



**General Certificate of Education (A-level)
June 2013**

**Design and Technology: TEXT1
Product Design (Textiles)**

(Specification 2560)

Unit 1: Materials, Components and Application

Final

Mark Scheme

Mark schemes are prepared by the Principal Examiner 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 examiners 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 examiner understands and applies it in the same correct way. As preparation for standardisation each examiner 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, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

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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 candidates offer other answers which are equally valid they must be given full credit.
Many responses at this level are assessed according to the quality of the work rather than the number of points included. The following level descriptors are intended to be a guide when assessing the quality of a candidate's response.

(low mark range)
The candidate has a basic but possibly confused grasp of the issues. Few correct examples are given to illustrate points made. This candidate does not have a clear idea of what s/he is writing about
(mid mark range)
The candidate has some knowledge but there will be less clarity of understanding. Some correct examples given to illustrate points made. This candidate knows what s/he is writing about but is confused in part.
(high mark range)
The candidate has a thorough understanding of the issues and has provided relevant examples to support the knowledge shown. This candidate knows what s/he is writing about and provides clear evidence of understanding.

Section A

Question	Part	Sub Part	Marking Guidance	Mark	Comment
1	(a)		<p><i>What is meant by the term regenerated fibre?</i></p> <p>A fibre which has been made from natural cellulose (wood pulp or cotton waste, or protein) Chemically treated to make a new fibre</p>	1 1	Max 2 marks
1	(b)		<p><i>Give one example of a regenerated fibre.</i></p> <p>e.g. Viscose, acetate, Tencel®, Lyocell®, modal</p>	1	

Question	Part	Sub Part	Marking Guidance	Mark	Comment
2	(a)		<p><i>Indicate if the following statements are true or false.</i></p> <p>If both boxes are ticked, do not award a mark.</p> <p><i>Velvet has a directional pile</i></p> <p>True</p>	1	
2	(b)		<p><i>The symbol shown below means do not dry clean.</i></p>  <p>False</p>	1	
2	(c)		<p><i>The symbol shown below tells a consumer that a product is made from 100% wool.</i></p>  <p>False</p>	1	

Question	Part	Sub Part	Marking Guidance	Mark	Comment
3			<p><i>Explain the differences between the warp and weft yarns used to produce woven fabrics.</i></p> <p>The warp yarns are fixed in the loom Warp yarns run the <u>length</u> of the fabric Warp yarns are stronger/have less stretch than the weft Weft yarns run across the <u>width</u> of the fabric Weft yarns turn back to create the selvedge Weft yarns can be decorative</p> <p>Do not accept 'horizontal' and 'vertical' or 'goes up and down' or 'goes from side to side' Any 3 appropriate points, 1 mark each.</p>	1 1 1 1 1 1	Max 3 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
4			<p><i>Elastane fibres are often added to fabric blends. What special qualities does an elastane fibre give to a fabric?</i></p> <p>They are very stretchy They reduce creasing 'Comfort' if explained Shape retention/fit to the body</p>	1 1 1 1	Max 2 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
5			<p><i>What is meant by the term grading in relation to pattern templates?</i></p> <p>Adjustment for different sizes.</p>	1	

Question	Part	Sub Part	Marking Guidance	Mark	Comment												
6			<p>Complete the table below by putting a material from the following list next to the correct description.</p> <p><i>Petersham Underlining Boning</i> <i>Interfacing Bias binding Interlining</i></p> <table border="1"> <thead> <tr> <th>Description of material</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>Strengthens and supports a part of the product.</td> <td>Interfacing</td> </tr> <tr> <td>A narrow fabric cut on the cross and used to neaten edges.</td> <td>Bias binding</td> </tr> <tr> <td>Cut to the same shape as the main fabric and used to prevent a garment being see-through.</td> <td>Underlining</td> </tr> <tr> <td>Narrow flexible strips, used to stiffen seams or edges.</td> <td>Boning</td> </tr> <tr> <td>A layer of fabric between the main fabric and the lining, used for insulation.</td> <td>Interlining</td> </tr> </tbody> </table>	Description of material	Material	Strengthens and supports a part of the product.	Interfacing	A narrow fabric cut on the cross and used to neaten edges.	Bias binding	Cut to the same shape as the main fabric and used to prevent a garment being see-through.	Underlining	Narrow flexible strips, used to stiffen seams or edges.	Boning	A layer of fabric between the main fabric and the lining, used for insulation.	Interlining		Max 5 marks
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7			<p><i>The labelling and packaging of textile products provides important information such as care advice. Give three other different types of information found on the labelling of textile products.</i></p> <p>No more than one point from any of the following groups of information.</p> <p>e.g. to: provide the consumer with information about <u>fibre content</u>,</p> <p>provide the consumer with information about <u>country of origin</u>,</p> <p>provide the consumer with information about <u>size/intended age group</u>,</p> <p>to give <u>safety advice/warnings</u> (Kitemark, CE mark, flammability),</p> <p>to <u>promote the product</u> (brand, special features, special offer, information about recycling or ethical manufacture),</p> <p><u>stock information</u> (price, barcode, product code, colour)</p> <p>Do not accept points relating to care. Any 3 appropriate reasons, 1 mark each.</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>Max 3 marks</p>

