



## **General Certificate of Education**

# **Design and Technology: Product Design (Textiles) 2560**

*Post-Standardisation*

**TEXT1**

## **Mark Scheme**

*2011 examination - January series*

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 meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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**COMPONENT NUMBER: 2560**

**COMPONENT NAME: TEXT1**

**STATUS: Post-Standardising**

**DATE: 27-01-11**

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.

<b>(low mark range)</b>
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.
<b>(mid mark range)</b>
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.
<b>(high mark range)</b>
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	Comments
1	a		Twill weave	1 mark	
1	b		(i) warp (ii) weft 1 mark for each correct label	2 marks	
1	c		e.g. denim, drill, flannel, gabardine, tweed, tartan, herringbone, dogstooth, Cavalry twill.	1 mark	

Question	Part	Sub Part	Marking Guidance	Mark	Comments			
2			<b>Natural cellulose</b>	<b>Natural protein</b>	<b>Regenerated</b>	<b>Synthetic</b>	6 marks	
			Ramie	Mohair	Tencel®	Coolmax®		
						Polyamide		
						Trevira®		

Question	Part	Sub Part	Marking Guidance	Mark	Comments
3			e.g. boucle, chenille, knop, loop, slub, crepe, colour effects, metal and glitter yarns Any appropriate yarn	1 mark	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
4			e.g. enables the jacket to slip on easily, hides construction, adds warmth, for fashion/ decoration, adds quality, makes it more resistant to creasing, enables an inner pocket to be added, adds stability to the shape, adds durability, makes it more insulating, protects outer fabric from perspiration.  Any 3 appropriate reasons, 1 mark each	3 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
5			<p>Gore-Tex is <b>not</b> a smart material as it is not able to change its qualities in different situations. It is a modern laminated fabric which combines breathability with waterproof qualities. If they say that it is smart and try to justify it, it is still a zero mark.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Simplistic statement, e.g. Gore-Tex® is not smart because it cannot change its properties. 1 mark</li> <li>• More detailed statement, e.g. Gore-Tex® is not smart because it cannot respond to outside stimuli. 2 marks</li> </ul>	2 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
6			<p>e.g. some fibres do not contain moisture so are 'dry' (1 mark). static develops when fabrics made from dry fibres are subjected to friction (1 mark)</p>	2 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
7			<p>This question is about the quality of the <b>stitches</b>, not the seam. e.g. appropriate length, balanced tension, sharp needle so fabric not snagged by stitching, even stitching with no missed stitches.</p> <p>Any <b>two</b> QC checks related to machine stitching, 1 mark each</p>	2 marks	

## Section B

Question	Part	Sub Part	Marking Guidance	Mark	Comments
8	a		<p>e.g. <b>Cotton</b> is a strong fibre so will withstand wear and tear, non-static so will not attract dirt so easily, soft handle, can be washed easily. But it is very absorbent so will take a long time to dry and absorb water-borne stains easily, it has poor elasticity so creases badly, it is attacked by mildew if left in a damp state, loops can pull.</p> <p><b>Towelling construction</b> increases absorbency, makes fabric more insulating, adds texture and reduces effect of creasing. But the loops can catch on sharp objects and cause snagging of the fabric, the fabric will become more flammable, the fabric will be heavier because of the extra yarns included.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Little understanding, simplistic statements only, candidate typically concentrates on limited fibre qualities without reference to structure of the fabric or intended use. There may be confused and inaccurate information with little real evaluation of the fabric's suitability. 0-2 marks</li> <li>• Candidate shows understanding of the contribution made by at least one aspect of the fabric structure but most points will relate to fibre content. There will be a sound attempt to analyse appropriateness of fabric for a child's dressing gown, but points may tend to emphasize only one aspect. There may be minor confusion but most points will be accurate. 3-4 marks</li> <li>• Candidate shows sophisticated understanding of the contribution made by several aspects of the fabric structure and fibre content in relation to a child's dressing gown. Information will be accurate and evaluation will consider a range of both positive and negative aspects of the fabric. 5-6 marks</li> </ul>	6 marks	
8	b	i	<p>Quality assurance symbol/approved by Cotton Board (1 mark) The fabric is made from 100%/pure cotton (1 mark) Not organic, Fair Trade, logo, trade mark.</p>	2 marks	

