



General Certificate of Education (A-level)
June 2011

Design and Technology: **TEXT1**
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 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.

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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.

Please note, as a result of training at recent teacher meetings, some candidates 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 candidate who failed to complete the answer has a valid point in the plan.

(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	Comments
1			<p>Eg they are absorbent, easy to dye, cool to wear/breathable, washable, strong and hardwearing, lightweight, have an attractive slub, create a fashionable 'creased' look, non-static, lustrous.</p> <p>Not drapes well, soft, smooth, cheap, quick drying unless qualified with thin fabric.</p> <p>Any 3 appropriate properties, 1 mark each</p>	3 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
2	(a)		Wool, Mohair or Cashmere	1 mark	
2	(b)		Scales or Cuticles	1 mark	
2	(c)		<p>In presence of <u>heat</u>, moisture and agitation/pressure (1 mark), Scales can interlock (1 mark), Causing the fabric to shrink/felt/matt (1 mark)</p>	3 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
3	(a)		Materials delivered to factory as they are needed/products delivered to retailer as needed.	1 mark	
3	(b)		<p>Eg enables quick response to changing fashions/colour trends, reduces costs of warehouse storage, reduction in staff costs, reduces waste, saves money being tied up in stock, materials arrive already quality checked.</p> <p>Any 2 appropriate benefits, 1 mark each</p>	2 marks	

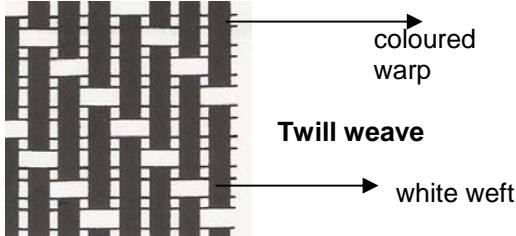
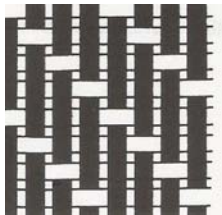
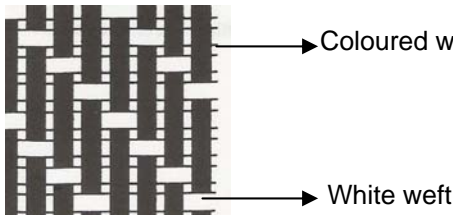
Question	Part	Sub Part	Marking Guidance	Mark	Comments
4			<p>Eg will raise the fabric surface, will make the fabric softer, will make the fabric warmer, may make the fabric more flammable, weakens the fabric.</p> <p>Any 2 appropriate effects, 1 mark each</p>	2 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
5			<p>The quality of the answer needs to be considered. Many candidates are writing very good descriptions of the melt spinning process but not using the words on the MS, and others are using the words but not in a coherent manner.</p> <p>Synthetic polymer chips are melted/molten polymer (1 mark)</p> <p>Extruded through a spinneret (1 mark)</p> <p>Hardened in cool air (1 mark)</p>	3 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
6			<p>Watch for repeats of the question.</p> <p>Eg gives a flat finish/less bulky, covers seam edges to make them neater, quick finish suited to manufacture, strong, able to stand up to regular washing and wear.</p> <p>Any 2 appropriate reasons, 1 mark each</p>	2 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
7	(a)		Pile weave or cut pile	1 mark	
7	(b)		<p>Eg velvet, velveteen.</p> <p>Not corduroy, terry towelling.</p>	1 mark	