Section B

Question	Part	Sub Part	Marking Guidance	Mark	Comment
8	(a)		<p>Dress A is made from polyester chiffon with a polyester satin lining. Evaluate the suitability of these fabrics for special occasion dresses.</p> <p>The chiffon is lightweight, floaty and semi-opaque which adds to the aesthetic qualities. The satin lining adds weight to the dress so it will drape well and is also aesthetically pleasing. The smooth shiny satin provides an interesting background to the matt appearance of the chiffon. It is opaque so provides 'decency' for the wearer. The fabrics are soft. The polyester fibre ensures that fabrics will not crease easily; they dry quickly and will not require ironing so the dress can probably be washed at home. The fabrics are relatively inexpensive.</p> <p>But the fabrics are not hardwearing, especially the chiffon, which may snag on the beaded decoration. The lightweight nature of the chiffon may cause it to <i>flare</i> if ignited. The fabrics may develop static.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Basic information with evidence of only limited knowledge of the fibre and fabric properties. Candidate will not make a real evaluation and may ignore one of the fabrics. The answer will be descriptive of the dress and information generalised rather than specific. There will be inaccuracies and confusion. • Candidate shows knowledge of the fibre properties but there will be a lack of specific information. Good understanding of the qualities of polyester but not fully related to the 2 fabrics, and there may be elements of confusion. Some attempt to evaluate the suitability of the fabrics as used for the dress. • Candidate shows detailed knowledge and understanding of the properties of the polyester fibre and the 2 fabrics. There will be sound evaluation of their use for the dress. 	<p>0 – 2</p> <p>3 – 4</p> <p>5 – 6</p>	Max 6 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
8	(b)		<p>Dress B is made from silk crepe. Evaluate the suitability of this fabric for special occasion dresses.</p> <p>The silk is aesthetically pleasing, is warm to wear, feels pleasant against the skin, does not crease easily, does not develop static, the crepe fabric gives texture, has a good drape, has a matt surface to contrast with the shine of the beads and not detract from the embroidered detail, has sufficient weight to support the decoration. But silk is not easy to care for, is affected by perspiration, can be expensive, will require dry cleaning.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Basic information with evidence of only limited knowledge of the fibre properties. Candidate will not make a real evaluation and will typically ignore the fabric. The answer will be descriptive of the dress and information generalised rather than specific. There will be inaccuracies and confusion. • Candidate shows knowledge of the fibre properties but there will be a lack of specific information. Good understanding of the qualities of silk but little reference to the fabric. There may be elements of confusion. Some attempt to evaluate the suitability of the fabric as used for the dress. • Candidate shows detailed knowledge and understanding of the properties of the silk fibre and the crepe fabric. There will be sound evaluation of its use for the dress. 	<p>0 – 2</p> <p>3 – 4</p> <p>5 – 6</p>	Max 6 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
8	(c)		<p><i>Dress A is from 2013 and Dress B was fashionable in 1925.</i></p> <p><i>Since 1925 there have been many technical developments in textiles.</i></p> <p><i>Analyse the ways in which modern materials and methods of manufacture have had an impact on fashion special occasion wear.</i></p> <p>Synthetic fibres such as polyester and polyamide are stronger and more hardwearing than their natural counterparts. They make garments easier to care for as they can be washed at home, are quick to dry because they do not absorb water, are resilient so will not crease easily and will not need ironing. Their thermoplastic nature allows for heat setting of intended pleats and creases. Elastomeric fibres allow for a closer fit with free movement. Modern fibres can be engineered to achieve desirable qualities, ‘smart’ materials and finishes can be used for special effects. The threads and beads will also be synthetic based so also easy care.</p> <p>Development of decorative techniques, e.g. computerised embroidery and printing, new ways of applying trims.</p> <p>The 1920s was the start of mass produced ready-to-wear clothing, but it is likely that the dress shown would have been made specifically for one person. Mass production had begun to take off during WW1 as there was demand for large numbers of standard sized uniforms to be produced quickly. Growth of mass media, especially women’s magazines and the cinema, encouraged consumers to want the latest styles. An expansion of retail outlets linked to the clothing manufacturers encouraged the growth of mass demand.</p> <p>After WW2 there was a huge growth in large-scale manufacturing of clothing; this took place in large factories with advanced production methods. The growth of computerised and automated JIT manufacture has allowed for a rapid expansion in the fashion industry with quick turn-round and fast changes in fashion. Many fashions are made abroad as labour is often more specialised and cheaper so special occasion clothing is now cheaply available to all.</p> <p style="text-align: right;">Continued</p>		