8	b	ii	Polyester thread is strong (1 mark) It allows for some 'give' in the seam (1 mark) It is flame retardant (1 mark)	3 marks	
8	c		<p>Candidates are asked to compare the fabrics, not to choose one. An answer in the top mark range will address all of the specification points. There should be evidence that the candidate understands the contribution of both the fibre and the fabric construction and can accurately relate them to the specification points.</p> <p>e.g. the <b>polyester satin</b> will be very smooth and thus have some softness because the weave makes the fabric drape well, but it could feel cold against the skin. It will also lack absorbency but this may not be an issue in a luxury dressing gown.</p> <p>The smooth and lustrous surface gives a luxurious appearance. Although the polyester fibre is easy to launder because it is strong, does not crease and dries quickly, the satin weave snags easily and can be easily heat set into creases or melted by over hot water or iron. The snagging and thermo-setting may also cause the fabric to look worn very quickly.</p> <p>The brushed surface of the <b>polyester fleece</b> will feel very soft against the skin – more so than the satin fabric, and will provide thermal insulation. Although not absorbent, the raised nap may help to wick moisture away from the skin, and the knitted structure will provide more elasticity and 'give' than the satin weave. The fabric is easy to care for because it is strong, does not crease and dries quickly, but it can be spoiled by excess heat and may pill when subjected to the friction involved in laundering.</p> <p>Although the fabric appears soft and may have a good depth of colour, it is duller in appearance than the satin fabric, and does not drape as fluidly as satin. As with the satin fabric, the polyester content makes it hardwearing, and the fleece construction is less easily damaged than the satin weave, so the fabric will appear newer for longer.</p> <p><b>Marks awarded as follows:</b></p>		

			<ul style="list-style-type: none"> <li>• Basic information with evidence of only limited knowledge and understanding of the different fabric structures in relation to the specified end use. Candidate will make very superficial and confused comparisons. 0-3 marks</li> <li>• Candidate shows knowledge of the different fabrics and their qualities but the response will tend to be descriptive rather than analytical, and may not relate fully to all areas of the specification. There may be elements of confusion and inappropriateness. 4-6 marks</li> <li>• Candidate makes a detailed and knowledgeable comparison of the two fabrics and relates fully and accurately to all of the specification points. There will be positive and negative points. 7-9 marks</li> </ul>	9 marks	
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Question	Part	Sub Part	Marking Guidance	Mark	Comments
9	a		<p>e.g. Fabric will need to resist sunlight to prevent fading of colour and weakening of fabric, weight in order to drape well, may need to be washable to reduce costs of care, cost issues, may need to be insulating to keep warmth in room, flame retardant for safety, colour scheme of room, fabric should block out light, fabric should not be transparent for privacy, resist biological attack from moths and mildew. References to linings are not appropriate and should be ignored.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Little understanding of limited qualities needed, simplistic statements only, with confused and inaccurate information. Superficial reasons for points made 0-2 marks</li> <li>• Candidate shows some understanding of a range of qualities needed and will give brief reasons for some of them. There may be minor confusion but most points will be accurate. 3-4 marks</li> </ul>		