Section B

Question	Part	Sub Part	Marking Guidance	Mark	Comments
8	a		<p>Candidate may respond through an annotated diagram and/or written description. The following should be included: White weft (1 mark) Coloured warp (1 mark) Twill weave (1 mark) <u>accurate</u> reference to interlacing pattern of warp and weft (2 marks). Max 4 marks An accurate diagram incorporating all points above, and clearly identifying warp and weft, will be acceptable for 4 marks.</p> <p>This is worth 4 marks.</p>  <p>This is worth 3 marks</p>  <p>This is worth 4 marks</p>  <p>Accurate twill weave diagram with no labelling is worth 2 marks. 'Twill weave' is worth only one mark.</p>	4 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
8	b		<p>This question is about the suitability of denim fabric for a holder which will afford some protection to a sensitive product. The candidate should give good points as well as the downside of using denim for the holder.</p> <p>e.g. The cotton content and twill weave make the fabric strong so it will not rip easily, it can be washed easily to keep it clean during regular use, it has appeal for all ages and genders, it is relatively inexpensive, it is a firm fabric which will support the appliqué, and will not lose its shape, does not develop static, does not soil easily. But it will not offer much protection against accidental knocks, it can shrink and lose colour.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Candidate shows awareness of a limited range of the properties of denim fabric but there will be some inaccuracies or lack of evaluation in relation to the intended use. 0-2 marks • Sound understanding of the properties of denim, especially at the top end of the mark range. The candidate will have analysed the appropriateness of fabric for the bag and made a true evaluation. 3-5 marks 	5 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
8	c	i	<p>The question is about putting interfacing behind the appliqué, not the whole product. Interfacing will strengthen the appliqué/make it easier to apply (1 mark) by preventing stretch and fraying of the edges (1 mark).</p> <p>Accept a Bondaweb application if the candidate explains that it will hold the appliqué in place while it is being stitched.</p>	2 marks	
8	c	ii	<p>Eg it has a lustre, it is better suited to a close zig-zag stitch than thicker threads, it flows easily through the machine needle/easy to work with, it is not thermoplastic therefore ideal for high speed industrial machines, dyes to very bright colours.</p> <p>Not cheap.</p> <p>Any two appropriate reasons, 1 mark each</p>	2 marks	
8	d		<p>The question is about the manufacture of cotton denim fabrics – it is not about product manufacture, use or disposal.</p> <p>The following <u>underlined issues</u> may be included in an answer:</p> <p>Cotton source: Area 1(a) Environmental issues: <u>Land</u> and habitats are destroyed to plant cotton crops; they are treated with vast amounts of <u>pesticides and fertilizers</u> which can pollute waterways and surrounding land; vast quantities of <u>water</u> are needed which can impact on the environment if rivers are diverted to water crops, eg Aral Sea disaster.</p> <p>Area 1(b) Social/ethical issues: valuable <u>land space</u> could be used for food crops; use of <u>pesticides and fertilizers</u> can poison drinking water. Surrounding land, where workers live, may also be affected by fertilisers and pesticides. The pesticides and fertilizers used on cotton crops can have disastrous effects on the <u>health of farmers</u> and other workers if they breathe in the spray, or if it comes into contact with their body; people who live where rivers and seas have dried up may <u>lose access to food</u>, eg fish, some may <u>lose their livelihoods</u> because they can no longer fish.</p> <p>Growing cotton uses vast amounts of water. In many countries where cotton is grown, there is <u>not enough water</u> for the people who live there to drink.</p> <p>Processing of cotton: Area 2(a) Environmental issues <u>Cleaning and preparation</u> require chemicals, eg bleach, enzymes, pumice which can damage eco-</p>		