Question	Part	Sub Part	Marking Guidance	Mark	Comment
8	(c)		<p>Responses should be a comparison between the two eras and need not have equal weighting across modern materials and methods of manufacture.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Basic information with only limited knowledge of the developments. Candidate will tend to concentrate on the dresses shown and repeat information from (a) and (b). There will typically be references to CAD and CAM being ‘fast and easy’ but with little understanding of the changes involved during the 20th century. There will be inaccuracies and confusion. • Candidate shows some knowledge of the changes involved in the development of new fabrics and manufacturing techniques. There will be a lack of specific information in one or both areas, especially at the lower end of the mark range. There may be elements of confusion together with some accurate information and perceptive comments at the top end of the mark range. • Candidate shows detailed knowledge and understanding of the fabric developments and changes in mass manufacture. There will be accurate and relevant information with examples to support points made. Perceptive comments about the changes involved indicate that the candidate has understood the issues involved and is aware of the ‘big picture’. 	<p>0 – 3</p> <p>4 – 6</p> <p>7 – 8</p>	Max 8 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
9	(a)		<p><i>The following finishes are often used on fabrics:</i> <i>brushing,</i> <i>heat setting,</i> <i>calendering.</i></p> <p><i>For each of the finishes listed above:</i></p> <ul style="list-style-type: none"> • <i>describe the effect it will have on a fabric</i> • <i>explain the reasons it is needed on some fabrics and products</i> <p><i>Give some examples to support your answer.</i></p> <p>There is no mark for naming specific products.</p> <p>Brushing; <u>Effect:</u> Fabric passed over wire brushes (1 mark) raises nap (1 mark) and traps air (1 mark), adds bulk / texture (1 mark), increases warmth (1 mark), softens fabric (1 mark), weakens fabric (1 mark) increases flammability (1 mark).</p> <p>Used on nightwear, bed linen, denim jeans, fleece.</p> <p><u>Reasons:</u> Cotton is a cool fibre (1 mark), some products need to be warm to wear (1 mark), some fabrics can be hard/rough (1 mark), gives fleece fabric its structure (1mark)</p> <p>Heat setting: <u>Effect:</u> Uses heat to set in a shape (1 mark), used on fabric with thermoplastic fibres (1 mark) makes pleats and creases permanent (1 mark), prevents fabric from shrinking (1 mark), prevents fabric from creasing (1 mark).</p> <p>Used on products with a thermoplastic fibre content, shirts, trousers, skirts, bed linen.</p> <p><u>Reasons:</u> Fibres such as cotton and viscose crease easily (1 mark), Some products need to be easier to care for or able to hold pleats/creases (1 mark).</p>	<p>Max 15 marks</p> <p>Max 5 marks</p> <p>Max 5 marks</p>	<p>Max 15 marks</p>

