

Mark Scheme

Summer 2016

Pearson Edexcel in GCSE Design & Technology
Textiles Technology (5TT02/02)

Knowledge & Understanding of
Textiles Technology

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Question Number	Answer	Mark
1	D	(1)
Question Number		Mark
2	D	(1)
Question Number		Mark
3	B	(1)
Question Number		Mark
4	C	(1)
Question Number		Mark
5	B	(1)
Question Number		Mark
6	C	(1)
Question Number		Mark
7	C	(1)
Question Number		Mark
8	A	(1)
Question Number		Mark
9	D	(1)
Question Number		Mark
10	D	(1)

Question Number	Answer	Mark	
11. (a)			
	Buckle (1)		
	D-ring, ring (1)		
			A torso/ body shape used to design/ make/ alter products on a life size model. Helps with styling, fit and sizing. Modeling on a stand (garment). Display. (1)
			Used to strengthen holes, prevent tearing, fraying or abrasion, for decoration, so lacing is possible. On curtains so they glide across a pole, bags (<i>or any other logical product</i>) must state a purpose or a use of eyelet not just a hole. (1)
	4 x 1	(4)	

Question Number	Answer	Mark
11.(b) (i)	<p>Any suitable microfibre from the following:</p> <ul style="list-style-type: none"> • Polyester (1) • Nylon / Polyamide (1) • Aramid / Kevlar / Nomex (1) • Polypropylene / Prolen (1) • Modal (1) • Trogamide (1) <p>Do not accept any fabric names e.g. tactel, tencel</p> <p>(1x1)</p>	(1)

Question	Answer	Mark
11.(b) (ii)	<p>One characteristic and reason from the following:</p> <p>Microfibre</p> <ul style="list-style-type: none"> • Characteristic: Fibres measure less than 1 decitex / 60 times finer than hair/ very fine/ lightweight/ breathability abilities (1) • Reason: which allows for a greater number of fibres to work their wicking ability / aids ability for wearer keep cool/ (imitates) natural fibre (1) <p>Closely knitted & microfibre</p> <ul style="list-style-type: none"> • Characteristic: Warm/ water-resistant/ wind proof/ durable/ soft and holds its shape (1) • Reason: can be worn in various weather conditions/ improves ability to resist friction through movement (1) • Characteristic: Good drape /firm/ stable/ flexible/ elastic/ stretchy/ crease resistant (1) • Reason: as static cling easily eradicated with fabric softener, flattering as they do not cling / retains original shape/ easy to care for/ to move easily/ (1) <p>Closely knitted</p> <ul style="list-style-type: none"> • Characteristic: Sun block/ warm (1) • Reason: can reduce the skins exposure to UV rays/ allows less air to penetrate (1) <p><i>Accept any logical combination of above points.</i></p> <p style="text-align: right;">(1x2)</p>	(2)

<p>11.(b) (iii)</p>	<p>Any combined improved performance points from below:</p> <p>Lycra®</p> <ul style="list-style-type: none"> • Lycra® has a high degree of stretch and cotton has no give (1) so the product will not restrict training. (1) • Both fibres are strong; Lycra® resists abrasion/ however Lycra® is only usually used in the core of yarn (1) so it will make the product more durable (1) • Lycra® is lightweight / cotton is a versatile fabric that can be lightweight (1) which would be comfortable when exercising/ decrease clothing strain (1) • Lycra® will not absorb and provides resistance to body oils (1) so will not stain as easily as cotton and remain presentable (1) <p>Cotton</p> <ul style="list-style-type: none"> • Cotton is absorbent and Lycra® is hydrophobic (1) so adding cotton will be more comfortable in active wear (1) • Cotton wrinkles easily and may shrink unless treated (1) so Lycra's crease resistant properties will provide ease of care and better presentation (1) <p><i>Accept any logical combination of above points. Must state which fibre offers what benefit. Both fibres must be mentioned to gain mark.</i></p> <p style="text-align: right;">(1x2)</p>	<p style="text-align: center;">(2)</p>
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Question Number	Answer	Mark
11(c) (i)	<p>Any examples of the following:</p> <p>Washing</p> <ul style="list-style-type: none"> • Hand or machine wash in low/ warm/ medium water e.g. 30-40 degrees/ temperature /gentle cycle (1) as high temperatures would damage elastomeric Lycra fibres (1) • Rinse thoroughly (1) so that no residue of detergent is left. Detergent could stiffen/ clog fibres or cause allergic reaction (1) <p><i>Credit is not given for 'Do Not' processes. E.g. 'Do Not Dry Clean/ Bleach'</i></p> <p style="text-align: right;">(1x2)</p>	(2)