		<p>systems if not disposed of properly; <u>dyeing of denim</u> uses large quantities of water and produces toxic waste which must be treated before disposal.</p> <p>Area 2(b) Moral issues: <u>Chemicals used can impact on health</u> of workers if <i>H&S procedures</i> are not in place; <u>using certain machinery</u> can be dangerous if there are no safeguards - in the UK, laws protect the health and safety of workers and prevent them from being <u>exploited by unscrupulous employers</u>. When textile products are made in other countries, especially less economically developed ones (LEDCs), those laws don't apply, workers should be <u>paid fairly</u>.</p> <p>Energy use:</p> <p>Area 3(a) Environmental issues: cotton is often grown a long way away from where it is processed into fabric so has to travel a long way to the factory. This means that <u>fuel from non-renewable sources</u> is needed for the planes, boats and lorries which deliver it, and more <u>CO2 fumes and carbon emissions</u> will be released into the atmosphere causing global warming. There is <u>damage to the road system</u> and need for repair work; electrical energy is used to <u>power the machines</u> and heat water for the processing using up non-renewable energy sources.</p> <p>Area 3(b) Moral issues: <u>Oil is rapidly running out</u> so will cause problems for future generations; use of nuclear reactors to generate electricity can affect people's health if there are <u>radiation leaks</u></p> <p>The areas and issues listed above are the main ones relating to cotton fabric manufacture, but candidates may well discuss other equally valid problems within those areas. Before awarding extra marks, check that other issues raised are actually different to the ones which may have already been credited. In order to qualify for the top mark band, candidates must explain what the problems are with some precision, eg <i>CO2 from exhaust emissions causes global warming</i>, not <i>lorries give off poisonous gases</i>.</p> <p>Candidates are not asked to suggest ways of improving the situations described.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Very basic information with limited number of points which may not relate to both areas of concern. Explanation is confused with many inaccuracies and may cover a very narrow range of issues. 0-2 marks • Sound information covering a range of 		
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			<p>environmental and moral issues and which is mostly accurate. Response will possibly cover a narrow range of issues but will be detailed. Points may cover a number of issues (5+) taken from at least 2 areas superficially or may cover a few (3+) taken from at least 2 areas in some detail.</p> <p>3-5 marks</p> <ul style="list-style-type: none"> • Sound and accurate information covering a range of environmental and moral issues although they may not be in equal measures. At least 6 issues taken from 3 or more areas will be covered - the candidate will be informed and information will be accurate and up-to-date. <p>6-7 marks</p>	7 marks	
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Question	Part	Sub Part	Marking Guidance	Mark	Comments
9	a		<p>Polyester is the main fibre used in cars because it is: durable, withstands sunlight, is soil and stain resistant, can be soft, colourfast, flame retardant. Microfibres can be used, as can polyamides. The fabrics are sometimes given finishes, eg flame retardant, anti-static, bacteria/mould resistance. The following are typical uses: seat covers, interior trim such as head, boot and door linings, carpets, air bags, steering wheel covers, seat belts (high tenacity polyester which does not degrade in sunlight), insulation (felts or fibreglass) to reduce noise and vibration, air filters, polyamide fabrics for brake and clutch linings, carbon fibre for car bodies, reinforcement for hoses, belts and tyres. Reasons include strength, weight and energy efficiency, opportunities for personalisation of car interiors, low flammability, low moisture absorption, resistance to UV light, rotting, staining, use of non-woven fabrics for insulation. Development of new fibres/fabrics based on nano-technology. Accept leather only for car seats and steering wheel covers if it is related to the car.</p> <p>Marks awarded as follows: Identified use: 1 mark Reasons for using the textile material 2 marks</p> <p>Two different uses, 3 marks each</p>	6 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
9	b	i	<p>The question is about high performance applications, not day-to-day uses. The candidate is expected to go beyond the exemplars given at the top end of the mark ranges.</p> <p>e.g. Polyamide fabrics are lightweight and have excellent resistance to abrasion. They can be engineered to give specific properties as required, including breathability. They are extremely strong and hardwearing, easy to keep clean, are resistant to chemical and biological attack, are not very absorbent. Brand names include Cordura, and Kevlar.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Basic information covering a limited range of reasons related to the examples given. The most obvious qualities will be identified and it is unlikely that specific fibre/fabric examples will be given. 0-2 marks • A good range of fibre/fabric qualities related mainly to the examples given. Most information will be accurate but will be narrow in range and there may be few examples of specific fabrics. 3-4 marks • Detailed and accurate information covering a wide range of fibre/fabric qualities. Candidate will be informed and examples of uses and specific fabrics will go beyond the examples given. 5-6 marks 	6 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
9	b	ii	<p>Any modern textile material which can be used to enhance personal safety will be accepted. This may include, for example, reflective and phosphorescent textiles used for high visibility garments, electrically conductive textiles for monitoring and communication, textiles which can monitor and regulate body temperature as used in personal survival clothing, inflatable protective clothing for active water-based sports and cushioning systems, electromagnetic protection for military clothing, fabrics with built-in UV protection. bullet proof fabrics, flame retardant finish – Proban/Nomex, fibres/fabrics with electro conductivity properties, eg Gorix, Softswitch</p> <p>Only accept bandages and plasters if related to micro-encapsulated and anti-bacterial applications.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> Limited knowledge of the use of a modern material for a specific personal safety application. The candidate may refer to a material which is not a true modern technological textile, or repeat examples from (b)(i). There may be some inaccurate and/or confused points. 0-2 marks Candidate shows clear and accurate knowledge of a modern technological material used for a specific personal safety application. The material and its use will be clearly described and explained and points will be accurate. 3-4marks <p>Two different modern materials, 4 marks each.</p>	8 marks	

