

GCE

Product Design (Textiles)

Unit 1 Materials, Component and Application

Mark scheme

TEXT1
June 2015

Version 1: Final mark scheme

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from aqa.org.uk

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NB This mark scheme is intended as a guide to the type of answer expected but is not intended to be exhaustive or prescriptive. If students offer other answers which are equally valid they must be given full credit.

Please note, as a result of training at recent teacher meetings, some students may include a plan for their answer. If they do not cross it out, please look at their intentions to see if any additional marks might be found – this is not likely but it just might be that a student who failed to complete the answer has a valid point in the plan.

Many responses at this level are assessed according to the quality of the work rather than the number of points included so it is important to consider a response holistically as well as looking for accurate and relevant information. The following level descriptors are intended to be a guide when assessing the quality of a student's response..

Low mark range

The student has a basic and possibly confused grasp of the issues. The student will show some ability to recall, select and communicate some limited knowledge an understanding which will often be presented as a list of responses with no explanation. There may be some application of basic knowledge and possibly some examples but there will be misunderstanding.

Responses will demonstrate basic planning skills, superficial review of evidence and basic conclusions. Answers will include inaccuracies and use generic rather than specialist terminology,

Mid mark range

The student has some knowledge but there will be some lack of understanding. The student will recall, select and communicate some sound knowledge and understanding which will often be presented as a factual list of responses with some explanation and extended answers.

There will be some application of knowledge and appropriate examples given showing a grasp of most issues. Some aspects of the answer will lack clarity and there will be some inaccurate information.

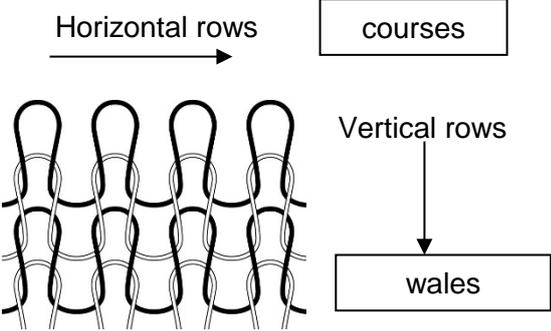
Responses will show the ability to plan, review, analyse and evaluate evidence and will draw appropriate conclusions. There will be some use of specialist terminology.

High mark range

The student has a thorough understanding of the issues and provides clear evidence of understanding. The student will recall, select and communicate detailed knowledge with accurate factual explanations and frequent extended answers. There will be application of relevant knowledge and appropriate examples, with responses demonstrating clarity of understanding.

Responses will demonstrate precision and accuracy in the ability to plan, review, analyse and evaluate evidence, making reasoned arguments and presenting substantial conclusions. Work will be accurate and use a range of specialist terminology.

Section A

Qn	Part	Marking Guidance/ Indicative Content	Mark
1	(a)	<p>Name the method of fabric construction shown below in question 1(b)</p> <p>Weft knit -this is the only answer. Do not accept 'knit' or 'rib knit'.</p>	1 mark
1	(b)	<p>Fill in the boxes on the diagram below with the correct names given to the rows of horizontal and vertical loops.</p> 	2 marks
1	(c)	<p>Give three benefits of using this type of fabric for leisure wear.</p> <p>Eg fabric is flexible/elastic/stretchy, does not crease, lightweight, drapes/hangs well, can be insulating in still air. Do not accept breathable/cool unless explained.</p> <p>Any 3 appropriate benefits, 1 mark each</p> <p>Do not accept 'comfortable', 'soft'.</p>	3 marks

Qn	Part	Marking Guidance/ Indicative Content	Mark
2		<p><i>The following symbols are often used when labelling textile products. Explain the meaning of each symbol.</i></p> <p>(i)</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>The Lion Mark/Toy Safety Logo (1 mark), is put on toys that have been classified as safe (for children) to use (1 mark), Products conform to EN71 safety standards (1 mark).</p> </div> </div> <p>There must be reference to toys, do not accept 'products' for children.</p> <p>Any 2 appropriate points, 1 mark each</p> <p>(ii)</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Conformité Européene mark (1 mark) Product meets basic European (EU) protection laws (1 mark) The mark is not a measure of safety or quality (1 mark).</p> </div> </div> <p>Any 2 appropriate points, 1 mark each</p> <p>(iii)</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Care label/symbol (1 mark), Hand wash only (1 mark) Product can be washed/not in washing machine (1 mark) Delicate wash / wash with care (1 mark)</p> </div> </div> <p>Any 2 appropriate points, 1 mark each</p>	6 marks
3	(a)	<p><i>What is meant by the term basic block as applied to a pattern template?</i></p> <p>Basic outline shapes of different parts of a garment (1 mark), eg skirt, bodice, sleeve, trouser (1 mark), used as a starting point / adapted for new templates (1 mark).</p> <p>Any 2 appropriate points, 1 mark each</p>	2 marks