Question Number	Answer	Mark
11 (c) (ii)	<p>Any examples of the following:</p> <p>Drying</p> <ul style="list-style-type: none"> • Drip dry/ dry flat (1) as Lycra is crease resistant and creases will fall out reducing the need for ironing (1) • Tumble dry on a low temperature (1) so that elastomeric Lycra fibres are not damaged/do not melt/ shrink (1) <p>Ironing</p> <ul style="list-style-type: none"> • Iron on a low heat/ on cool setting/ 1 dot Keep iron moving over the surface of the fabric (1) to avoid scorch/ melting or burn marks (1) • Place a heat resistant cloth over cotton / Lycra fabric (1) to shift stubborn creases (1) • <i>Credit is not given for 'Do Not' processes. E.g Do not press sharp creases into cotton / Lycra fabric as Lycra fibres may break</i> <p style="text-align: right;">(1x2)</p>	(2)

Question Number	Answer	Mark
11(d) (i)	<ul style="list-style-type: none"> Knitting (Warp) (1x1) 	(1)
11 (d) (ii)	<p>Any explanation from the following:</p> <ul style="list-style-type: none"> Opaque/ slightly see through / good visibility (1) You can easily/ quickly locate items (1) Open material/ holes/ mesh structure (1) quick drying (1) Flexibility/ stretch/ strong/ durable (1) the knots/construction allow a wide range of stretch in every direction / will move with the body during activity/ allows for easy placement and retrieval of items/ caters for different size/ shaped objects (1) <p>(1x2)</p>	(2)
Question Number	Answer	Mark
11 (e) (i)	<p>One adaptation from the following:</p> <ul style="list-style-type: none"> Straighten the side/ A-line/ flared seams (1) Remove the darts/paneling (1) Lengthen the hem (1) Reshape/ deepen armholes/sleeves (1) Widen the (lower)neck/shoulders/ torso (1) Reduction of fullness not needed around waist (1) 	(1)

Question Number	Answer	Mark
11(e) (ii)	<p>Any one explanation from the following: Straighten the side/ A-line/ flared seams or remove the darts/paneling or reduction of fullness not needed around waist</p> <ul style="list-style-type: none"> So it is less fitted around chest or bust as there is no need for reducing the fullness/ fitting to emphasise curves (1) <p>Men are generally taller/ broader/straighter/ gives a more rectangular shape (1)</p> <p>Lengthen the hem</p> <ul style="list-style-type: none"> so the torso is covered (1) as men are generally taller (1) <p>Widen the shoulders/ torso or reshape/ deepen armholes/sleeves</p> <ul style="list-style-type: none"> to allow for broader shoulders and wider biceps (1) as men have a more rectangular shape (1) 	(2)

12

Design idea 1

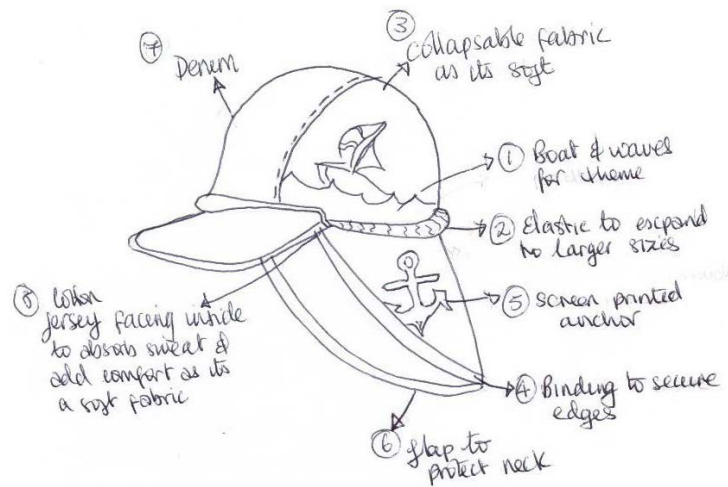
Candidates may answer any specification point in either graphical form or by annotation.