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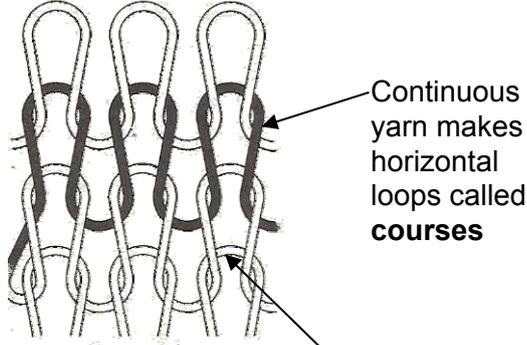
		<ul style="list-style-type: none"><li>• Candidate shows sophisticated understanding of a wide range of different qualities needed in curtain fabrics. Information will be accurate with clear reasons for the points made. 5-6 marks</li></ul>	6 marks	
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Question	Part	Sub Part	Marking Guidance	Mark	Comments
9	b		<p>eg <b>Acrylic</b> is strong and resistant to abrasion so will wear well with constant friction, is lightweight and warm to touch so feels good against skin, is crease resistant so always looks smart, non-absorbent so dries quickly, has some lustre so is aesthetically pleasing, is less expensive than many other fibres, can be laundered easily, has good colour fastness. But it is very flammable unless treated and may soil quickly because it accumulates static. The <b>velvet</b> construction adds to the aesthetic appeal and makes the fabric softer but may wear quickly if the pile is damaged, may require dry cleaning, has a nap which needs to be cut one way so may add to costs.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Basic information will tend to concentrate on either the properties of the acrylic fibre or the velvet construction. Qualities will be generalised rather than related specifically to cushion covers and there will be confused and inaccurate information. 0-2 marks</li> <li>• Candidate shows sound knowledge of the properties of acrylic and gives limited explanation of its suitability for cushion cover. There will be some understanding of the fabric qualities but points may be general rather than specific. 3-4 marks</li> <li>• Candidate shows detailed knowledge and understanding of the properties of the acrylic fibre and the velvet fabric, and relates them to the intended use. There will be clear explanation of points made 5-6 marks</li> </ul>	6 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
9	c		<p><b>Safety issues:</b> Flammability of fabrics such as cotton, linen. Many deaths occur from inhalation of toxic gases given off by burning synthetic materials, e.g. polyester, acrylic, foams used in furniture. Severe burns caused by molten synthetic materials. Floaty fabrics and loose trimmings used for furnishings may come in contact with naked flames, surface flash caused by open weave and fur type and pile fabrics. Candidates have struggled with this question so it should be marked leniently.</p> <p><b>Safety standards:</b> BSI standards relating to flammability of textiles in the home, cigarette and match test labelling, legislation relating to the sale of upholstered furniture, legislation relating to the flammability of carpets and drapes in public buildings.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Basic information with evidence of only limited knowledge and understanding of the dangers associated with textile furnishings. Few references to safety standards. Information will be superficial and possibly confused. 0-3 marks</li> <li>• Candidate shows knowledge and awareness of a range of different dangers associated with the burning of textile furnishings. The response may be descriptive rather than analytical, and there may be some elements of confusion and inappropriateness. There will be some knowledge of the standards designed to protect consumers but this information may lack detail, especially at the lower end of the mark range. 4-6 marks</li> <li>• Candidate shows detailed knowledge and understanding of the ways in which different materials cause danger, and offers a number of examples to support the points made. There is sound knowledge of a range of safety standards in relation to textile furnishings, both in the home and in public buildings. 7-8marks</li> </ul>	8 marks	

## Section C

Question	Part	Sub Part	Marking Guidance	Mark	Comments
10	a		<p>e.g. the <b>cotton</b> provides next to skin comfort as it is soft and absorbent, the <b>lyocell</b> has a very soft and fluid handle, is absorbent and breathable, and has high wet strength making it a good combination with cotton. The <b>polyester</b> will possibly be a microfibre and may have been engineered to allow it to be breathable and to wick moisture away from the skin; it may be a microfibre which will give it a soft handle and fluid drape.</p> <p>The <b>elastane</b> allows the fabric to stretch and return to its original shape making it appropriate for wear when flexibility is important.</p> <p>As the garment is intended for active wear, it will need regular washing. All of the fibres have good wet strength and can be laundered without the need for special care, The elastane, lyocell and polyester content will reduce the need for ironing and allow the top to dry quickly.</p> <p>This is a modern fibre blend which combines the best of several different fibres to create a fabric with the qualities of durability, quick drying, breathability and softness.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Basic information with evidence of only limited knowledge and understanding of the contribution made by the different fibres. The candidate will tend to give some of the most obvious qualities of the individual fibres without considering the end use or the combined effects of the fibres. There may be many confused and inaccurate points. 0-3 marks</li> <li>• Candidate shows knowledge of the different fibres and makes sound attempts to consider how they will work together in the blend. There will be some lack of detail and understanding of this modern fabric and there may be scant attention given to one of the fibres. Information will generally be accurate but there may be elements of confusion and inappropriateness. 4-6 marks</li> </ul>		

