

# Mark Scheme (Results)

Summer 2018

Pearson Edexcel GCSE
In Design & Technology (5TT02/01)

Paper: Knowledge & Understanding of Textiles Technology

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#### **General Marking Guidance**

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded.
   Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

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

Question Number	Answer		Mark
11 (a)	(iii) Pin cushion	A place to store/hold/put pins, keep pins within reach for use/kept safe/ accessible. Not lose.	
	Stitch ripper	(ii) To remove/ undo/ take out/ cut/ unpick hand and machine stitches, cut open buttonholes. (1)  No to rip stitches (QP) without eg tacking, seams	
	(i) Over locker/ overlocking machine (1)	To bind / finish and cut edges. To strengthen and neaten edges.	
	(iv) Automatic buttonhole presser foot	To identically/ repeatedly create perfectly sized buttonholes, creates buttonholes to the correct depth/ length / width in one stage. Mass production. Measures buttons dimensions for buttonhole.	(4)
		(4 x 1)	

Question Number	Answer	Mark
11 (b)	State <b>any</b> from the following:	
	<ul> <li>It is a lightweight component and will not weigh down the neck line(1)</li> </ul>	
	<ul> <li>Easily identifies where the ends of the drawstrings are (1)</li> </ul>	
	Deters the ends of the drawstring from being chewed/ unravelling (1)	
	It can stop the drawstring retracting into the hood & getting lost (1)	
	<ul> <li>Can be gripped when tightening the drawstring (1)</li> </ul>	
	<ul> <li>Easy to pull on when drawing the hood closer over the head (1)</li> </ul>	(1)

Question Number	Answer	Mark
11 (c)	<ul> <li>Any issue from the following:</li> <li>Drawstrings around the neck (1) provides possibility of strangulation (1)</li> </ul>	
	<ul> <li>Food shape buttons/small wooden beads (1) can encourage children to put them in their mouths and risk choking (1)</li> </ul>	
	(2x1)	(2)

Question Number	Answer	Mark
11 (d)	<ul> <li>Any benefit from the following:</li> <li>It is very elastic / stretchy/ gives (1) which makes it easy to expand over body parts/ sizes/ shapes/ easy to take off &amp; put on (1)</li> <li>Keeps its shape / will return to shape (1) allows for a close fit/ fitted which enhances figure / reduces risk of fabric getting caught or snagged/ provides insulation/(1)</li> <li>More durable than plain knitted fabric (1) which will extend the life of the product (1)</li> <li>No right or wrong side / looks good on either side (can look good turned up)(1) this gives a decorative look/ chunky appearance which adds appeal/ texture/ to design (1)</li> <li>Do not accept 'longer lasting' or 'durable' on their own.</li> <li>Allow any suitable combination</li> </ul>	(2)
	more any salease combination	` ,

Question Number	Answer	Mark
11 (e)	<ul> <li>Fleece / Polartec (1)</li> <li>Knitted jersey/ double jersey (1)</li> <li>Fake fur (1)</li> <li>Towelling (1) (1)</li> <li>Brushed cotton / winceyette /flannelette (1)</li> <li>Velour (1)</li> <li>Any justification from the following:</li> <li>Blocks/ shields against the wind from getting through and exchanging the body's warm air (1)</li> <li>As loops expand &amp; contract warm air flow is promoted (1)</li> <li>As fibres are brushed/ raised/ made fluffy it increases the amount of trapped warm air / acts as an insulation layer. (1)</li> </ul> Any suitable fabric (not fibre) is acceptable.	(2)

