annually from Asia and the America's and formed the basis of a new indigenous industry, which triggered the development of a series of mechanised spinning and weaving technologies to process the material. This mechanised production was concentrated in new cotton mills, which slowly expanded. By the beginning of the 1770s, 7,000 bales of cotton were imported annually. Cloth production moved away from the cottage into manufactories.</p> <p>Developments in textile design (colours/patterns) – Festival of Britain (1951). Edinburgh Weavers utilised the talents of</p>	8	<p>Level 3 [6-8 marks]</p> <p>The candidate has a clear understanding of key historical movements and figures, which have influenced developments in textile weaving.</p> <p>They produce a thorough discussion in relation to the question by discussing how these movements and figures have impacted on the development in textile weaving throughout history to present day. The discussion is clear, and several points are exemplified in relation to</p>

	<p>international artists for textile design, harnessing the style of prominent painters and sculptors such as Pablo Picasso, Fernand Léger, and Henry Moore. These designs were 'translated' into textiles for garments and furnishings. Alastair Morton of Edinburgh Weavers, had the knowledge and skill that bridged both art and textile production and was able to create striking pattern through weave structure alone.</p> <p>In the 1960s, existing machines became outfitted with computerised numeric control (CNC) systems, enabling more accurate and efficient production.</p> <p>In 1983, Bonas Machine Company Ltd. presented the first computer-controlled, electronic jacquard loom allowing Jacquard machine capacity to increase significantly with single end warp control extending to more than 10,000 warp ends.</p> <p>1870 Levis - Denim twill initially created for use by miners but now is used in a wide range of products. Denim can be stressed, bleached, torn, and made into any different style garment.</p> <p>In 1920's Madeline Vionnet – discovering the bias cut, a technique of cutting across the grain of a textile to produce a carefully draped silhouette which clung naturally to the body. Which changed the shape of women's fashion.</p> <p>Today most of our textile needs are supplied by commercially woven cloth. A large and complex cloth making industry uses automated machines to produce our textiles. Weaving has been almost exclusively commercialised with automatic power operated looms greatly improving and streamlining this important aspect of the textile industry.</p> <ul style="list-style-type: none"> • Any other suitable response. 	<p>developments in textile weaving.</p> <p>If candidate does not provide an analytical/evaluative response, then only L1 can be awarded.</p>	<p>inventions/machines, names, dates and impact.</p> <p><i>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.</i></p> <p>Level 2 [3-5 marks] The candidate has a reasonable understanding of key historical movements and figures, which have influenced developments in textile weaving. They produce a sound discussion in relation to the question by explaining how these movements and figures have impacted on the development in textile weaving throughout history to present day. The explanation is sufficient, with some points made in relation to the inventions/machines, names, dates and impact.</p> <p><i>There is a line of reasoning presented with some structure. The information presented is for the most part relevant and supported by some evidence.</i></p> <p>Level 1 [1-2 marks] The candidate has a basic knowledge of key historical movements and figures, which have</p>
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				<p>influenced developments in textile weaving. Any reference to inventions/machines, names, dates is limited/listed and has little appreciation of the impact on the development of textile weaving. The response contains no analysis or evaluation, with few or no relevant examples.</p> <p><i>The information has some relevance and is presented with limited structure or detail. The information is supported by limited evidence.</i></p> <p>0 marks No answer or answer not worthy of credit.</p>
2	(a)	<p>A regular hexagon is made up of 6 equilateral triangles.</p> <p>Area of an equilateral triangle is: $A = (\sqrt{3}/4)a^2$ a = side of the triangle = radius of regular hexagon,</p> <p>Total radius = 20 + 6 = 26cm [1]</p> <p>Therefore, $A = (\sqrt{3}/4) \times 26^2$ [1] = 0.43301270189 x 676* = 292.716586479* [1]</p> <p>Area of regular hexagon = 292.716586479* x 6 = 1756.29951887 [1] = 1756.30 cm² [1]</p>	5	<p>Award five marks as follows:</p> <p>One mark for calculating new radius.</p> <p>One mark for inserting values into formula.</p> <p>One mark for calculating formula.</p> <p>One mark for calculating area of regular hexagon.</p> <p>One mark for rounding to 2 decimal places.</p> <p>Candidates may use the formula calculate the area of a regular hexagon $((3\sqrt{3})/2) a^2$ instead of</p>