			<ul style="list-style-type: none"> <li>Detailed and knowledgeable information about all of the fibres in the blend with clear understanding of how they work together in the blend for the intended use, Information will be accurate and up to date, and show understanding that this is a modern blend for a particular purpose. 7-8marks</li> </ul>	8 marks	
10	b	i	<p><b>Weft knit</b> uses one continuous yarn (1 mark), horizontal rows of loops (1 mark), interlock with those in the row above and below (1 mark). <b>Any 3 points, 1 mark each</b></p> <p>An accurate diagram showing points above is acceptable for 3 marks.</p>  <p>The diagram illustrates the structure of weft knit fabric. It shows three vertical columns of loops, each representing a wale. The loops in each wale are connected to each other, forming a continuous vertical line. The loops in adjacent wales are interlocked horizontally, forming horizontal rows of loops called courses. Labels with arrows point to a horizontal row of loops, stating 'Continuous yarn makes horizontal loops called courses', and to the vertical interlocking loops, stating 'Interlocking loops called wales'.</p>	3 marks	
10	b	ii	<p>e.g. the knitted structure is flexible/stretchy/elastic so allows movement (1 mark), the slightly 'open' structure allows the fabric to be breathable/ can wick away perspiration (1 mark), the fabric sheds creases easily so requires minimum care (1 mark), the knit structure makes the fabric fluid (1 mark).</p> <p><b>Any 3 points, 1 mark each</b></p>	3 marks	

10	c	<p>The T-shirt can be <b>washed</b> at 40 with maximum agitation because all of the fibres in the blend have good wet strength and will not be damaged by the friction. The lowish temperature means that the polyester will not be heat set into unwanted creases.. The normal <b>spin cycle</b> will remove a lot of water from this very absorbent fabric allowing it to dry more quickly. It must not be <b>bleached</b> because it is coloured.</p> <p>It must be <b>ironed</b> on a low setting because the fabric contains polyester and elastane fibres which will be melted/heat set into unwanted creases by excessive heat.</p> <p><b>Dry-cleaning</b> is not required because the fabric is easily laundered and will need regular washing. Dry cleaning would be expensive for a basic product.</p> <p>It can be <b>tumbled dry</b> because the fabric will not be spoiled by the friction and heat, and the tumbling will help remove creasing from the washing.</p> <p><b>Marks awarded as follows</b></p> <ul style="list-style-type: none"> <li>Minimal explanation which does not clearly relate to qualities of the fibres in the blend. The candidate will tend to explain what the symbols mean and there will be elements of misunderstanding and confusion. <span style="float: right;">0-2 marks</span></li> <li>More detailed explanation of what the symbols mean and how the advice relates to the qualities of the fibres in the blend. Information will be accurate and clearly presented, especially at the top end of the mark range. <span style="float: right;">3-5 marks</span></li> </ul>	5 marks	
10	d	<p>Eg Modern packaging may be effective in catching consumer's eye. Product takes up minimum space on shelves, in storage and transportation. Information common to all T-shirts can be printed on band and size sticker attached separately – this cuts down on need for different packages, reduction in packaging waste is cheaper for everyone and environment. Band can be used to store the top after purchase. Buyer can feel fabric. But the use of fabric and a popper may be more expensive and cause more environmental impact than traditional paper/card packaging, product is less protected from stains and damage. Difficult</p>		

		<p>to see product clearly, will be created.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Basic information covering a limited range of points. The candidate will tend to describe the benefits rather than evaluate the impact of the packaging. 0-2 marks</li> <li>• A range of well considered points which consider the impact of the packaging. The candidate will make a sound evaluation which considers benefits and potential drawbacks. 3-4 marks</li> </ul>	4 marks	
10	e	<p>The focus of this question is a basic product which would be made from a white fabric in a range of sizes, and garment dyed according to demand.</p> <p>Candidate should describe a manufacturing system appropriate for the manufacture of large numbers of this basic garment. Mass or batch production systems are the most appropriate.</p> <p><b>Mass production (also synchronized or progressive bundle production).</b> Very large quantities of products are made continuously. The machinery and the operator skills are very specific for the job in hand. A number of operatives work on the production line and each does one part of the manufacture before passing the product to the next person who does a different job. Workers become skilled at doing one part of the manufacture but may need to be re-trained to do other types of work. Automated machinery may be used for some processes.</p> <p><b>Batch production.</b> A team of workers make a specified number of identical products which may be made in one production run or in batches repeated at certain times. The workers share tasks and equipment and become more skilled because the job they do changes day by day according to what is being made. The machinery used is more versatile than that used in mass production and workers will be skilled at using a variety of different machines.</p> <p>Computer control can help manufacturers respond quickly to changes in the market and save on production costs by using <b>quick response</b> methods.</p> <p><b>Garment dyeing</b> allows the T-shirts to be dyed in batches as there is demand for each colour offered, and reduces waste if some</p>		