No marks are awarded for the quality of graphical communication.

1. have a **clearly** identified theme : (1) Obvious link to theme / e.g. sea shells, sea horses, pier, anchors etc **Can be visual only**
 2. be adjustable to fit a range of heads: (1) e.g. poppers, Velcro, strap, elastic, stretchy fabric, drawstring, plastic clips (knitted, lycra).
Annotation needed.
 3. be able to be transported in luggage: not separate bags (1) e.g. collapsible fabric or structure, soft construction so folds/rolls up (small), conical interior space so hat flattens, fastened so it will lay flat. **Annotation needed.**
 4. use a hardwearing construction method: (1) e.g. interfacing, reinforced stitching, piping, binding, moulding, topstitching, lining, wire/plastic frame/ boning inserts, any sensible stitch technique allowed. **Annotation &/or visual**
 5. use a surface decorative technique (1) e.g. embroidery, beading, printing, appliqué.
Annotation needed.
 6. be suitable for sunny weather (1) e.g. have a brim, visor, peak, thermochromatic dyes, have neck flap, be brightly coloured. **Visual**
 7. made from easy care textile fabric/materials (1): e.g. denim, felt, (named fabrics required), coated fabric, cotton, laminating, corduroy, finish
Annotation.
 8. be comfortable to wear (1): e.g. not tight or restrictive, stretchy fabric, soft, breathable fabric, padding, support, fit, lightweight – **Annotation.**
- Identification of bullet point addressed must be made.**

Example of candidate response:

Design idea 1

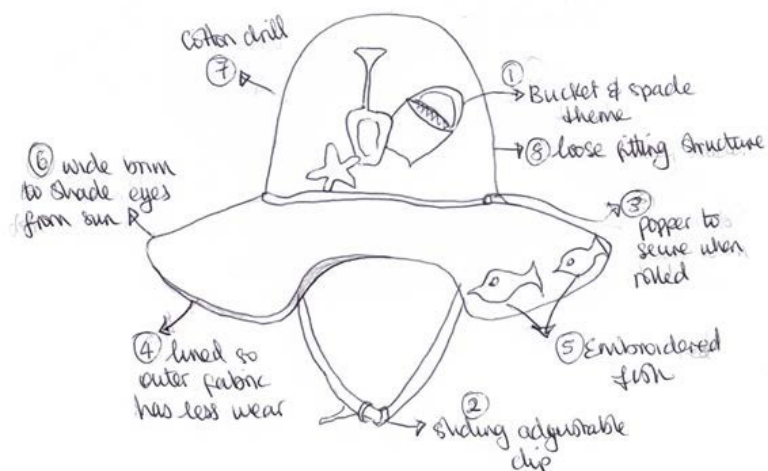


(8)

Design idea 2

Marks for design idea 2 can only be awarded where specification points are resolved differently than in design idea 1.