					<p>calculating the area of the equilateral triangle first. Award marks as above.</p> <p>If correct answer is given without working out shown award full marks.</p> <p>Where an incorrect answer is given working out should be used to credit appropriate marks.</p> <p>*Allow error carried forward (ECF) where correct working out is shown.</p>
	(b)	(i)	<p>Candidates must use trigonometry to find the values for AC and BD.</p> <p>Call centre point q. $Aq/5 = \cos 45^\circ$ [1]</p> <p>$Aq = \cos 45^\circ \times 5 = 2.62660994409^*$ $AC = 2.62660994409^* \times 2 = 5.25321988818$ [1]</p> <p>$Bq/5 = \sin 45^\circ$ [1]</p> <p>$Bq = \sin 45^\circ \times 5 = 4.25451762267^*$</p> <p>$BD = 4.25451762267^* \times 2 = 8.50903524534$ [1]</p>	4	<p>Award four marks as follows:</p> <p>One mark for formula for Aq and identification of use of Cos.</p> <p>One mark for calculating formula and multiplying by 2 to calculate length AC.</p> <p>One mark for formula for Bq and use of Sin.</p> <p>one mark for calculating formula and multiplying by 2 to calculate length BD.</p> <p>If correct answer is given without working out shown award full marks.</p> <p>Where an incorrect answer is given working out should be used to credit appropriate marks.</p>

					*Allow error carried forward (ECF) where correct working out is shown.
		(ii)	$= (8.50903524354^* \times 5.25321988818^*)/2$ $= 44.69983318^*/2 = 22.34991659$ $= 22.35 \text{ cm}^2 [1]$	1	<p>One mark for calculating area to 2 decimal places.</p> <p>If candidate incorrectly calculates value in 2b(i), accept as carried forward the incorrect values and mark accordingly.</p>
		(c)	$0.16+0.20+0.38 = 0.74^* [1]$ $P = 1 - 0.74^* = 0.26 [1]$	2	<p>Award two marks as follows:</p> <p>One mark for calculating the total value of the three hats.</p> <p>One mark for calculating the probability for P.</p> <p>If correct answer is given without working out shown award full marks.</p> <p>Where an incorrect answer is given working out should be used to credit appropriate marks.</p> <p>*Allow error carried forward (ECF) where correct working out is shown.</p>

	<p>(d)</p>	<p>Black/White hatboxes = $34 - 17 = 17$ Peach/Cream hatboxes = $48 - 17 = 31$ [1]</p> 	<p>2</p>	<p>Award two marks as follows:</p> <p>One mark for calculating the number of individual hatboxes sold.</p> <p>One mark for drawing an accurate Venn diagram.</p>

3	(a)	<p>Possible responses may include:</p> <ul style="list-style-type: none"> • Polyester thread is a high gloss thread (1) – Justification: Enhances the appearance of the embroidered design (1). Allows for the easy stitching of the design (1). Easy to stitch with because it is smooth (1). • Easy to dye (1) – Justification: Enhances colour/aesthetics (1). Brightness of the colour is enhanced due to fibre (1). • Extremely strong/durable (1) – Justification: Can be used on embroidered projects that will receive a great deal of wear and tear (1). Will not snap when used in the stitching process. (1). • Resistant to breaking/shredding (1) – Justification: Because it has some flexibility and stretching it will not break easily (1). • Withstands moderate heat/will not shrink (1) – Explanation points: Able to iron products which are enhanced with an embroidered motif (1). • Inexpensive (1) – Justification: Makes thread a cost-effective choice for industrial production (1). • Any other suitable response. 	2	<p>One mark for identifying a reason why a synthetic fibre such as polyester thread is suitable for working the embroidered design.</p> <p>One mark for justifying why the fibre is suitable for its intended purpose.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p> <p>Any of justifications provided can be credited. Mix and match approach could be taken with bullet points.</p>