		<p>Calendering. <u>Effect:</u> Gives fabric a lustre (1 mark), heated rollers flatten/iron the fabric (1 mark), fabric becomes smoother (1 mark). not a permanent finish (1 mark)</p> <p>Used on furnishing fabrics, cotton fabrics.</p> <p><u>Reasons:</u> Cotton has no natural lustre (1 mark), as the fibres are flat and twisted / do not reflect light (1 mark), fabrics may become slightly better at resisting soiling (1 mark).</p> <p>Marks awarded as follows: 1 mark for each appropriate point with at least one point from each of the 2 areas listed for each finish. 3 finishes, up to 5 marks each</p>	<p>Max 5 marks</p>	
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Question	Part	Sub Part	Marking Guidance	Mark	Comment
9	(b)		<p><i>Describe one modern or smart textile material which is used for high performance sportswear. Explain how it can benefit the user.</i></p> <p>There are many materials which could be used for performance sportswear and candidates should be given credit for any reasonable answer. Materials suggested might include ones which:</p> <ul style="list-style-type: none"> • use biomimetics that imitate nature, e.g. Fastskin, Stomatex; • monitor body functions /give warnings, e.g. when blood pressure is raised or body becomes too cold / hot; • maintain a personal micro-climate, e.g. Stomatex, Outlast; • provide buoyancy and support, e.g. bodysuits / lifejackets: • have chromatic properties and change colour in response to specific situations, e.g. if body is too hot; • can generate solar power when exposed to sunlight to power GPS or other systems; • interactive materials such as those with tracking devices; • are laminated to be water and wind proof, eg Gore-Tex, • allow stretch and freedom of movement, eg elastanes. <p>Candidates should identify a textile material, give an appropriate use, and explain the benefits to the wearer. It is not expected that a lot of technical detail will be given as this is very difficult to find.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Basic information only. The material selected may not be modern/smart or appropriate for performance sportswear. There will be limited explanation about benefits for the user. The points will be the most obvious with generalised, rather than specific, information. There will be inaccuracies and confusion. • Candidate describes an appropriate modern/smart material with a clear account of how it works, especially at the top end of the mark range. There will be specific information about how the material benefits the user in relation to sporting activities. 	<p>0 – 2</p> <p>3 – 5</p>	Max 5 marks