Example of candidate response:



(8)

Question Number	Answer	Mark
13 (a)	<p>Any from the following:</p> <ul style="list-style-type: none"> • Knife (1) • Box (1) • Accordion (1) • Inverted (1) • Soft / relaxed/ tucks (1) • Sunray (1) • Graduated (1) 	(2)
Question Number	Answer	Mark
13 (b) (i)	<p>Any described characteristic from:</p> <p>Consumer</p> <ul style="list-style-type: none"> • Fibres do not have to be spun (1) so ideal for disposable wear (1) • Fit for purpose due to closely tangled fibres (1) short-term chemical exposure (e.g. non-hazardous oils, colour & paint spraying) do not penetrate fabric quickly making it good value for money (1) • Crease resistant (1) for easy care / more presentable (1) • Does not fray (1) so is longer lasting (1) • Warm/comfortable (1) increases the amount of trapped air between fibres increasing insulation (1) <p><i>No reference to be made to value for money/ cheaper allowed</i></p>	(2)

Question Number	Answer	Mark
13 (b) (ii)	<p>Any characteristic and linked reason from:</p> <p>Manufacturer</p> <ul style="list-style-type: none"> • Lack of grain (1) means that pattern pieces can be laid out in any direction / waste reduction (1) • Protective clothing tends to be for short term/ disposable use (1) repeat orders/ market to stock for (1) • Quick manufacturing process e.g. heat, bonding using adhesive, needles (1) so turn around and production is efficient (1) • Seams could be welded (1) so they are strong and suitable mass production (1) • Easy to work with (1) requires low skilled work force (1) <p><i>No reference to be made to value for money/ cheaper allowed</i></p>	(2)

Question Number	Answer	Mark
13 (c)	<p>Any from the following:</p> <p>Method</p> <ul style="list-style-type: none"> • Measure/ mark zip length) (1) • Machine (straight stitch)-<i>settings may be given</i>- up to end of zip (reverse for strength) then baste seam closed (1) • (Open zip) line up teeth with seam edge/ Pin into place(1) • tack / machine baste zip to stop movement before sewing (1) • Sew into place/ From the front sew/ topstitch zip into place (1) <p><i>Diagram can be enough here</i> (2x1mark)</p> <p>Quality Controls (<i>not safety</i>) e.g. Secure stitching, zip moves up & down freely (1x1 mark)</p> <p>Equipment List (<i>2+ items</i>) e.g. zipper foot, matching thread <i>can be included in instructions</i> (1x1 mark)</p> <p><i>Full marks can only be awarded if all areas are covered. Allow for invisible zip</i></p>	(4)

Question	Answer	Mark
<p>13. (d)</p>	<p>Evaluation to address the following issues:</p>	
	<p>Product A</p>	<p>Product B</p>
	<p>Function</p>	
	<p>Full body coverage from neck to ankles/warmth</p> <p>Collar can be lowered for extra ventilation</p> <p>Collar can be fully closed (zip, flap + poppers up for extra protection</p> <p>Flap for extra protection and insulation</p> <p>Raglan sleeve has deepened access allowing easier fit, shapes, sizes, under clothing</p> <p>Lap felled seams are strong and durable but take longer to construct</p> <p>Pleat adds extra room, comfort when moving</p>	<p>Short jacket makes removal easy but does not protect clothing underneath</p> <p>V-neck exposes clothing underneath</p> <p>Set in sleeve more difficult to get on</p> <p>Plain seams, quick and low level of skill needed, so quick and easy to manufacture. Low comparative strength</p> <p>Paneling can be restrictive adds shape /tailoring</p>
<p>Zip & Poppers all the way down the front for ease over clothes. Safe to use.</p> <p>Elastic around the waist and cuffs at wrists and ankles to protect clothing. Wide elastic around cuffs, not restrictive for comfort. Fits variety of sizes</p>	<p>Small fiddly buttons take a long time to put on and take off.</p> <p>Open cuff fabric could flap around/ roll up</p>	

User requirements		
<p>Dark colour hides dirt.</p> <p>Aesthetically pleasing Colour contrasts with reflective strips.</p> <p>Large pockets can hold a variety of items</p>	<p>White gets dirty quickly.</p> <p>Nylon fabric retains its smooth appearance and the wrinkles from the usual daily activities can fall out or be removed easily.</p> <p>Breast pocket can only hold small items but could be difficult to retrieve</p>	
<p>Cotton fibres are comfortable as it has good moisture vapor transport, is breathable and soft. Comfortable, cool to wear, more absorbent.</p> <p>Coating enhances these features.</p> <p>Coating easy care, breathable, water resistant</p> <p>Reflective strips allow for added visibility</p>	<p>Nylon fabric is easy care. Can be washed at low temperatures and does not require ironing.</p> <p>Strong fibre but can make you sweaty as is non- absorbent, especially when layered over other clothes.</p> <p>Nylon has excellent resistance to alkali's but the frequent and prolonged exposures to alkalis will weaken the nylon fabrics. Nylon is less resilient to the action of acids and is damaged by strong acids.</p>	(6)

