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General Certificate of Education (A-level)
January 2012

Design and Technology: Textiles TEXT1

(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 candidates' 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 candidates' 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.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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.

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COMPONENT NUMBER: 2560

COMPONENT NAME:TEXT1

STATUS: Pre-Standardising

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

<table>
<tr><th>Qn</th><th>Part</th><th>Marking Guidance</th><th>Mark</th></tr>
<tr><td>1</td><td></td><td>
<table>
<tr><th>Natural cellulose</th><th>Natural protein</th><th>Regenerated</th><th>Synthetic</th></tr>
<tr><td>Linen</td><td>Silk</td><td>Viscose</td><td>Tactel®</td></tr>
<tr><td>Ramie</td><td></td><td>Tencel®,</td><td></td></tr>
</table>
</td><td>6 marks</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>(a)</td><td>Fabric will not lose colour (1 mark)
When subjected to light for long periods of time (1 mark)</td><td>2 marks</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>2</td><td>(b)</td><td>eg curtains/window coverings, seating, carpets, rugs, wallhangings.
Not fashion products
Any 1 appropriate product</td><td>1 mark</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>(a)</td><td>A fibre with a short length.</td><td>1 mark</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>(b)</td><td>A ‘kink’, ‘curl’ or zig-zag in the fibre.
Candidate may draw a diagram to explain this.</td><td>1 mark</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>3</td><td>(c)</td><td>The ability to stretch (1 mark),
The ability to trap air / insulate (1 mark)
Improves resilience / helps resist creasing (1 mark)

Any 2 points, 1 mark each or one point with expanded detail.
.</td><td>2 marks</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td></td><td>Make it flame retardant/fire-resistant/non-flammable.</td><td>1 mark</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>5</td><td></td><td>Protects their original ideas (1 mark)
From being copied by others (1 mark)
Can take legal action against those who copy their ideas (1 mark)

Any 2 appropriate points, 1 mark each</td><td>2 marks</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Qn	Part	Marking Guidance	Mark
6		eg, use of different media such as paint, tissue, fabric samples, use of CAD paint programmes, virtual prototypes. Methods need to be a bit more specific than 'colour schemes', 'colour charts' or 'moodboards'. **Marks awarded as follows:** • Little explanation, simplistic statements only, eg *use paint, use samples of fabric*. There may be confused and inaccurate information. 0-2 marks Candidate provides some detail of the methods selected and may refer to ways in which it will be useful for the designer/client. 3-4 marks	*4 marks*

Section B

Qn	Part	Marking Guidance	Mark
7	**(a)**	Eg Cotton is not as strong as polyamide so wore away more quickly, especially at the heels which are subject to more friction than other parts of the sock. The strength of the polyamide continued to hold the basic fabric structure together, as it was likely that the yarn used was core spun with the cotton wrapped round the polyamide. The knitted structure was reduced to a mesh where the cotton had worn away. **Marks awarded as follows:** • Little understanding, simplistic statements only, candidate typically concentrates on limited fibre qualities without reference to how fabric structure was affected by the different rates of wear. There will be confused and inaccurate information. 0-2 marks • Candidate shows good understanding of the contribution made by both fibres in the blend. There will be a sound attempt to explain the uneven wear in relation to the fabric structure, product, and the formation of the yarn. 3-4 marks	*4 marks*
7	**(b)**	This question is about the satin weave and candidates are expected to describe its structure with some clarity. They also need to relate the strength of the polyester to the fact that a hole does not form in the fabric. As a rule of thumb, allow two marks for the description of the weave and one for the strength of the fibre. Snagging is when yarns are pulled to the surface of the fabric. Satin weave has many floating yarns on the fabric surface and these are easily caught on sharp objects or through friction associated with use and care. This snagging spoils the surface of the fabric, but the fabric does not break down because the polyester is so strong. **Marks awarded as follows:** • Candidate shows limited understanding of impact of the structure on the fabric. There will be a limited number of points made and some misconceptions. 0-1 mark • Clear understanding of the role played by the fabric structure regardless of the fibre content. There will be an accurate and detailed explanation of the reasons for spoilage 2-3 marks	*3 marks*