Section C

Question	Part	Sub Part	Marking Guidance	Mark	Comments
10	a		<p>This question is about the visual impact of the stripes, not the fibre properties.</p> <p>eg The wide stripe gives a bold effect to make a statement, stripes are cut in different directions, including some cut on the bias, matching of stripes across jacket body and sleeve to maximise impact, stripes are fashionable.</p> <p>Marks awarded as follows</p> <ul style="list-style-type: none"> Minimal consideration of the ways in which the stripes have been used. Answers will be generalised and tend to describe the different directions of the stripes rather than analysing their impact. 0-1 marks Sound analysis which gives detailed consideration to the use of the striped fabric in several different parts of the garments and their overall impact of the outfit as a whole. 2-3 marks 	3 marks	
10	b		<p>This question is about the qualities of the fabrics and components in relation to the end-use. Candidates should consider the fibre properties as well as the fabric</p> <p>e.g. the boucle fabric adds texture, and the brightly coloured stripes add a feeling of fun and lightness for spring/summer. The gold buttons are large in size so are decorative and easy to fasten. The buttons and striped fabric together develop the <i>matelot</i> or naval inspired theme of the outfit which is always popular in spring/summer clothing.</p> <p>The cotton gives absorbency and coolness, strength and ease of care. The acrylic and polyester content reduces some of the cotton's absorbency, helps to prevent creasing and shrinkage, reduces fabric weight, and improves strength. The acrylic allows for the boucle effect in the spun yarn and softens the handle of the fabric. But the fabric may still crease as the major content is cotton, it may pill quickly because of the acrylic content, it will be more flammable, the boldness of the stripes may be too overpowering for some people, especially in red rather than the more traditional blue colour.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> Little understanding, simplistic statements only, candidate 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 		

			<p>evaluative, and there may be confused and inaccurate information. 0-2 marks</p> <ul style="list-style-type: none"> • Candidate shows understanding of the contribution made by the different fibres in the blend. There will be a sound attempt to analyse the overall choice of the boucle fabric and buttons, especially at the top end of the mark range, but points may tend to emphasize the positive aspects only. There may be minor confusion but most points will be accurate. 3-5 marks • Candidate shows sophisticated understanding of the contribution made by several aspects of the fibre content and fabric structure, and there will be detailed consideration of the impact of the fabric pattern and buttons. The fabric qualities will be considered as a whole, not just the contribution of the individual fibres. Information will be accurate and evaluation will consider a range of both positive and negative aspects of the fabric. 6-8 marks 	8 marks	
10	c		<p>The fibre content of the fabric allows it to be machine washed (1 mark)</p> <p>The structure of the jacket, eg shoulder pads, lining, would spoil if it were machine washed (1 mark)</p>	2 marks	

Question	Part	Sub Part	Marking Guidance	Mark	Comments
10	d		<p>This question is about finding out about trends, not about primary research into consumer needs as a starting point for design activities. Eg Media coverage of fashion events and catwalk shows, trade fairs, fashion forecasters, street fashions, work of established designers, trade and other fashion magazines, celebrities, fashion blogs. Films and music, what is selling well. Not questionnaires.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> Limited information may relate more to influences on fashion rather than sources of information about trends. Few examples will be given and information will be generalised. There will be confused and inaccurate information. 0-2 marks Candidate shows sound knowledge of the sources of information about trends and gives a limited range of appropriate examples. There may be some lack of understanding and irrelevant material but points will generally be accurate. 3-4 marks Candidate shows detailed knowledge and understanding of the ways in which designers find information about current trends. There will be clear explanation and appropriate examples to support the points made 5-6 marks 	6 marks	
10	e		<p>eg use of different materials and components, more cutting edge and/or elaborate designs, limited range and number of products made, more elaborate production methods, garments designed and manufactured to be worn as outfits rather than individual pieces, better fit/more generous sizing. Could be a diffusion line, may have a designer involved, eg Kate Moss, John Rocha, Stella McCartney.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> Little relevant knowledge shown, candidate typically makes superficial comments without considering a range of appropriate differences between the ranges. 0-2 marks Candidate shows some knowledge of the constraints and opportunities afforded by the different ranges, and gives some examples to illustrate points made. There may be some irrelevant or confused points. 3-4 marks 		