Qn	Part	Marking Guidance/ Indicative Content	Mark
3	(b)	<p><i>Why is it often necessary to grade pattern templates?</i></p> <p>A range of other sizes is usually needed for retailers (1 mark).</p>	1 mark
4		<p><i>Give three different ways in which computerised layplans can help when placing pattern templates on fabric.</i></p> <p>Eg, different sizes can be cut together to reduce waste (1 mark), ensures that all the pattern pieces are cut out /pieces are cut accurately (1 mark), pattern/one-way design/nap in fabric is taken account of (1 mark), pattern pieces are cut on the correct grain of the fabric (1 mark), layout can be saved for another batch (1 mark), layout can be sent direct to cutter (1 mark), calculates how much fabric required (1 mark).</p> <p>Only accept reductions in time or cost if explained.</p> <p>Any 3 appropriate points, 1 mark each</p>	3 marks
5		<p><i>The British Standards Institute (BSI) makes sure that the quality of textile products is acceptable. Give two ways the BSI can do this.</i></p> <p>BSI do not test all products or check QC. They do set standards and periodically check that products meet those standards by testing samples. Answers need to be read carefully as students will not use the language of the MS. Those that refer to testing/checking in a QC way are not strictly correct. However, if it does appear the student understands testing of samples rather than every product, some credit, ie one mark only may be given eg specifying a range of specific tests.</p> <p>BSI recommends quality standards for textile products (1 mark), they state the essential technical requirements for a product, material or process (1 mark), they regularly test samples of a range of products (1 mark), they award certification to say that the product conforms to a stated standard (1 mark), they specify QA systems such as ISO (1 mark), Student may quote specific standards, allow 1 mark each.</p> <p>Any 2 appropriate points, 1 mark each</p>	2 marks

Section B

Qn	Part	Marking Guidance / Indicative Content	Mark
6	(a)	<p><i>Cotton is a staple fibre. What is meant by staple fibre?</i></p> <p>A short fibre. Do not accept 'small'.</p>	1 mark
6	(b)	<p><i>Cotton is highly absorbent. Explain how this will affect products which from cotton. Give examples.</i></p> <p>The high absorbency makes cotton cool to wear as it absorbs perspiration making it suitable for clothing worn close to the body, eg underwear, nightwear, and also for bedding and clothing worn in hot climates. It does not develop static so clothes do not cling and it does not soil as easily as fabrics which do develop static. It dries slowly so is often blended with synthetic fibres to make clothing which requires regular washing, eg school shirts, underwear. Fabrics are easy to dye.</p> <p>High absorbency means that once clothes become damp/wet they may be uncomfortable to wear, eg cotton clothes worn in hot climates or wet weather. Cotton fabrics do not offer protection from wet weather conditions so are not useful for outdoor jackets, bags, hats unless given a water repellent finish. Fabrics stain easily with water-borne stains unless treated so are not always useful for home furnishing products, eg cushions. Fabrics are attacked by mildew in damp conditions.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Student shows limited understanding of the implications of cotton's high absorbency and will tend to focus on the obvious advantages. There will be some inaccuracies or lack of detail and examples to illustrate the intended use. 1-2 marks • Student shows some good understanding of the implications of the high absorbency but points may tend to concentrate the positive aspects only. There may be minor confusion but most points will be accurate. 3-4 marks • Sound understanding of the implications of high absorbency, especially at the top end of the mark range. The student will give positive and negative points relating absorbency to potential end use of cotton fabrics 5-6 marks 	6 marks