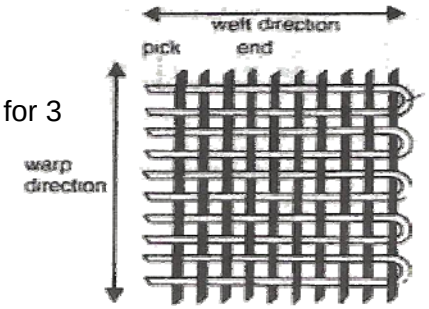
Qn	Part	Marking Guidance	Mark
7	(c)	Acrylic yarn is often spun from staple fibre. Pilling occurs when fibres on the surface of a fabric are rubbed up into small balls which spoil the appearance of the fabric surface. The fibre strength holds these balls in place and they quickly cause the fabric to have a lumpy and often soiled appearance. **Marks awarded as follows:** • Candidate shows limited understanding of what is meant by pilling and how it occurs. There will be a limited number of points made and some misconceptions. 0-1 mark • Clear understanding of the role played by the fibre strength and yarn formation. There will be an accurate and detailed explanation of the reasons for pilling. 2-3 marks	*3 marks*
7	(d)	Cotton is a strong fibre which stands up to wear. But velvet fabric is made using a pile weave. This has an extra yarn loosely held in a plain weave structure. When the velvet is subject to friction the pile works loose leaving bald areas where only the base weave is visible. The weakened structure quickly wears into holes in these areas. **Marks awarded as follows:** • Little understanding, simplistic statements only, candidate typically concentrates on limited fibre qualities without reference to the impact of the fabric structure. There will be confused and inaccurate information. 0-2 marks • Candidate shows good understanding of the pile weave structure and is able to explain clearly the process of degradation and wear in the velvet fabric. There should be some attempt to explain that further wear causes a hole to form in the weakened structure for full marks. Information will be accurate and relevant. 3-4 marks	*4 marks*

Qn	Part	Marking Guidance	Mark
7	**(e)**	The following can impact on the durability of a textile product Friction: washing with too much friction and the use of tumble dryers causes excessive wear; Temperature: washing/ironing at too high a temperature can cause unwanted creasing or damage to fabrics containing thermoplastic fibres; Loss of colour: use of biological detergents and bleaches remove colour, Shrinkage/stretching: careless handling when washing can cause shrinkage or stretching; Physical damage: rough/sharp edges on machinery can damage fabrics, Excessive soiling: allowing a garment to become too dirty or badly stained may necessitate drastic treatment; Biological attack: moth and mildew attack if garments are not carefully stored. Advice on care labels should be followed to ensure that products are not spoiled; The way in which a product is worn/used may also affect its durability - this should be considered as a minor point as the question is really about care issues. Candidate should give appropriate examples to support points made. Marks awarded as follows: • Little relevant knowledge shown, candidate typically makes superficial comments without considering how products can be damaged by careless care procedures. Few accurate examples given to support points made. 0-2 marks • Candidate shows some knowledge of the impact of care procedures on different fabrics/products and will relate mainly superficially to at least 3 areas. Some examples to illustrate points made. There may be some irrelevant or confused points. 3-4 marks • Candidate is knowledgeable about a range of ways in which fabrics/products can be affected by different care procedures and will relate in some depth to at least 3 areas and possibly others in less detail. Appropriate examples to illustrate the points made. 5-6 marks	*6 marks*

Qn	Part	Marking Guidance	Mark
8	**(a)**	The following **main issues** are in bold: **weight and size** in relation to fabric and style of product, **colour** – matching or contrasting, **ease of use** in relation to target market, **cost, compatibility of care** with fabric used, **decorative or inconspicuous** / purely functional, **fashion** issues, **safety** issues, **manufacturing** issues, **comfort in use** in relation to product and user, if product will be **closed securely**. The candidate should give appropriate examples of different fastenings and how they might be used on different products. **Marks awarded as follows:** • Little understanding of issues involved, simplistic statements only, candidate will typically describe fastenings rather than what needs to be considered when selecting them for specific applications. Few examples given and these will be generalised. 0-3 marks • Candidate shows a brief consideration of a number of points to be taken into consideration and will give some examples to illustrate points made. There will be some description of fastenings rather than an analysis of the issues involved. Some of the points may lack clarity and examples may not be most appropriate or based on a limited number of fastenings. 4-7 marks • Candidate shows sophisticated understanding of at least 5 issues involved and gives a wide range of appropriate examples. There will be detailed evaluation of the appropriateness of a number of fastenings for specific applications. 8-10 marks	*10 marks*