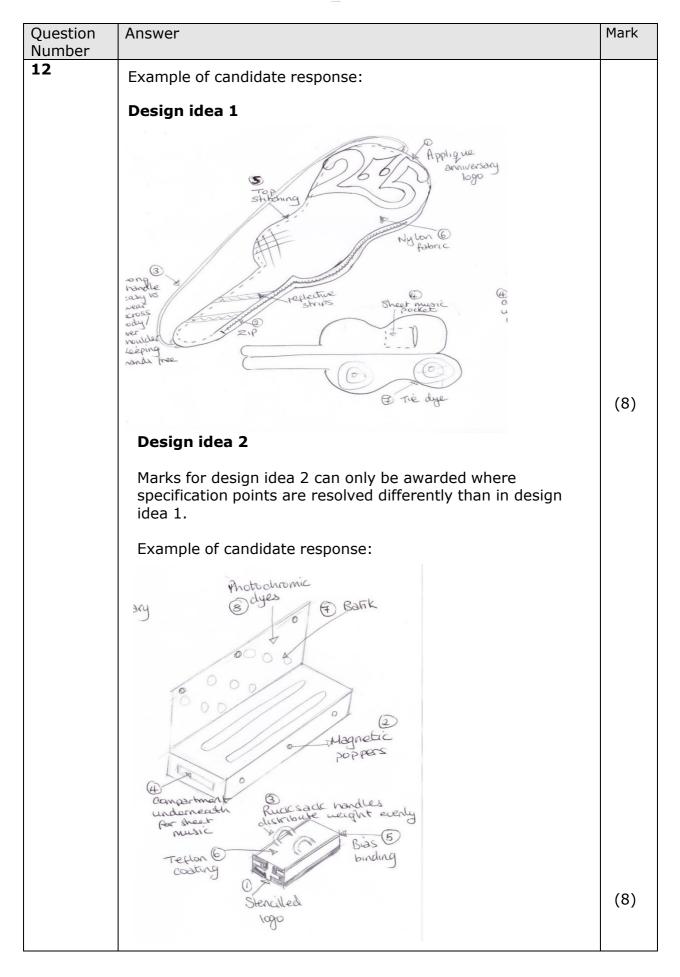
Question Number	Answer	Mark
Number Q11 (f)	Lay Abres TRAY out honzantally The Towel to absorb per the 1st the the the layer.  Lay fibres out varically over the hop per the next layer.  Keep this up until desired thickness has been achieved.  Add scapy water evenly over the hop ressure evenly a flat hand.  Aprily pressure evenly for the hop a pinch less to check this. If fibres seperate, continue to add friction until pibres have bonded.  Allow for intergrated equipment list.	

Question	Answer	Mark
Number Q11 (f)		
<b>4</b> (·)	Any from the following:	
	Method 1 - Wet felting	
	<ul> <li>Layer fibres in a web/ design / randomly/ across each other (1)</li> </ul>	
	<ul> <li>Add water (warm) &amp; catalyst e.g. soap flakes (1)</li> <li>Apply friction accept method e.g. rub in a circular motion (1)</li> <li>OR</li> </ul>	
	Method 2 - Needle felting	
	<ul> <li>Layer fibres in a web/ design / randomly/ across each other/ closely packed together (1)</li> </ul>	
	<ul> <li>Continuously poke/ stab/ punch barbed/ shaped needle into fibres to (1)</li> </ul>	
	Build up, placing more fibres on, repeat stabbing (1)	
	(2x1mark)	
	<b>Quality Controls</b> ( <i>not safety, how</i> they are carrying out the check is necessary)	
	Such as check for holes, consistent thickness, e.g. do a pinch test to ensure fibres are adequately tangled so structure holds together, keep applying friction until firm, put fibre strands so they overlap the last making sure no holes can be formed,	
	(1x1 mark) <b>Equipment List</b> (2 or more items)	
	e.g. container such tray, jug, soap (or other catalyst), rolling pin/roller/ mat, cling film, bubble wrap, tea towel/ drying rack/ gloves, sponge/ felting mat/block, barbed needle/tool, iron	
	These can be included in instructions or clear drawing. <b>Do not include</b> bonding equipment or needle felting machinery.  (1x1 mark)	(4)
	Full marks can only be awarded if all areas are covered.	

Question Number	Answer	Mark
11 (g)(i)	<ul> <li>Fibre content (including sustainable fibres) (1) so that allergy information can be given / to ensure customers are informed so they can make suitable choices (1)</li> <li>It tells customers if there is an expensive fibre present (1) which can incur higher costs / provide value for money information (1)</li> <li>Let's customers know why the fibre / one of the fibres may have to be treated more delicately (1) so that appropriate aftercare methods are taken (1)</li> <li>Provides information on the correct care method (e.g. needed of cleaning / drying / pressing/ temperature) (1) to maintain condition/ prevent damage / colour loss / shrinkage (1)</li> <li>Meets legal requirements/trading standards (1) to give a warning / to inform purchaser that the item has been treated with a fire retardant / suitable for purpose e.g. flame retardant/ water resistant/ warm (1)</li> <li>Any order is acceptable</li> </ul>	(2)