Section C

Question	Part	Sub Part	Marking Guidance	Mark	Comment
10	(a)		<p><i>A felted fabric has been used for the top of the doorstep. Describe how a felted fabric is made. You may use diagrams.</i></p> <p>Candidate may describe felting of wool or needle felting.</p> <p>Felts are made directly from fibres which have not been spun into a yarn/ are non-woven fabrics.</p> <p>Plus either: Felt from wool fibres uses the natural felting ability of wool to cause the fibres to matt/bond together using heat, mechanical action and moisture (needs to be at least 2 of the 30). Or Needlefelts are made from synthetic fibres such as acrylic, nylon and acetate These are matted together by mechanical action when barbed needles entangle the fibres to make the felt.</p> <p>Do not accept glued or heat-set methods.</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	Max 4 marks
10	(b)		<p><i>The spotted pattern has been achieved on the fabric of the doorstep by using resist printing. Explain how this is done.</i></p> <p>This is about resist <u>printing</u>, not dyeing.</p> <p>The fabric is printed with chemicals or paste resist (1 mark) which prevent dye being taken up in the treated areas (1 mark)</p>		Max 2 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
10	(c)		<p><i>Analyse the ways in which trimmings and components have been used on the doorstep.</i></p> <p>The question is about trimmings and components, not techniques. Look for identification of the component and an explanation of what it does, e.g outlines, adds texture. There should be some analysis.</p> <p>Ric-rac braid has been used to outline and emphasize door and windows, buttons have been used to indicate lights and door porthole / handle, ready-made flowers used in window box, embroidery threads used to emphasize edges / hold fabrics in place.</p> <p>Marks awarded as follows</p> <ul style="list-style-type: none"> Minimal consideration of the ways in which trimmings and components have been used. Answers will be generalised and tend to describe the doorstep rather than analysing the function of the trims. Sound analysis which gives detailed consideration to the function of the trims and components. A number of different components will be included. 	<p>0 – 2</p> <p>3 – 4</p>	Max 4 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
10	(d)		<p><i>The doorstep is in the shape of a caravan. The manufacturer wants to extend the range of these doorstops to include different forms of transport. Using this page and the next page, show how you could modify the basic design shown on page 13 to make another doorstep in the range. Include information about fabrics, components and decorative techniques to be used.</i></p> <p>Candidate should describe a modification of the door stop shown to give an alternative design which should be based on a different form of transport or other. The new design should be clearly different and be appropriate for a decorative door stop.</p> <p>There should be clear information about the fabrics, components and decorative techniques to be used.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Weak design which lacks clarity about the new style. There will be a lack of information about the fabrics, components and techniques. The design will tend to be immature and not well thought through. • Design is adequate and clearly shows a different style which may not be the most appropriate or meet all the criteria. Information will be sufficient to indicate what is intended but there may be some areas which lack clarity. There may be some lack of originality/interest. • Clearly presented and explained design which meets all of the criteria and will be appropriate for intended use. There will be some originality and novelty. 	<p>0 – 2</p> <p>3 – 5</p> <p>6 – 8</p>	Max 8 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
10	(e)		<p><i>Explain how the making of prototypes of the doorstep would help:</i></p> <ul style="list-style-type: none"> • <i>the designer</i> • <i>the manufacturer.</i> <p>e.g. the designer: a paper model at the start of the process could help with shape and sizing, fabric prototypes could help decide on final shape/size and materials to be used and allow for changes to be made.</p> <p>For the manufacturer, Prototypes help with development of pattern templates and organisation of manufacture so that materials are ready as required and time is not wasted. May be used as a sealed sample. Candidates need to refer to both the designer and manufacturer, and give some explanation for high marks</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Basic information, candidate will possibly concentrate on one reason with a lack of clarity. There will possibly be confused and inaccurate information. • Candidate shows mainly accurate knowledge of a limited range of reasons with sound attempts to explain the use of prototypes. There may be minor elements of confusion. • A wide range of clearly explained and relevant reasons. There will be examples to support points made. 	<p>0 – 2</p> <p>3 – 4</p> <p>5</p>	Max 5 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
10	(f)		<p><i>The fabric for the base of the doorstep, shown on page 13, has been tested to ensure that it is durable enough to stand up to the expected wear and tear.</i></p> <p><i>Describe a test that the fabric technologist might have carried out to check the durability of the fabric.</i></p> <p>The candidate should describe an industrial testing method. Classroom methods will be acceptable. It should be a recognised technical test of the fabric, not the doorstep.</p> <p>The set up of the test and method used together with some indication of how results are to be interpreted should be included. The following is one example of an appropriate abrasion test, but there may be other equally valid ones, eg to check strength using weights.</p> <p>Fabric samples are clamped/held in place on a weighted disc, the samples are rubbed in an even pattern against a standard abradant, eg sandpaper or hard material, the machine counts how many rubbing cycles are made before the fabric samples show signs of wear. A technician will examine the samples at regular intervals to see whether threads are broken. An average reading will be given in the overall result.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Limited information about a test which may not be appropriate. There will be no reference to how results are to be interpreted or how the test will be made reliable. • Clear information about an appropriate method but possibly some minor omissions. Information about reliability and interpretation of results is likely to be lacking in detail. Information will be sufficient to indicate what is intended but there may be some areas which lack clarity. • Clearly explained and appropriate test with sound information about interpretation of results and reliability. 	<p>0 – 2</p> <p>3 – 4</p> <p>5 – 6</p>	<p>Max 6 marks</p>

Question	Part	Sub Part	Marking Guidance	Mark	Comment
10	(g)		<p><i>Evaluate three different methods of advertising the doorstep to bring it to the attention of potential customers.</i></p> <p>This question is about advertising, not selling.</p> <p>Methods might include:</p> <ul style="list-style-type: none"> • advertising on TV / specific TV programmes • radio • in magazines or newspapers • leaflets • store / window displays • internet sites • mobile phone apps • social media sites • blogs • billboards • catalogues if relevant • e-mails to existing customers • advertising on transport. <p>Candidate should describe how the process works and evaluate how successful or otherwise each method is likely to be. This will include references to ability to reach target market, cost, how well the advert is likely to be remembered, presentation to potential customer.</p> <p>Marks awarded as follows: Appropriate method (1 mark) One or more advantage of named method (1 mark) One or more disadvantage of method (1 mark)</p> <p>Points not to be repeated, eg 'reaching the right audience for each method' unless there is some distinction between the points related to the method selected.</p> <p>If a candidate offers similar advantages or disadvantages for each method check very carefully that they are sufficiently different in order to award marks.</p> <p>3 methods, up to 3 marks each</p>		Max 9 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
10	(h)		<p><i>The doorstep design is copyrighted. Why is this important?</i></p> <p>Designer has a moral right to be the owner of design, protects against others copying design permission needed to copy designs legal action could be taken against people copying</p>	<p>1 1 1 1</p>	Max 2 marks