		<p>colours are less popular or fashion changes.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>Limited information with many inaccuracies. There will be a lack of precise detail suggesting a lack of knowledge or understanding of all aspects of the system. 0-2 marks</li> <li>Sound information about an appropriate system. Some of the points may lack detail but will generally indicate sound understanding about most aspects of the system, although there may be some lack of accurate detail about the manufacture of a range of colours. 3-5 marks</li> <li>Clear and detailed information about all aspects of the production system and the meeting of demand for different coloured tops at different times. 6-7 marks</li> </ul>	7 marks	
10	f	<p>Eg consumers can easily identify with the brand which is promoted by retail outlet, specialist store will sell a range of sports clothing and accessories which is convenient for the consumer, it is easier to compare prices and quality if different ranges are available, there may be some competitive pricing between the different brands, the store may offer loyalty points or other discounts, vendors likely to have specialist knowledge about the products.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>A limited range of points. The candidate may have missed the point of the question and provided mainly irrelevant and possibly confused information. 0-2 marks</li> <li>A range of well considered points which will consider a number of different benefits for the consumer. 3-4 marks</li> </ul>	4 marks	
10	g	<p><b>Lyocell</b> has been developed to minimise impact on the environment, it is made from regenerated cellulose from renewable sources. Manufacturing processes recycle solvents used in manufacture in a 'closed loop' process, these solvents are non-toxic. The fabric can be recycled easily or sent to sewage farms to be fully degraded.</p> <p><b>Cotton</b> requires large amounts of pesticide and chemical fertilizers, land use for large</p>		

		<p>cotton crops could be more effectively used for food crops, deforestation and intensive farming of crops damages environment and changes landscape, bleaching and dyeing of fabrics require vast amounts of water and produce toxic effluent, do not biodegrade easily and chemicals leach out of fabric and components when disposed of in landfill sites. Organic cotton and coloured cotton growth are more eco-friendly.</p> <p><b>Polyester</b> is derived from non-renewable sources and is not bio-degradable. These fabrics will end up in landfill sites when they are thrown away and the chemicals in them can seep out into nearby fields and rivers. It is possible to produce recycled polyester fibres. The <b>care</b> of the top may have limited impact because the polyester content reduces absorption and thus drying times, and the lack of creasing, meaning that less energy is used for drying and ironing. The top could be washed at a lower temperature for even greater energy savings. The fabric is fairly hardwearing so should last a long time so that less products are sent to landfill at the end of their useful life.</p> <p>Impact of using energy for machinery/running factories. Transportation and packaging issues.</p> <p><b>Marks awarded as follows:</b></p> <ul style="list-style-type: none"> <li>• Basic information with only superficial reasons for the environmental damage caused by the fibre manufacture; the cotton content will be described as more environmentally friendly than the polyester and Lyocell. There may be little consideration of care issues. Information will be generalised rather than specific and there will be evidence of misunderstanding. <span style="float: right;">0-2 marks</span></li> <li>• Candidate shows knowledge of the different environment problems although there may be a tendency to relate to a narrow area of concern. At the top end, there will typically be good coverage of one area of concern, eg dyeing or pesticides. There may be elements of confusion and inappropriateness. <span style="float: right;">3-4 marks</span></li> <li>• Candidate shows detailed knowledge and understanding of the environmental issues relating to all of the fibres and the</li> </ul>		
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			care of the top. There will be a range of varied points with clear explanation of the issues involved. 5-6 marks	6 marks	
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