Question Number	Answer	Mark
11 (g)(ii)	One benefit from the following:	
	<ul> <li>Assumptions can be made on the sizing needed anywhere (in the world) it is used (1) which makes it easier to know/ judge the required size (1)</li> </ul>	
	• Follows set measurements which can be compared (1) so that adjustments to fit can be made to fit other countries size guides (allows e.g. American, Japanese, European) (1)	
	Allows for batch/mass production (1) which makes the top more affordable (1)	
	Purchase with confidence/ regularly used by retailers & manufacturers (1) that after measuring body the product will fit / be size required (1)	
	(2x1 marks) Allow any suitable combination	(2)

Question	Answer	Mark
Number		
12	Design idea 1	
	Candidates many analysis and sister as interesting	
	Candidates may answer any specification point in either	
	graphical form or by annotation.	
	No marks are awarded for the quality of graphical	
	communication.	
	1. Contain a musical 25th anniversary logo (1) e.g. musical	
	notes, shapes of instruments, numbers, <b>Accept different</b>	
	decorative techniques	
	2. fasten securely (1) e.g. poppers, Velcro, buckle, elastic,	
	magnetic, drawstring, plastic clips, clasp, zip. Allow any	
	suitable fastening & in pocket.  3. be comfortable to carry (1): e.g. adjustable, foam/	
	padding, quilting, balance on shoulders, across body,	
	support and lightweight - must state/see how. <b>Do not</b>	
	allow long shoulder straps as they easier not	
	comfortable to carry	
	4. be able to be hold music sheets /books separately: not	
	separate bags (1) e.g. pocket, flap, sections,	
	compartments, pouch.	
	5. have a hardwearing construction method: (1) e.g.	
	interfacing, reinforced stitching, piping, binding,	
	moulding, topstitching, lining, wire/metal/plastic frame	
	(support)/ boning inserts, any sensible stitch technique	
	allowed. <b>Do not accept decorative techniques</b>	
	6. have an outer fabric/finish to protect from wet weather	
	conditions: (1) e.g. Nylon , PVC, PU, microfibre - polyester,	
	silicon spray, GoreTex, membrane lining. Laminated all others	
	must be specific so do not allow, waterproofing/ coating or	
	any generic terms. Do not accept leather (skin)	
	7. include a lining with a resist hand decorative technique	
	(1): e.g. batik, tie dye, silk painting/ printing, tritik	
	8. incorporate a modern or smart material: (1)	
	e.g. Smart- thermochromic/ chromatic, solvation	
	chromism, photochromic, microencapsulation,	
	phosphorescent, reflective, fibre optics. Smart & Modern,	
	Interactive e.g. Conductive polymers, wearable electronics.	
	Allow clear descriptions of any smart/modern process.	
	Identification of bullet point addressed must be made.	



Question Number	Answer	Mark
13 (a)	Any benefits given from the following:	
	<ul> <li>It makes fabric more:</li> <li>Stable/ firm/ structured (1)</li> <li>Strong (1)</li> <li>Hardwearing/ durable/ resilient (1)</li> </ul>	
	(1x2 mark)	(2)

Question Number	Answer	Mark
13 (b)	<ul> <li>Nylon is made from smooth synthetic fibre that has stretch which allows it retain its length &amp; shape when washed (1) whereas woollen yarn could shrink or pill and look less desirable/ is weaker when wet (1)</li> <li>Nylon is waterproof which allows it to remain dry (1) whereas woollen yarn absorbs liquids so would be heavier when wet (1)</li> <li>Nylon is waterproof which allows it to remain clean (1) whereas woollen yarn would get dirtier as hairy fibres will trap dirt (1)</li> <li>Nylon is made from strong/ hardwearing synthetic fibre which has good tensile strength (1) whereas woollen yarns are not durable &amp; would wear quicker when passed through the fastening (1)</li> <li>Allow any suitable combination of nylon versus woollen properties reasons where nylon has a positive benefit (2x1 mark)</li> </ul>	

Question Number	Answer	Mark
13 (c)	<ul> <li>Any suitable disadvantage from the following:</li> <li>Appliqué requires more skilled machinists for a high quality finish (1) which is less cost effective (1)</li> <li>Appliquéing with many colours/ shapes/ fabric types takes longer in the cutting &amp; application stages/ sub assembly (1) which is less time effective (1)</li> <li>Application of some fabrics require a fusible non-woven fabric to stabilise &amp; hold them in place (1) to get high quality appliqué results (1)</li> </ul>	
	Allow any suitable combination (2x1 mark)	(2)

