

Mark Scheme (Results)

June 2014

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

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Summer 2014

Publications Code UG038543

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

Question Number	Answer	Mark
11. (a) 1.7 Comp's, mat's, equipt & proc's	Pinking shears/ scissors	Stops fraying, decorative edge.
	Needle	To sew by hand, tack, hand embroidery, to sew/pass/secure - thread/yarn/ribbon through fabric (together), makes stitches, to sew with
	Zipper foot	To glide along zipper tape, to be able to sew against left or right of zip, sew close to teeth to insert / apply/ attach zip/ sew zip onto product neatly/ more easily, hold zip down as it is sewn,
	Embroidery rings/hoops/ frame	For holding fabric taut/flat/stretched when applying decorative stitching.
	4 x 1	(4)

Question Number	Answer	Mark
11. (b) (i) 1.1 Fibres	<p>Three benefits of the fibre properties from:</p> <ul style="list-style-type: none"> • Soft (1) • Comfortable/ hypoallergenic (1) • Cool (1) • Allows skin to breathe/breathable (1) • Absorbent/dyes easily (1) • Strong (1) • Bleach resistant (1) • Can be washed at high temperatures (1) • It resists static (1) • It is biodegradable (1) • Sustainable / renewable (1) 	(3)

Question Number	Answer	
11. (b) (ii) 3.1 Analysing products AO3	<p>One reason described from the following:</p> <ul style="list-style-type: none"> • Cotton creases badly (1) adding polyester makes it easier to iron/more crease resistant (1) • Looks more presentable with less effort (1) saves time in aftercare (1) • Polyester is strong/hardwearing (1) therefore increases strength/life of cotton shirt (1) • Polyester is cheaper (1) so reduces the cost of the shirt (1) • Polyester dries faster than cotton (1) making laundering easier (1) 	(2)

Question Number	Answer	Mark
11. (c) 2.4 Joining & finishing techniques	<p>Any suitable method from the following:</p> <ul style="list-style-type: none"> • Plain (1) • Open (1) • Overlocked (1) • Flat-fell/run-felled seam (1) • Welted (1) • French (1) • Closed (1) • Topstitch (1) • Channel (1) 	(1)

Question Number	Answer	Mark
11 (d) 1 Mat & comp	<p>Two reasons from the following:</p> <ul style="list-style-type: none"> • Machine washable- at 40°C/warm cycle (<i>not hand washing</i>) (1) • Iron on low heat/cool setting (1) • Tumble dry-cool temperature (1) 	(3)

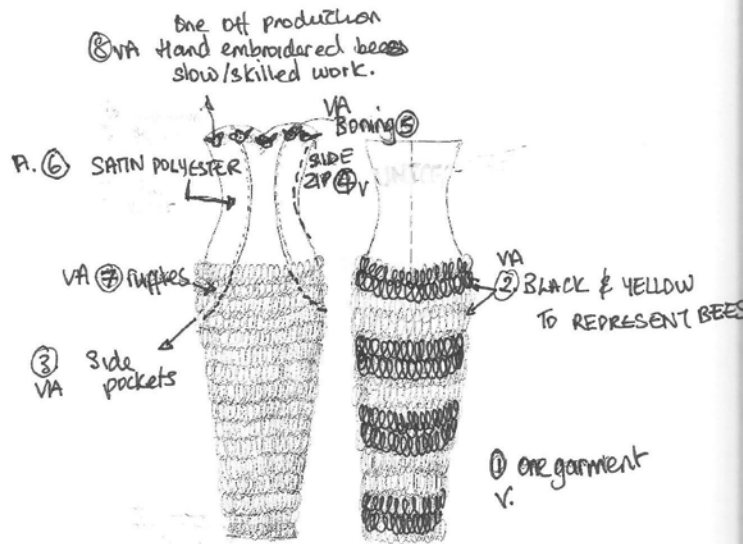
Question Number	Answer	Mark
11. (e) 2.1 Scale of production	<p>Any explanation from the following: It is faster/cheaper/quicker/more efficient because:</p> <ul style="list-style-type: none"> • Quick response to school order (JIT can be used) (1) because flexible process short setup time/ reduced cost of storage can allow competitive pricing (1) • Materials, equipment and skills can easily be adapted (1) flexible, easily modified/ to meet changing school requirements e.g. short sleeves for summer (1) • Identical products can be made with low cost /good quality (1) because of economies of scale/quality checks/standard sizing (1) <p><i>Interchangeable bullet points.</i></p>	(2)