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-2	Candidate identifies the area(s) of comparison with no development OR identifies and develops one area. Shows limited understanding of the comparison. Writing communicates ideas using everyday language but the response lacks clarity and organisation. The candidate spells, punctuates and uses the rules of grammar with limited accuracy.
Level 2	3-4	Candidate identifies some areas of comparison with associated developments showing some understanding of the comparison. Writing communicates ideas using D&T terms accurately and showing some direction and control in the organising of material. The candidate uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some spelling errors may still be found.
Level 3	5-6	Candidate identifies a range of areas of comparison with associated developments showing a detailed understanding of the comparison. Writing communicates ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. The candidate spells, punctuates and uses the rules of grammar with considerable accuracy.

Question Number	Answer	Mark
14 (a) (i)	<p>Any from the following:</p> <ul style="list-style-type: none"> • Velvet (1) • Corduroy (1) • Bouclé (1) • Terry toweling (1) • Tapestry (carpets) (1) • Brussels (1) • Plush (1) 	(1)

Question Number	Answer	Mark
14 (a) (ii)	<p>Any disadvantage from the following:</p> <ul style="list-style-type: none"> • All pattern pieces are laid in the same direction/ nap causes shade changes (1) More fabric is needed (1) • Not very ecofriendly (1) as it produces waste from lay plan waste (1) • The fabric shifts/ snags under the machine foot (1) so requires a more experienced machinist/operator (1) • The pile can crush under the iron (1) so more garments may get rejected as part of QC (1) • Frays easily (1) careful management is needed so fabric area is not reduced (1) • Pile fabrics generate more dust (1) good ventilation is needed on the factory floor (1) • Fabric is thicker/ heavier (1) so less pieces can be cut at once (1) • Loop fabric like toweling may pull or snag (1) increasing need to check for flaws when laying up fabric for cutting/ 	(2)

Question Number	Answer	Mark
14 (b) (i)	<p>Give two from the following:</p> <p>Smart</p> <ul style="list-style-type: none"> • Thermo chromic/ chromatic (1) • Solvation chromism (1) • Photochromic (1) • Micro-encapsulation (1) • Phosphorescent (1) • Buoyancy and inflatable (1) • Reflective (1) • Fibre optics (1) <p>Biometrics</p> <ul style="list-style-type: none"> • Fastskin (1) • Stomatex (1) <p>Smart & Modern</p> <ul style="list-style-type: none"> • Interactive e.g. Conductive polymers, wearable electronics, Gorix, Soft switch (1) 	(2)

Question Number	Answer	Mark
14 (b) (ii)	<p>Two statements from the following:</p> <ul style="list-style-type: none"> • A smart fabric reacts/ senses/ interacts adapts to its environment/ outside stimulus without the need of human intervention (1) modern fabrics need some form of action to perform/ or only work on a technical, enhanced performance level (1) <p>Any other appropriate response</p>	(2)

Question Number	Answer	Mark
14 (c) (i)	<p>Two from the following:</p> <ul style="list-style-type: none">• Mercerising (1)• Flame proofing/resistant/ retardant (1)• Water-repellent/ proofing (1)• Stain resistant (1)• Crease resistant (1)• Anti-static (1)• Shrink resist (1)• Easy-care (1)• Laminating (1)• Coating (1)• Antibacterial (1) <p><i>Chemical names can be given e.g. Proban</i> (2x1 marks)</p>	(2)