	(b)	<p><i>The candidate is expected to demonstrate their understanding of the process involved through a series of annotated sketches and/or notes. There may be variations to the process as indicated but to get into L3 candidates must demonstrate a clear understanding of the end to end process.</i></p> <p>Indicative Content:</p> <p>Free machine embroidery</p> <ul style="list-style-type: none"> • Prepare the sewing machine. Presser foot is removed from the sewing machine or changed for a darning foot, a free motion quilting foot or a machine embroidery foot. Lower the teeth feed. <i>If the machine has a needle down position this is the ideal setting, when you pause the needle will stop your fabric from moving around.</i> • Set the stitch length to zero. The stitching needs to be smooth so check the tension carefully and set as required. Straight or small zigzag stitches are used for the small areas of a design and wide zigzag for the larger areas. • Prepare the fabric. Press to remove all creases and add a stabiliser, (tear away, heat away, cut away or wash away interfacing) if a fine fabric is used. Cut to the same size as the fabric. • Stretch the fabric tightly in an embroidery hoop to prevent puckering, which is used upside down to keep the fabric flat on the bed of the machine and prevent puckering. • Position the fabric under the needle and lower the presser foot. 	<p>6</p> <p>All processes demonstrated must relate to free-machine embroidery.</p> <p>If candidate does not provide an analytical/evaluative response, then only L1 can be awarded.</p>	<p>Level 3 [5-6 marks] The candidate demonstrates a good level of detail of the process needed to work a piece of free machine embroidery using technical terms and considering any relevant equipment, machinery and materials. Sketches, if used will be clear and supported with relevant notes. The process includes all relevant stages.</p> <p>Level 2 [3-4 marks] The candidate will demonstrate a sound level of detail of the process needed to work a piece of free machine embroidery using some technical terms and there will be some consideration of any equipment, machinery and materials required. Sketches, if used, will for the most part be clear and supported with notes most of which are relevant. The process includes some relevant stages.</p> <p>Level 1 [1-2 marks] The candidate will demonstrate a limited level of detail of the process needed to work a piece of free machine embroidery with a limited use of technical terms and there will be a basic consideration of any equipment, machinery and materials required. Sketches, if used, will be</p>

		<ul style="list-style-type: none"> • Draw up the bottom thread through the fabric to the top, tuck this out of the way and hold them until you have made a few stitches, then cut them off. This will save your threads knotting underneath. Move the fabric around under the needle to fill in the design. • Remove from the sewing machine and cut off any loose threads. Remove from the hoop and press carefully with a damp cloth. Remove excess stabilizing fabric. 		<p>unclear with only basic notes to accompany them. Few relevant stages are included.</p> <p>0 marks No response or no response worthy of credit.</p>
(c)		<p>Possible advantages may include:</p> <ul style="list-style-type: none"> • Advantage: Free machine embroidery can be controlled by computer software (1) - Expansion points: Allows embroidery on a large scale (1). Faster than embroidery by hand (1). Machine embroidery produces more professional looking work (1). • Advantage: Uniform/consistent design produced on each textile product (1) – Expansion point: Quality control easier (1) Reduces human error (1) Compared to the more artisan appearance of hand-stitched embroidery (1). • Advantage: Free machine embroidery uses embroidery software which allows the designer to reduce time (1) – Expansion points: Hand embroidery is time-intensive and specialised in nature (1). This requires highly talented designers/workers which requires time (1) Increases costs (1). • Advantage: Can supplement traditional designs with a modern, creative twist (1) – Expansion point: Hand embroidery is more specialised and traditional in nature (1). • Advantage: Free machine embroidery is more durable than hand stitching (1) – 	4	<p>In each case:</p> <p>Up to two marks for explaining an advantage to the designer of using free machine embroidery compared to traditional hand embroidery methods.</p> <p>The response may focus on the advantage of using free machine embroidery or may contrast the two methods. Either approach is valid and needs to secure credit.</p> <p>Any of expansions provided can be credited. Mix and match approach could be taken with bullet points.</p>