Question Number	Answer	Mark
13 (d)	Any <b>two</b> statements from the following:  Type: Pedometer (any make motion indicator) Weight tracker GPS/ tracking/ location finder Light emitted diodes (LED's) Light - solar/ lamp/battery Entertainment Conductive threads creating a battery charge through friction/walking Conductive threads for thermal conduction/ cooling systems Medical monitors - benefits through contact e,g, heat or moisture sensors/ heart monitoring	
	<ul> <li>Justification:         <ul> <li>could improve motivation &amp; fitness levels</li> <li>could track weight/ steps increasing the appeal of being more active</li> <li>could monitor heart rate/ moisture loss or overheating and increase the awareness of the need to hydrate/ increase or decrease speed</li> <li>provides a safety feature</li> <li>Provides comfort to warm/ cool in weather conditions</li> <li>Soft switch provides control panels for activating entertainment</li> </ul> </li> <li>Allow for type and explanation to be given in any order without duplication.         <ul> <li>(2x2 mark)</li> </ul> </li> </ul>	(4)

Question	Answer		Mark
Number			Mark
13 (e)	Evaluation to address the follow	wing issues:	
	Evaluation to address the follo	wing issues:	
	Product A	Product B	
	Function Purpose of product		
	Be easy to put on & take off		
	Low, wide opening below ankle allows for easy insertion Adjustable toggle and elasticated drawstring make it easy & quick to put on & take off.  Low, wide opening below ankle allows for easy insertion Adjustable toggle and elasticated drawstring make it easy & quick to put on & take off. Non-restrictive & expands to fit a variety of sizes  Loop at back aids pulling on of footwear	Difficulty inserting and removing footwear as close spacing at ankle makes this difficult. Wearer needs to loosen laces all the way down before access is granted foot and again to fasten.  Fastening – laces are time consuming. Can add support to ankle when completely done up  Fabric has no give be restrictive as feet heat up and undergo continued pressure from use	
	Be presentable & easy to care for	-	
	Laminated fabric with a microfibre membrane that allows the body to let moisture out whilst stopping moisture (rain) molecules to get in. Breathable fabric lining which means footwear is comfortable; cool to wear, absorbent.  Laminated fabric easy care, water resistant.  Reflective strips allow for added visibility and	Nylon fabric is easy to wipe clean, but does not let moisture out as it is a Synthetic material it will leave foot sweaty and cause discomfort, bacteria build up and odour.  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	
	added visibility and contrasting bright colours make it safe for night or daywear. They reflect heat & can keep skin cool.  Lining hides all seams which gives a smoother skin to product	by strong acids.  Dark colours show less dirt bu are not visible at night. They absorb heat.  Exposed plain seams, may cause friction and rubbing when	
	gives a smoother skin to product experience	motion. Not very hardwearing.	

## 13 (e)

**Performance** requirements technical considerations that must be achieved

Keep cool / Be comfortable/ safe

Low, wide opening below ankle with added side openings expose foot to air circulation and allow foot to cool down.
Although it could allow admittance of dirt/ sand.

Elastic drawstrings expand to allow give which can ensure that as foot expands with heat and wear the footwear can expands without being loosened to accommodate - without losing support. Provides comfort. Expands to fit a variety of widths

# **Height of footwear** provides unnecessary

warmth.

**Full ankle coverage** when laced up prevents heat loss.

**Woollen laces** can come undone easier allowing for a tripping hazard

(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 <b>limited</b> 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 <b>some</b> 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 <b>detailed</b> 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)	<ul> <li>Any from the following:</li> <li>Easy to insert/ put in e.g. hands, no fastenings (1)</li> <li>Ease of access to contents (1)</li> </ul>	
	Maintains the cut of the trouser (1)     (1x1)	(1)

Question Number	Answer	Mark
14 (a)(ii)	Any explanation from the following:	
	This would strengthen the pocket (1) allowing a greater weight to be placed inside (1)	
	This would enlarge the pocket (1) allowing a greater amount or size of object to be placed inside (1)  This would enlarge the pocket (1)	
	This could add an attractive design feature (1) which would show more 3d shape to the person's rear (1)	
	(2x1)	(2)