Qn	Part	Marking Guidance / Indicative Content	Mark
6	(c)(i)	<p><i>Cotton is cool to wear. Describe one finish that is used to make cotton fabric a better insulator.</i></p> <p>Brushing / Raising (1 mark)</p>	1 mark
6	(c)(ii)	<p><i>Describe how this finish makes cotton a good insulator.</i></p> <p>It raises the nap (1 mark) and traps air (1 mark). Do not accept 'soft' or 'makes it warmer'</p>	2 marks
6	(c)(iii)	<p><i>Explain two important drawbacks of using this finish.</i></p> <p>It makes the fabric more flammable (1 mark), and weakens the fabric structure (1 mark) Softness may be lost after washing / more prone to pilling (1 mark).</p>	2 marks
6	(d)	<p><i>Describe four of the cotton fabrics listed in the table above:</i></p> <p>corduroy: (cut/directional) pile (1 mark) ribs / ridges (1 mark) run the length of the fabric (1 mark) uses a 3 yarn system (1 mark)</p> <p>muslin: lightweight (1 mark) plain weave (1 mark) open weave/translucent (1 mark).</p> <p>denim: twill weave (1 mark) white weft (1 mark) coloured warp (1 mark).</p> <p>broderie anglaise: plain weave (1 mark) embroidered pattern (1 mark) including decorative holes (1 mark)</p> <p>gingham: plain weave (1 mark) 2 yarn colours (1 mark) woven in checks and stripes (1 mark)</p> <p>seersucker: alternating flat and puckered areas (1 mark) stripes or checks (1 mark) plain weave (1 mark)</p> <p>For each fabric, any 2 appropriate descriptors 1 mark each</p> <p>Diagrams may be used - relevant information should be given credit.</p>	8 marks

Qn	Part	Marking Guidance / Indicative Content	Mark
7	(a)	<p><i>Critically evaluate the suitability of the twill weave wool fabric for winter coats and jackets</i></p> <p>Eg The wool fibre makes the fabric hardwearing, the crimp in the fibre makes it very warm to wear, it does not crease easily and is able to repel surface water droplets because of its lanolin coating. It is a soft fibre.</p> <p>But it is very absorbent so will take a long time to dry if soaked, it shrinks when washed so will need to be dry-cleaned which can be expensive, it can be heavy in weight compared to other fabrics. It is attacked by moths.</p> <p>The twill weave structure adds to the strength, drapes well, hides dirt and gives some surface interest. But it can fray easily and may be spoiled by snagging. It is an expensive fibre compared with others.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Little understanding, simplistic statements only, student typically concentrates on a narrow area of fibre qualities without reference to structure of the fabric or intended use. The response will tend to be descriptive rather than evaluative, and there may be confused and inaccurate information. 1-2 marks • Student shows understanding of the contribution made by the wool fibre with some attempt to analyse the impact of the twill weave structure, but points may tend to emphasize the positive aspects only. There may be minor confusion but most points will be accurate. 3-4 marks • Student shows detailed understanding of the contribution made by several aspects of the wool fibre content and twill weave structure. Information will be accurate and evaluation will consider a range of both positive and negative aspects of the fabric. 5-6 marks 	6 marks

Qn	Part	Marking Guidance / Indicative Content	Mark
7	(b)(i)	<p><i>Describe how a non-woven bonded fabric can be made. You may use a diagram.</i></p> <p>Student needs to show understanding that the fabric is made directly from fibres. Some evidence may be found in diagrams.</p> <p>Fibres are laid in a random pattern (1 mark), to form a loose web (1 mark), web is held together using adhesive/thermal/solvent bonding or stitching/needle punching (1 mark).</p> <p>Wool felt may be accepted: Wool fibres have scales (1 mark), Friction, moisture and heat (1 mark), Cause the fibres to felt / matt (1 mark).</p> <p>An accurate diagram including all of the above points may be used.</p>	3 marks
7	(b)(ii)	<p><i>Non-woven fabrics are used to make disposable products. Explain why. Give some examples of products to illustrate your answer.</i></p> <p>Eg they are cheap to manufacture as fabrics are made straight from fibres so are ideal for disposables. Because there is no 'grain' they can be cut in any direction and do not fray when cut so edges do not need to be finished making the manufacture of products cheaper.</p> <p>Products include disposable surgeons' gowns, dressings, hospital bedding, dishcloths, sanitary products, tea bags, insulation materials, interfacings, filters.</p> <p>Do not accept wool felt as it is too expensive.</p> <p>Marks awarded as follows</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Limited range of properties of non-woven materials with minimal explanation for their use in disposables. Few examples of products. There will be a number of inaccuracies and misunderstandings. 1-2 marks • Accurate explanation of the properties of non-woven materials clearly related to their use in disposable products. A wide range of appropriate examples of products. 3-5 marks 	5 marks