		<ul style="list-style-type: none"> • Candidate is knowledgeable about the differences between the different ranges and gives varied and appropriate examples to illustrate the points made 5-6marks 	6 marks	
10	f	<p>This question is about problems specifically associated with cutting and sewing striped fabrics. For the higher marks, candidates must go beyond problems which apply to all fabrics, and suggest ways of overcoming the problems specific to stripes.</p> <p>Eg The need to match stripes across seams and style details, accurate placement of pattern pieces on grainline to ensure that they appear 'straight' on the finished garment, careful planning of layout to minimise waste, manufacture may be costly because of waste, may need to ensure that a prominent line of stripe is centralised,. Stitching with differential feed to keep pattern match accurate, careful placement of style features to maintain visual impact of stripes. colour of thread, woven or printed stripes.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Little knowledge shown of care needed explanation will be in simplistic terms only and refer to problems associated with any fabric. 0-2 marks • Candidate shows some understanding of care needed but will lack precise knowledge. Some of the explanation will be sketchy/incorrect. 3-5 marks • Sound and detailed knowledge shown of specific care needed with striped fabrics, candidate will give accurate information with realistic examples. 6-7marks 	7 marks	
10	g	<p><i>Outline some of the main issues which the manufacturer will need to take into account to ensure the safety of the workforce who make these garments.</i></p> <p>This question is about H&S in factories, not consumer safety, and not classroom practice. The following areas of concern may be included in an answer:</p> <p>Area 1: Working environment: Lighting, heating and ventilation of the workplace, tidy work areas, ergonomically designed seats for machinists, separate area for breaks, trip and fall hazards, potential fire risks, emergency/fire exits, marking out of dangerous areas;</p> <p>Area 2: Training of workforce: Training in safe working practices, especially in</p>		

		<p>relation to the use of machinery, updates in training as required, adequate supervision, warning notices, emergency procedures;</p> <p>Area 3: Protective clothing: Chain mail gloves for fabric cutters, steel toe cap boots for those involved in heavy lifting, breathing masks for those working with dangerous chemicals or hazardous dust producing items, aprons/overalls to prevent contamination of clothing/body, or prevent loose clothing being caught in machinery;</p> <p>Area 4: Equipment and maintenance: Regular checking and maintenance of equipment, safety guards on dangerous machinery, stop buttons for emergencies, electrical safety, Reference to legislation and safe working practices, eg electrical safety, danger of finger and hand injury, dangers associated with hot/sharp equipment and chemicals;</p> <p>Area5: Responsibility: Appointment of H&S officer, risk assessment, adequate rest periods built into working day, responsible behaviour, compliance with employment laws.</p> <p>Marks awarded as follows:</p> <ul style="list-style-type: none"> • Basic information of a limited range of safety issues which are mostly accurate although there will be some misunderstandings. Points will tend to focus on statements about dangers to workers without examples of specific dangers. Minimal reference to some areas with little consideration given to ways in which workers can be protected. 0-2 marks • Sound information from 2 or more areas. The information will be generally accurate but lack some depth and/or specific detail; in some areas there will be scant coverage of the issues. There will be some clear reference to specific safeguards in relation to dangers identified, particularly at the top end of the mark range. Candidate will be knowledgeable but there may be some misunderstandings or inaccuracies. 3-5 marks • Sophisticated and accurate information covering 3-5 areas and including specific detail and depth of knowledge from at least 3 areas. There will be detailed references to identified safeguards. Candidate will be informed and information will be accurate and relevant. 6-8 marks 	8 marks	
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