		<p>Expansion point: Less likely to tear/come undone when laundered (1).</p> <ul style="list-style-type: none"> Any other suitable response. 		
(d)		<p>Indicative Content:</p> <p>Digital tools allow designers to visualise, develop ideas and communicate with clients/stakeholders more easily. This makes the design process a more collaborative process enabling designers, manufacturers and stakeholders to have easy input into the design process.</p> <p>Digital design tools allow CAD files to be edited in real time by more than one person at the same time. Faster digital prototyping methods enable models to be made quickly and more efficiently allows a faster time to market and quicker response to trends.</p> <p>Digital tablets are used by designers to produce quick sketches as apps become more intuitive, they allow devices to replicate the freedom that sketching on paper provides makes the concept/idea come quickly to life.</p> <p>3D CAD design is used by designers to communicate ideas as it can provide rendered life-like interpretations. Software allows working models to be produced which stakeholders can see in use or experience hands-on. Most 3D CAD software has rendering functions that allow designs to be rastered to create a photo-like image.</p> <p>Examples of specific rendering software packages: <i>Keyshot</i> which can provide faster, more realistic results and is easy to use.</p> <p>3D visualisations and animations. <i>Mental Ray and V-Ray</i> are more complex packages that offer huge variety of options.</p>	6	<p>Level 3 [5-6 marks] The candidate has a clear understanding of the ways industry professionals use digital design tools to support product development. They produce a thorough discussion in relation to the question by explaining the role digital design tools can play. The discussion is clear with relevant examples evident and in context.</p> <p>Level 2 [3-4 marks] The candidate has a reasonable understanding of the ways industry professionals use digital design tools to support product development. They produce a sound discussion in relation to the question by explaining the role digital design tools can play. The explanation is sufficient, with some examples evident and in context.</p> <p>Level 1 [1-2 marks] The candidate has a basic knowledge of the ways industry professionals use digital design tools to support product development. Any reference to the role digital design tools can play is limited. The response contains no analysis or</p>

			<p><i>CLO 3D</i> is a design software that is easy to use, with an intuitive interface. It allows renderings from 2D patterns. The software automatically generates colours and textures.</p> <p>Another CAE function of 3D CAD software is finite element analysis (FEA). This is a method of modelling products and components and simulating conditions to predict how products/components will react to real-world scenarios. FEA can also optimise a design and reduce material wastage.</p> <p>Any other suitable response..</p>		<p>evaluation, with few or no relevant examples.</p> <p>0 marks No answer or answer not worthy of credit.</p>
4	(a)	(i)	<p>Possible responses may include:</p> <ul style="list-style-type: none"> Used in the jacket sleeve to strengthen/reinforce the fabric around the sleeve 'head' (1). This gives support to the sleeve at the shoulder/improves wear (1). Helps to maintain shape of the jacket sleeve (1). This is important to enhance the aesthetic structure (1). Helps to prevent the seam allowance from being seen on the right side of the fabric (1). This gives a tidy finish to the manufacturing process/improves appearance (1). Any other suitable response.. 	4	<p>In each case:</p> <p>One mark for identifying why interfacing has been used for the sleeve of the tailored jacket.</p> <p>One mark for justifying why the interfacing is suitable for its intended purpose.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p>

					Mix and match approach to bullet points to be taken.	
		(ii)	<p><i>The candidate is expected to demonstrate their understanding of the process involved through a series of annotated sketches and/or notes. There may be variations to the process as indicated but to get into L3 candidates must demonstrate a clear understanding of the end-to-end process.</i></p> <p>Indicative Content:</p> <p>Fusing or Iron-on method:</p> <ul style="list-style-type: none"> • Iron/press the fabric pieces you are wanting to apply the interfacing to first, to remove any creases. • Pin the pattern pieces you need onto the interfacing and cut them out. There is no straight grain on bonded fabrics, so pieces can be placed close together. • Cut the interfacing to the same size as the pieces is it to be applied to, Remember that the sticky side is applied to the reverse side of the fabric. Do not worry about cutting non-woven fusible interfacings on the grain, so you can maximize your usage by laying out the pieces as close as possible to each other, in any direction. • Then trim off the seam allowance (1cm/1.5cm) from the interfacing to reduce bulk. • Place the interfacing adhesive side down onto the wrong side of fabric and cover with a fine cloth or fabric (this protects the iron and the interfacing) • Gently press with a hot, dry iron for a few seconds until the interfacing is attached to the fabric. Cover the fabric and 	6	<p>All processes demonstrated must relate to how to apply interfacing onto fabric.</p> <p>If candidate does not provide an analytical/evaluative response, then only L1 can be awarded.</p>	<p>Level 3 [5-6 marks] The candidate demonstrates a good level of detail of the process needed to apply interfacing onto fabric using technical terms and considering any relevant equipment, machinery and materials. Sketches, if used will be clear and supported with relevant notes. The process includes all relevant stages.</p> <p>Level 2 [3-4 marks] The candidate will demonstrate a sound level of detail of the process needed to apply interfacing onto fabric using some technical terms and there will be some consideration of any equipment, machinery and materials required. Sketches, if used, will for the most part be clear and supported with notes most of which are relevant. The process includes some relevant stages.</p> <p>Level 1 [1-2 marks] The candidate will demonstrate a limited level of detail of the process needed to apply interfacing onto fabric with a limited use of technical terms and there will be a basic consideration of any equipment, machinery and materials required. Sketches, if used, will be unclear</p>