Qn	Part	Marking Guidance / Indicative Content	Mark
7	(c)	<p><i>Discuss the benefits of using a fabric made from a blend of viscose and polyester fibres to make fashion tops.</i></p> <p>Eg viscose is a soft fibre and very absorbent so will give good next-to-skin comfort. Its high moisture content means it will not attract static. It is considered to be a more environmentally fibre than cotton and is relatively inexpensive, making it ideal for products expected to have a short life cycle.</p> <p>Polyester is strong so will counteract viscose's weakness and tendency to shrink and crease. As it is non-absorbent it will help garments to dry more quickly when washed. It is thermoplastic enabling fashion creases and pleats to be heat-set.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Little understanding, simplistic statements only, student typically concentrates on limited qualities of individual fibres without reference to the blend or intended use. There may be confused and inaccurate information. 1-2 marks • The student will show good understanding of the contribution made by the individual fibres. There will be a sound attempt to analyse appropriateness of fabric for fashion tops, but the interaction between the fibres in the blend will not be fully understood. There may be minor confusion but most points will be accurate. 3-4 marks • Sound understanding of the contribution made by both fibres and the interaction between them in the blend. There will be clear reference to the shortcomings and strengths in each of the fibres. Information will be accurate and related clearly to fashion tops. 5-6 marks 	6 marks

Section C

Qn	Part	Marking Guidance / Indicative Content	Mark
8	(a)	<p><i>Analyse the style features of the jacket that make it suited to outdoor winter sports activities.</i></p> <p>Streamlined/close/elasticated side panels give body fit allows for easy movement, zipped external pockets allow for storage of gloves, money, tickets, etc, internal pockets offer additional storage, open-ended front zip gives quick access, prevents cold air/snow/rain entering and the facility to open the jacket slightly if required, large zip pull allows zip to be used when wearing gloves, high collar offers additional protection against cold conditions, back is cut lower than front for warmth, close fitting sleeve ends reduce drafts/allow for easy dressing, bright colour may help identify people in difficulties, quilted structure insulates and adds texture and decoration.</p> <p>Do not accept the lining or logo.</p> <p>Student should make reference to sporting activities. Identifying 4 or more features does not automatically put a response in the top mark band – the quality of explanation is important.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Limited analysis which lacks clarity about the style features and may refer mainly to fabric. There will probably be great emphasis on the warmth of the jacket with little reference to the intended end use. The student will describe the jacket without analysis and include only the most basic standard features. 1-2 marks • Good analysis of at least three features but there may also be some inappropriateness and reference to fabric rather than style features. There will be sound attempts to relate to the intended end use but there may be some areas which lack clarity. 3-4 marks • Clearly analysed and well explained points based on at least four style features and related to the end use in some detail. For 6 marks there must be at least 4 fully explained features. 5-6 marks 	6 marks

Qn	Part	Marking Guidance / Indicative Content	Mark
8	(b)	<p><i>The outer layer is made from a plain weave polyester fabric. The lining is made from a plain weave polyamide fabric. Explain why each of these fabrics is suitable for the jacket.</i></p> <p>Eg both polyester and polyamide are very strong and abrasion resistant so will resist tearing and wear when subjected to friction. They are lightweight so will not make the jacket heavy in use. They will resist water-borne stains as they are non-absorbent and will dry quickly. Polyester is not affected by sunlight as polyamide is, so it is better suited to the outer layer of the jacket. The plain weave adds to the strength and is firm so will hold its shape, preventing stretching and keeping the shape of the jacket. There is no pattern to detract from the quilted pattern. The fabrics are relatively inexpensive for the intended target market.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Little understanding, simplistic statements only, student typically concentrates on a narrow area of fibre qualities without reference to structure of the fabric or intended use. The response will tend to be descriptive and there may be confused and inaccurate information. 1-2 marks • Student shows understanding of the contribution made by the fibres with some attempt to analyse the impact of the plain weave structure. Points may not relate the properties clearly to the fibre and fabric qualities and will lack detail. There may be minor confusion but most points will be accurate and there will be some reference to the intended use. 3-4 marks • Student shows detailed understanding of the contribution made by several aspects of the fibre content and plain weave structure. Information will be accurate and clearly related to the intended end use of the fabric. 5-6 marks 	6 marks