Qn	Part	Marking Guidance	Mark
8	**(b)**	Ribbon has 2 finished edges and the straight of grain along its length, and is often made from satin. It is often used for decoration, eg on children's clothing. Bias binding is cut on the cross and does not have finished edges. It may have a fold down the centre and is stretchy. Bias binding is not usually used to strengthen seams as it has a stretch which does not give support. It is often used to neaten edges, sometimes giving a decorative finish. **Marks awarded as follows for EACH component:** • Basic description of ribbon/binding with limited/incorrect Information. 0-1 mark • Detailed and accurate information. 2 marks Appropriate example of use – 1 mark each	*6 marks*
	8(c)	eg an underlining is cut to the same size and shape as the product template. It is used to support the main fabric, especially when it is delicate or loosely woven/knitted, it helps reduce transparency in the main fabric, it can provide an extra layer of warmth, it gives added strength to the main fabric. Be aware of candidates describing interfacings or linings and their functions. The candidate needs to explain clearly that underlining is a layer between the outer fabric and the lining to qualify for the top mark band, and to give accurate and clear reasons for its use. **Marks awarded as follows:** • Candidate shows little understanding of the function of underlinings and will provide few appropriate examples of their use. There will be many inaccurate and confused points. 0-2 marks • Sound understanding of the function of underlinings with accurate examples to support points made Information will be accurate and relevant. 3-4 marks	*4 marks*

Section C

Qn	Part	Marking Guidance	Mark
9	(a)	 for 3 This detail is expected in a diagram marks. Warp fixed in loom/runs length of fabric (1 mark), Weft passes alternately in and out of warp (1 mark), Alternates on following rows (1mark), Arrangement of coloured yarns in blocks in both the warp and weft to give pattern (2 marks) The description of the colour sequences is challenging for candidates so need to give credit for answers that make a good attempt to do this. Need to look carefully at diagrams for evidence of colour that doesn't scan – candidates often use different shading that does show up.	*5 marks*
9	(b)	The brushed finish will add softness and warmth to the fabric, but may reduce the strength as the brushing raises fibres up from the fabric surface. As cotton is a cool fabric to wear, the brushing helps trap air which is an insulator. Cotton is also a fairly crisp/stiff fabric so the brushing will provide added surface interest and handle. The brushing tends to make the checks less distinct and will make the fabric more flammable. **Marks awarded as follows:** • Little relevant knowledge shown, candidate typically describes the finish together with some basic reasons for its use, but any evaluation will be of a superficial nature. 0-2 marks • Good knowledge of the finish and the reasons why it has been used on the product shown. There will be a real attempt to evaluate its use with good understanding of relevant fibre properties which make the brushing a desirable finish. 3-4 marks	*4 marks*

Qn	Part	Marking Guidance	Mark
9	(c)	Pattern pieces need to be laid so that checks are centred and matched across seams, and are placed on the straight of grain. This need to be consistent for all of the shirts. Candidate may refer to a computerised layout which will ensure that pieces are laid economically, and will also lay out the fabric so that checks are lined up through all the fabric layers to ensure correct matching. **Marks awarded as follows:** • Little knowledge shown of fabric layouts and how pattern matching contributes to a quality appearance. Explanation will be in simplistic terms only and not go beyond generalised advice to match the pattern or follow the grain line 0-2 marks • Sound and detailed knowledge shown, candidate will give accurate information related specifically to the checked fabric and the ways in which a quality appearance can be achieved consistently. 3-4 marks	*4 marks*
9	(d)	Interfacing will be needed on the collar, cuffs, button/buttonhole bands, sleeve tabs. It is used to add strength, support, stiffness, maintain shape. **Marks awarded as follows:** • 2/3 areas identified but reasons for use may be repetitive and not specific to the areas. 0-2 marks • 3 different areas identified with clear and specific explanation of the reasons for use. 3-4 marks	*4 marks*
9	(e)	Topstitching adds decoration, strength, helps maintain/define the shape of the garment. It may be used on the collar, cuffs, pocket, yoke seams, front bands, sleeve tabs. It does not neaten seams. **Marks awarded as follows:** • Very basic and generalised information with limited number of points. Reasons will not be related to specific areas of the shirt. 0-1 mark • A range of reasons related to specific areas of the shirt. 2-3 marks	*3 marks*