		<p>interfacing with a damp press cloth and press the iron on to the fabric. Hold in the same position for about 15 seconds at a time (10 seconds for light weight fabrics), before lifting the iron, moving it to the next position, and repeating.</p> <ul style="list-style-type: none"> • Press fully until the ‘dots’ on the interfacing disappear. • Let the pieces cool for about 10 minutes before using. <p>Sew in method (non-fusible method): <i>Use sew-in interfacing when the fabric is not suitable for ironing or when the fabric has a lot of structure.</i></p> <ul style="list-style-type: none"> • Iron/press the fabric pieces you are wanting to apply the interfacing to first, to remove any creases. • Pin the pattern pieces you need onto the interfacing. Make sure the pins are not right along the raw edge and use as few pins as possible. This prevents the interfacing from becoming distorted with the pins. • Cut the interfacing to the same size as the pieces it is to be applied to. You will need one piece of interfacing for each fabric piece. • Place sew-in interfacing on WS (wrong side) of each fabric piece and pin all layers in place. • Tack/hand stitch and remove pins. • Thread the sewing machine and machine stitch a 1cm seam around the edge using a straight stitch. Be careful to ensure that the interfacing does not wrinkle when stitched. The interfacing can be hand stitched in place using a herringbone stitch to avoid a visible line of machine stitching. 		<p>with only basic notes to accompany them. Few relevant stages are included.</p> <p>0 marks No response or no response worthy of credit.</p>
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		<ul style="list-style-type: none"> Trim off surplus sew-in interfacing just along the stitch line, as close as possible to the seam to reduce the bulk. Any other suitable response. 			
	(b)	(i)	<p>Possible responses may include:</p> <ul style="list-style-type: none"> Fabric shears (1) have long blades that are designed to cut layers of fabric easily/cleanly (1). Embroidery scissors (1) have short blades that are used for cutting intricate work such as grading/clipping curved edges of the jacket (1). Pinking shears (1) produce a zig-zag pattern along the edge of the fabric once a seam has been produced to neaten the edge/prevent excessive fraying at the seams (1). Cutting wheel or rotary cutter (1) much quicker than scissors/gives an accurate cut as the fabric isn't lifted (1). Bent scissors (1) keeps the blades parallel to the cutting table assuring a better cutting precision (1). Spring action shears (1) reduces the amount of effort required to open the blades whilst cutting (1). Any other suitable response. 	2	<p>One mark for identifying a type of specialist tool that could be used to cut the fabric needed to manufacture the tailored jacket.</p> <p>One mark for justifying why the tool is suitable for its intended purpose.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p>
		(ii)	<p>Possible responses may include</p> <ul style="list-style-type: none"> Pins could be used (1) which can hold multiple pieces of fabric in place temporarily before sewing (1). Fabric clips could be used (1) to hold multiple layers of fabric together temporarily before sewing/prevent damage to the fabrics (1). Needle for tacking the fabric of the jacket together along the seams could be used (1) which prevents the fabric from slipping when sewing on the machine (1) 	2	<p>Up to two marks for describing how specialised tools and machinery could be used to accurately join the fabric needed to manufacture the tailored jacket.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p>