8	(c)	<p><i>The outer fabric and lining are stitched together to give a quilted pattern.</i> <i>The spaces between the layers are filled with a mix of duck down and duck feathers. Explain the reasons for this fabric structure and this filling.</i></p> <p>Students may refer to the quilted structure and / or the filling. Each relevant point must be ticked.</p> <p>The feathers are good insulators (1 mark) As the feathers / quilting trap air (1 mark) The wearer does not become cold/ stays warm (1 mark) The stitching prevents the feathers from clumping together (1 mark) The feathers are lightweight (1 mark) The filling is soft (1 mark) The stitching adds decoration (1 mark).</p> <p>Any 5 appropriate points, 1 mark each.</p>	5 marks
8	(d)	<p><i>Polyester thread is used for the stitching on the jacket.</i> <i>Give three reasons why polyester thread is used.</i></p> <p>The polyester thread is strong/hardwearing (1 mark), it does not shrink when wet (1 mark), it has some <i>give</i> so seams can flex with movement (1 mark), it dries quickly / has same care as fabric (1 mark), it is flame resistant (1 mark) it is a smooth filament (1 mark).</p> <p>Do not accept stretchy. Any 3 appropriate points, 1 mark each</p>	3 marks
8	(e)	<p><i>The person wearing the jacket is advised to stay away from fire.</i> <i>Explain why.</i></p> <p>The quilted fabric traps air (1 mark) Which supports/encourages burning (1 mark) The synthetic fibres will melt if subjected to fire (1 mark) This could cause serious burns / stick to skin (1 mark).</p> <p>Do not accept 'polyester is flammable', reference to poisonous gases.</p> <p>Any 3 appropriate points, 1 mark each.</p>	3 marks

Qn	Part	Marking Guidance / Indicative Content	Mark
8	(f)	<p><i>The jackets are sold packaged in the polyester bag shown. The shop has sample garments in different sizes for consumers to examine and try on. Critically evaluate this method of packaging the jacket in a polyester bag. Write about the consumer and the retailer in your answer.</i></p> <p>The benefits include: a compact package for the consumer to take away, jacket is kept clean and free of damage, sample garment can easily be examined without the need to unwrap them, style details clearly shown on outside of bag, easier for storage and for retailer to stack shelves and may reduce amount of display space required, less damage to garments so profit margins not reduced – this may also benefit the consumer by way of reduced prices</p> <p>The drawbacks include: jacket will become creased, filling will take some time to fluff up, environmental/cost implications of wasted packaging, smaller pack may be easier to steal from shop, not easy to inspect the jacket you plan to buy, need to ensure that sample garments are displayed next to packaged jackets.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Limited range of points with a lack of clarity about the benefits and drawbacks. There will probably be greater emphasis on the retailer or the consumer with little consideration of the other. 1-2 marks • A range of points which are mostly well considered. There will be sound attempts to consider the consumer and the retailer for 4m but evaluation will be a weakness and limited in scope. There may be a slight lack of clarity. 3-4 marks • Clearly analysed and well explained points which relate to consumer and retailer. Points will be relevant and make a true evaluation of the packaging. 5-6 marks 	6 marks

Qn	Part	Marking Guidance / Indicative Content	Mark
8	(g)	<p><i>Explain why the consumer is advised to dry clean the jacket if possible.</i></p> <p>Jacket is bulky so may not fit easily into domestic washer (1 mark), Feathers take a long time to dry (1 mark), Dry cleaning will retain the fluffiness of feathers (1 mark), A lot of attention is needed when drying the jacket eg putting tennis balls in the dryer, regular shaking of the garment (1 mark), A lot of rinsing needed to remove detergent after washing (1 mark), Feathers may start to smell if drying is prolonged (1 mark).</p> <p>Any 3 appropriate points, 1 mark each</p>	3 marks
8	(h)	<p><i>Describe two different modifications that can be made and explain why you think each modification is needed.</i></p> <p>The student is expected to show/describe two different modifications to the existing jacket. These may include a hood, extra pockets, a zip-out or warmer lining, different coloured panels, reflective strips, fabric band to cover the zip, draw cord at hem. Notes should be used to explain the thinking and to explain how the modification is likely to benefit the consumer. Reference should be made to the TM which is mid-price range.</p> <p>The modification must keep the garment as a jacket. If the jacket is turned into a body warmer it must be possible to zip the sleeves on and off, otherwise it becomes a different garment.</p> <p>Do not accept making different colour ranges, making the jacket more fitted, changing the fabric to Gore-tex. Look for interest in the modification as well as explanation.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • No response worthy of credit. 0 mark • Weak ideas which lack clarity about what is intended and how they will benefit the wearer. There will be a lack of information and the modifications may be similar. 1-2 marks • Ideas are adequate and information will be sufficient to indicate what is intended. The ideas will lack some potential and it is possible that one idea will be stronger than the other. 3-5 marks • Clearly presented and explained modifications which are clearly different, show some creativity, and appropriate for intended market. 6-8 marks 	8 marks