Qn	Part	Marking Guidance	Mark
9	**(f)(i)**	This is about constructing the shirts so does not include fabric manufacture, lay planning and cutting operations. There is a need to differentiate between standard sewing processes which may be carried out as a sub-assembly, and those which are automated processes. Eg the buttonholes could have been stitched automatically in the right place and with the correct spacing & size; collar might be automatically stitched to the correct size and shape; long side seams stitched and neatened automatically; pocket placed and top-stitched in correct places; hem stitchers make hem to correct width and evenly stitched; interfacing fused to fabric using automatic systems allows for an even finish. Identification of 2 specific areas, 1 mark each Accurate explanation/detail of process, 1 mark each 2 construction processes, up to 2 marks each	*4 marks*

Qn	Part	Marking Guidance	Mark
9	**(f)(ii)**	This is about manufacturing systems, not specific processes. Many candidates are only referring to the basic reasons of cost, accuracy and increased production speeds which constitutes a basic response. The question is looking for knowledge of quick turn-round systems used in the fashion industry in order to keep pace with trends and quick changes. It is this understanding that deserves credit, especially when supported with relevant examples which are described in some detail. The following main areas may be considered to be the main benefits: CAM can be used to **replace a manual operation** which means that a machine can work continuously. The **quality is more consistent** with fewer faulty goods produced. CAM systems can work with materials and chemicals which **might be harmful** to humans. New instructions can be **stored electronically** and down-loaded and programmed into machines very quickly. Modern **storage and carrier systems** have revolutionised the way in which garments are stored and transported - on hangers and moveable rails so that they arrive at the shop ready to go on display. The **barcode system** used in large stores records which items are selling and can help decide when and how many to re-order from the manufacturer which is often done automatically as stocks of a particular product become low. **JIT manufacture** is highly dependent on the use of CAD/CAM and allows manufacturers to respond quickly when fashions change as they can be more flexible in their working practice. **Electronic communication** allows the factories to be anywhere in the world. **Marks awarded as follows:** • Basic information with evidence of only limited knowledge of CAM systems. Information will be generalised rather than specific, and probably only refer to it being quicker, cheaper and producing better quality goods. 0-3 marks • Candidate shows knowledge of CAD/CAM systems and gives some relevant examples to support points made, but there will be a lack of specific information at the lower end of the mark range. Some understanding of the principles of JIT and its relationship with computerised manufacture. 4-6 marks • Candidate shows detailed knowledge of CAD/CAM systems and their relationship with JIT. A wide range of accurate examples will be given to support points made. 7-8 marks	*8 marks*

Qn	Part	Marking Guidance	Mark
9	(g)	This question is about the environment and not moral/ethical issues. The following are the main areas of concern: **Raw material**: Growing cotton uses up valuable land space which could be used for food crops. They are also treated with vast amounts of pesticides and fertilizers which can pollute waterways and surrounding land. It is possible to buy organically grown or 'green' cotton which is less harmful to the environment. **Transport:** Cotton fibre is often transported across continents to be made into fabrics – this affects its carbon footprint. **Processing:** Traditional dyeing methods for cotton fabrics use up large quantities of water and produce toxic waste which must be treated before disposal. There have been some developments in the growing of already-coloured cotton fibres. Some dyes and finishing chemicals, eg those used for non-crease finishes, break down in landfill sites and give off poisonous chemicals which can seep out into nearby waterways. **Energy**: All processing and care requires energy which often comes from non-renewable fossil fuels, or nuclear sources. These sources can have a huge impact on the environment. **Care:** Cotton fabrics are often washed and ironed at high temperatures using a lot of energy, and tumble drying takes a lot of energy because of the high absorbency of cotton fibre. Washing at lower temperatures is encouraged to reduce energy use. **Marks awarded as follows:** • Basic information with evidence of only limited knowledge of cotton's environmental impact. Information will be generalised rather than specific. It is likely that only one or two areas of concern will have been touched on. 0-2 marks • Candidate shows knowledge of the source and manufacture of cotton and how they impact on the environment but there will be elements of confusion. Candidate may have covered 3 or more areas of concern but there will be some lack of understanding and the exact nature of the concern may be sketchy. 3-5 marks • Candidate shows detailed knowledge and understanding of a broad range of issues related to cotton and the environment and provides specific examples to support points made. There will be coverage of 4 areas of concern in some detail, or all areas with less depth but candidate will have explained exactly what the issues are. 6-8 marks	*8 marks*

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