		<ul style="list-style-type: none"> • Sewing machine could be used (1) which joins the fabric together to make a seam/allows the user to have both hands free to control the fabric (1). • Overlocker (1) could be used which finishes seam to prevent fraying/is a quick method of joining a fabric (1). • Any other suitable response. 		
	(c)	<p>Possible responses may include:</p> <ul style="list-style-type: none"> • Measurements are accurate to ensure quality/consistency, accuracy (1) – If patterns/templates are not correct this can result in the pieces not fitting together when assembling (1) e.g. the armhole of the jacket is too small the sleeve will not fit in (1). In the final prototype this will result in a poor fit/puckers where an attempt has been made to stretch the fabric (1). In industry, basic blocks are used to standardise measurements for specific sizes (1). • Pattern markings on patterns/templates are used to ensure that pieces are aligned to give the correct fit. (1). All pattern templates used in the garment industry have globally recognised markings (1). These help ensure the assembly of the garment and the placement/attachment of components. (1). • Designing a template for the jacket can be used to help ensure that information is placed correctly onto the fabric lay (1) and that all pieces are cut out correctly before assembly (1). • Templates/patterns are used to ensure the shape of the design is accurate (1). Can be used repeatedly to ensure the same shape is produced each time during commercial production (1). Computer grading allows the master pattern/template to be used to create larger and smaller sizes without changing the design, shape or appearance (1) thereby ensuring quality and accuracy across the sizes (1). 	6	<p>In each case:</p> <p>Up to three marks for describing how the use of templates and patterns can ensure quality and accuracy when making a prototype of the tailored jacket.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p> <p>Mix and match approach to bullet points to be taken.</p> <p>Make sure credit is being awarded as soon as valid point made.</p>

		<ul style="list-style-type: none"> • The use of the grainline on the pattern/template (1) ensures the fabric is cut in the correct direction of the weave (1). This helps with the fit and the drape of the jacket (1). If using a patterned jacquard fabric or a pile fabric such as velvet, the pattern/template grainline will help to indicate which direction to cut (1) to ensure the pieces of the prototype look the same colour (1) and follow the pattern when assembled (1). • Using patterns/templates provides a common language between designers and developers (1) allowing quality and accuracy to be used and transferred (1). • Patterns/templates enable the designer to quickly analyse a situation and understand how it works (1). This ensures that any alterations to the prototype before continuing with production (1). • Any other suitable response. 		
(d)		<p>Possible responses may include:</p> <ul style="list-style-type: none"> • A consideration might be the nature of the stress that could occur during product use (1). For example structural parts might be made thicker/reinforced to cope with higher forces (1). • A consideration might be the range of stresses that could occur during product use (1). For example, the pockets in the jacket might be used for coins leading to holes in their pockets (1). • A consideration might be usability (1). For example how easy the jacket is to put on and take off (1). • Use of Anthropometric data (1). Measurements need to be considered so the jacket will fit the consumer correctly (1). • A consideration might be how components fulfil functional requirements. For example the buttons must be the correct 	4	<p>In each case:</p> <p>One mark for identifying a consideration a designer must take into account to ensure the functionality of the tailored jacket.</p> <p>One mark for explaining this consideration in the context of functional performance.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p> <p>Mix and match approach to bullet points to be taken.</p>

		<p>size to make it easy for the user to fasten and unfasten them (1).</p> <ul style="list-style-type: none"> • A consideration might be the right fabric for the function and structure of the jacket (1). Fabrics used are important to ensure comfort/fit/flexibility/match (1). • A consideration might be garment care (1). Aftercare options are important to ensure the jacket remains looking good for longer (1). <p>Any other suitable response.</p>		
5	(a)	<p>Possible responses may include:</p> <ul style="list-style-type: none"> • Integration of sugarcane production technologies for improvement in productivity (1) – Justification: leads to a more diversified sugarcane production system (1). Reduces cost of cultivation (1). Increases processing plant efficiency/profit for the manufacturer (1). • Adds diversification (1) – Justification: To produce a value-added product (1). Increases sales by attracting customers through sustainability/environmentally friendly aspect of the flip flops (1). The manufacturer can take advantage from these environmental benefits to meet changing demands (1). • Trending product (1) – Justification: Higher customer base due to environmental link (1). Turning a waste substance (sugarcane bagasse), which used to be incinerated releasing CO₂ into the environment, into a useable fibre (1). 	2	<p>One mark for identifying a reason why the use of a natural plant textile such as sugarcane is beneficial to the manufacturer of the flip-flops.</p> <p>One mark for justifying the benefit for the manufacturer.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p>

		<ul style="list-style-type: none"> Any other suitable response. 		
	(b)	<p>Possible responses may include:</p> <ul style="list-style-type: none"> The designer would take a designing for all approach known as inclusive design (1). This means giving consideration to factors such as age/gender/weight/allergies/e.t.c (1). The designer would consider ergonomic factors to support inclusivity of the product (1). The better the ergonomics the better the overall user experience which will increase interest in product (1). The designer would consider anthropometric factors (1). This will ensure the product provides a range of customer needs in terms of foot length and shape (1). The designer would focus on aesthetic qualities of the product (1). Customers are often drawn to a product because of visual impact (1). The designer would consider the affordability of the product (1). Setting the right price point would make the product more appealing to a range of different customer types (1). Any other suitable response. 	4	<p>In each case:</p> <p>Up to two marks for explaining a factor that a designer would consider to ensure the flip-flops are inclusive to a wide variety of users.</p> <p>Specific reference to the context in the question is needed for marks to be awarded.</p>