0	A	NAl.
Question	Answer	Mark
Number		
14 (b)	<ul> <li>Excessive use of water needed for cleaning/dyeing/ use of fertilisers/ pesticides (1) which has a negative impact on the environment (1)</li> <li>Cotton creases badly (1) which makes aftercare when ironing more time consuming / can look less presentable during use (1)</li> <li>Pure cotton dries slower than if mixed with synthetic fibres (1) which makes laundering more difficult (1)</li> <li>Cotton can shrink (1) which can cause sizing issues and consumer dissatisfaction (1)</li> <li>cotton does not hold dye as well as (synthetic) fibres like polyester (1) which can result in bleeding colours in mixed washing loads (1)</li> <li>cotton is not strong when wet (1) which can lead to the fabric fraying and becoming distressed during laundering reducing the garments length of service (1)</li> <li>More expensive than using a synthetic mixture (1) as cottons growth time limits availability (1)</li> </ul>	
	(2x1)	(2)

Question Number	Answer	Mark
14 (c)	<ul> <li>Any description from the following:</li> <li>Twill weave have a diagonal pattern (1) which allows the fabric to drape (1)</li> <li>Dyed warp with a white weft (1) which leads to popular uneven fading/ wearing (1)</li> <li>Indigo coloured dye (now mostly synthetic) is referred to as denim (1) has meant the colour has taken on a brand effect so is constantly popular (1).</li> <li>Abrasion resistant / hardwearing fabric (twill weave) (1) means that it can undergo a variety of treatments and still be fit for purpose. e.g. can be used such as stonewashing (1)</li> <li>(2x2)</li> </ul>	
	Do not accept anything to do with the jeans as a product e.g. contrast stitching, felled seams etc.	(4)

Question Number	Answer	Mark
	Any features from the following:  Product A  Formal features  Belt loops (1)  Side/ slant pocket & back welt/ jetted pocket (1)  Creased/ heat pressed front seam/ pleat (1)  Straight fit/ leg (1)	
	<ul> <li>Any reason from the following:</li> <li>Welt pockets are smart, discreet, neat &amp; unobtrusive (1)</li> <li>Crisp finish and professional, structured look given by straight fit/ front creasing and fitted flat front shaping (1)</li> <li>Side pockets give 'clean' non distracting look to front (1)</li> <li>Defined waist area can be accentuated with addition of belt/ held up/ in place by belt loops (1)</li> </ul> Accept a feature and reason from any place. These must not duplicate information or QP	
	language (2x1)	(2)

Question Number	Answer	Mark
14 (d)(ii)	Any features from the following:  Product B Casual features     Dropped crotch (1)     Baggy (1)     Low pocket placement (1)     Elasticated/ribbed waistband/ ankle cuff (1)     Back (patch/cargo) large pockets (1)	
	<ul> <li>Any reason from the following:</li> <li>Rear &amp; waist areas are less defined by lack of form fitting (1)</li> <li>Youthful, fashionable, sporty feel of the elasticated cuff &amp; crotch detail make them look more relaxed / for relaxing in (1)</li> <li>Elasticated/ baggy/ large pockets features make it look like casual/ leisure- wear as it easier to pull on and off (1)</li> </ul>	
	Accept a feature and reason from any place. These must not duplicate information or QP language.	
	(2x1)	(2)

Question Number	Answer	Mark
14 (e)	Any <b>three</b> ways discussed from the following:	
	<ul> <li>Aramid main advantages are high strength and low weight.</li> <li>It is mainly used in reinforcement in composites uses such as: sport goods, aircraft, maritime, military vehicles</li> <li>Fabrics in clothing such as fire protection clothes or bulletproof vests.</li> </ul>	
	Kevlar is extensively used in military clothing (ballistic) and as stab resistant body armour e.g. as the impact of bullets are spread so they do not pierce the body causing fatal injury.	
	Kevlar's ability to absorb shock also makes it suitable for jobs where high impact or grazing is likely such as motorbike racing.	
	Kevlar® is strong enough to survive the extreme forces and temperature fluctuations of space travel. It has been used in missions to explore the surface of the Mars. It is also strong enough to protect against the impact of space debris.	
	Common properties are high tensile strength and low breakage (low elasticity – stiff material that will change its shape only slightly under a load 'low creep'), good resistance to chemicals, high toughness, thermal dimensionality stability and lightweight.	
	Other uses of aramid are - Sailcloth, snowboards, optical fiber cable systems, jet engine enclosures, tennis strings and hockey sticks. Wind instrument reeds, reinforcement for tyres and rubber goods.	(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 <b>some</b> 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 issues with associated developments showing a <b>detailed</b> 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.