Question Number	Answer	Mark
14 (c)(ii)	<p>One advantage from each of the following:</p> <ul style="list-style-type: none"> • Natural colour is removed (1) fabrics are whitened/ gives an even base to dye from (1) • Used a decorative/ distressed technique (1) colour can be discharged in paint / print format/ customer & fashion push (1) • can be used as a sanitiser / remove impurities(1) as it kills bacteria (1) • white fabric has a higher/ positive commercial perception (1) as they are thought to be e.g. cleaner, more summery, looks new (1) <p>One disadvantage from each of the following:</p> <ul style="list-style-type: none"> • As fibres (not fabric) are stripped (1) fabric can be weakened/ may go yellow (1) • waste (toxic) chemicals can be put into the water system (1) creates environmental issues (harmful) such as excessive water use e.g. acceptable (1) • A higher concentration of bleach will lead to (1) more rapid rotting/ degradation of fabric (1) • Contact with concentrated bleach (1) which can cause skin disorders/ breathing problems (1) <p style="text-align: right;">(2x2 marks)</p> <p>Allow for responses to be given in any order from the bullet point.</p>	(4)

Question Number	Answer	Mark
14 (d)	<p>Advantages</p> <ul style="list-style-type: none"><li>• 3D body scanning improves data on standard sizing that was taken from an anthropometric survey taken in 1941 so this allows for more up to date information and is more fitted to modern society.<li>• 3D scanning machines increase in accuracy of taking measurements as they radio waves to capture 200,000 points of data which results in are higher accuracy and consumers find it reliable and trustworthy.<li>• Individuals are fully clothed so there is less embarrassment and as it takes less than 20 seconds which is very time effective and a more comfortable experience.<li>• It uses a high-volume transaction server to store customer’s shopping profile and body measurement information so can be reused multiple times or updated to capture slight changes, this increases the sense of customer service and relations. It also led to the thought that everyone could customize and tailor their products to fit within the limitations of what the manufacturer or retail or offered.	(6)

Question Number	Answer	Mark
14 (d) continued	<ul style="list-style-type: none">• Customers perceived that they would get a better fit as they could add in specific dimensions and be sure that they get products that suit their body size and shape. E.g. Levi used these to gain an advantage over competition so that customers could feel like they were getting personal attention.• It reduces the chore of shopping so this allows those who are infirm or disabled to still feel included in the shopping experience.• Introduced as an extra to online shopping as this has meant that customers can reduce embarrassment, time, petrol, resources and get all the advantages without leaving home. Avatars can be created.• This allows customers to try on clothing which is viewed in their body shape. Rotation of front, back & side views which gives the consumer a realistic view of their appearance.• Benefits to the environment from lack of waste in ill-fitting clothing to reduced carbon footprint to find the best fitting product. E.g. Bodi.me – uses individual’s data to match them with a wide range of leading clothing brands(size prediction)• Future plans into modeling Fire fighters suits, bra & body shaping wear, Sizing systems for athletic apparel, virtual Fit of Digital garments etc. should all be credited.	(6)

Question Number	Answer	Mark
14 (d) continued	<p>Disadvantages</p> <ul style="list-style-type: none"><li>• Lack of familiarity and lack of publicity with new technology has meant that customers did not readily use the product.<li>• The amount of companies willing to invest in new technology (on the high street) were low, which has kept cost high and expensive to consumers marketing of product reasonably small.<li>• Size prediction - If online customers enter in the wrong measurement data their matches to brands and subsequent clothing choices will not be accurate resulting in ill-fitting clothes.<li>• Less social interaction so could increase isolation and change the sensory experience of high street shopping for the customer and retailers.<li>• Less returns policy available as products should be bespoke/ not standard sizes	(6)

Level	Mark	Descriptor
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Level 2	3-4	Candidate identifies some issues with associated developments showing some understanding of the issues. Writing communicates ideas using D&T terms accurately and showing some direction and control in the organising of material. The candidate uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some
Level 3	5-6	Candidate identifies a range of issues with associated developments showing a detailed understanding of the issues. Writing communicates ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. The candidate spells, punctuates and uses the rules of grammar with considerable accuracy.