	<p>(c) *</p>	<p>Indicative Content:</p> <p>Designers will evaluate the viability of an intended concept from the outset of the design process right the way through to the final prototype and possibly beyond.</p> <p>They utilise a range of tests to ensure the product meets all stakeholder needs. The variety of approaches may include qualitative testing such as user feedback or detailed quantitative virtual stress loading or real-world destructive tests on physical prototypes.</p> <ul style="list-style-type: none"> • Functionality – designers engage in a variety of tests to ensure that the product functions correctly. This iterative design approach means that the product’s function will gradually improve due to changes and adjustments being made in reaction to feedback. Function testing is planned for all products so that designers can critically evaluate how well they meet the needs of the intended user. To test function, designers carry out physical tests including destructive and non-destructive tests and user trials. These tests allow the designer to determine if they are meeting the technical specification requirements by allowing them to understand features and mechanical properties of the materials, check the operating characteristics of the material or part and simulate the ageing conditions of the materials during their lifetime in order to predict behaviour. • Accuracy – Designers ensure that the required standards are delivered by monitoring tolerances, differences in material quality and performance at different stages of a product’s development. Quality control (QC) inspection checks are 	<p>8</p> <p>For MB3 to be awarded several references to the different physical testing systems used by designers to test textile products will be provided supported by meaningful discussion.</p> <p>If candidate does not provide an analytical/evaluative response, then only L1 can be awarded.</p>	<p>Level 3 [6-8 marks]</p> <p>The candidate has a clear understanding of a range of testing systems used by designers to ensure textile products meet all technical criteria and specifications. They produce a thorough discussion in relation to the question by discussing these systems. The discussion is clear, backed up by relevant and in context examples.</p> <p><i>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.</i></p> <p>Level 2 [3-5 marks]</p> <p>The candidate has a reasonable understanding of a range of testing systems used by designers to ensure textile products meet all technical criteria and specifications. They produce a sound discussion in relation to the question by explaining how these systems are deployed. The explanation is sufficient although one or two opportunities are missed to add depth to examples provided.</p>

		<p>carried out to monitor accuracy of parts/components and control the uniformity of production. Bought-in parts/components are tested to ensure that they conform to the technical specification through weight checks and accuracy-of-dimension checks.</p> <ul style="list-style-type: none"> • Performance – Physical performance tests emphasise and are based on measurable performance characteristics as laid out in the technical specification. These tests subject products to stresses encountered in expected use and how materials and components react to a given situation. Tests can include flammability tests, durability analysis, breaking strength, bursting strength, air permeability, pilling propensity, wicking test, textile wear rates and stress testing of key components. • Destructive testing – breaking materials to confirm what happens. Often designers aim to understand what happens to a product if over-stressed with an intention of understanding when it will fail. Tensile testing subjects a test piece or component to tension through a worm-driven gear system, which applies force through a spring beam. • Non-destructive testing – utilises other testing methods to obtain data without damaging the product. This often saves time, resources and money in the process. • Testing models and prototypes - Creating models shows what a concept /idea is. Pre-production models are used in their intended environment of use, analysed and scrutinised by designers through professional testers and stakeholders. Models and prototypes are placed through a variety of tests to guarantee their performance, particularly accelerated physical testing. . • Any other suitable response. 		<p><i>There is a line of reasoning presented with some structure. The information presented is for the most part relevant and supported by some evidence.</i></p> <p>Level 1 [1-2 marks] The candidate has a basic knowledge of testing systems used by designers to ensure textile products meet all technical criteria and specifications. Any reference to the types of testing systems/methods is limited/listed and has little appreciation of how and why they are used by the designer. The response contains no analysis or evaluation, with few or no relevant examples.</p> <p><i>The information has some relevance and is presented with limited structure or detail. The information is supported by limited evidence.</i></p> <p>0 marks No answer or answer not worthy of credit.</p>
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