Question Number	Answer	Mark
<p>11 (f) 6.1 minimising waste production</p>	<p>Two benefits from the following:</p> <p>Environment</p> <ul style="list-style-type: none"> • Grown without artificial fertilisers, pesticides or herbicides/ chemicals (1) so soil fertility is maintained or improved (1) • Natural fertilizers eg manure and pesticides eg spices, soap (1) as it keeps pests at bay without harming other creatures (1) • Groundwater and rivers are kept free from pollution (1)as chemicals are not washed from the fields (1) <p>Ethical Consumer</p> <ul style="list-style-type: none"> • Consumers feel good about buying organic cotton (1) environmentally conscious/farmers get a better price for their product. Fair trade/pollutant free for babies (logical example accepted) Risk to health of local people is reduced and animals as they are not exposed to chemicals (1) • Manufacturers have more regulations to meet (1) so they look for new ways to achieve it (1) <p>Manufacturer</p> <ul style="list-style-type: none"> • Manufacturers have more regulations to meet (1) so they look for new ways to achieve it like organic cotton (1) • With an organic certificate manufacturers increased reputation (1) carrying labels attract eco-friendly customers/validity (1) • Demand for organic cotton is constantly rising (1) as more and more buyers are looking for high quality cotton e.g. considered safe for delicate skin (1) 	<p>(4)</p>

Question Number	Answer	Mark
<p>12. 4.3 Application of K & U</p> <p>v= visual a=annotati on (v/v)</p> <p>(va/v)</p> <p>(va/v)</p> <p>(v/a)</p> <p>(a/a)</p> <p>(a/a)</p> <p>(va/v)</p> <p>(a/a)</p>	<p>Design idea 1</p> <p>Candidates may answer any specification point in either graphical form or by annotation.</p> <p>No marks are awarded for the quality of graphical communication.</p> <p>Example of candidate response:</p> <ol style="list-style-type: none"> 1. Consist of one garment (1) e.g. dress, cat suit, play suit. Outfit- so should cover the whole torso. Not just jacket/top/trousers on their own 2. Reflect the charities cause (1) e.g. logos, shape, decoration, colour, message 3. Include somewhere to carry small personal items (1) e.g. pockets (allow for obviously different types of pockets), sewn on loops, chains, belt, hidden compartment. Not separate bags/hats/purses 4. Identify how it is easy to put on and take off (1) e.g. large head openings, stretchy fabric, tie opening, use of Velcro, zips at side and front, poppers. Not back fastening 5. Construction techniques (1) e.g. dart, pleats, godets, tucks, gathers, elastic, inserted ties, boning, panelling, flare. No separate petticoats etc. 6. Includes fabric with a shine or sheen (1) any appropriate finish. e.g. mercerising, calendering. Fabrics e.g. satin, metallic threads, lurex Fibre contents, e.g. silk etc (a/a) 7. Include decorative technique (1): e.g. appliqué embroidery, gathers, sequins, printing methods e.g. heat transfer, screen printing, trims and frills (a/a) 8. Identify One-off production techniques & processes (1) include detail- intricate work, slow techniques e.g. hand embroidery, expensive fabrics (incl leather)& components e.g. silk, crystals, fur, numerous techniques, complex construction techniques (v/a) 	<p>(16)</p>

Each point must be covered separately to award a mark. Repeats cannot gain a mark.

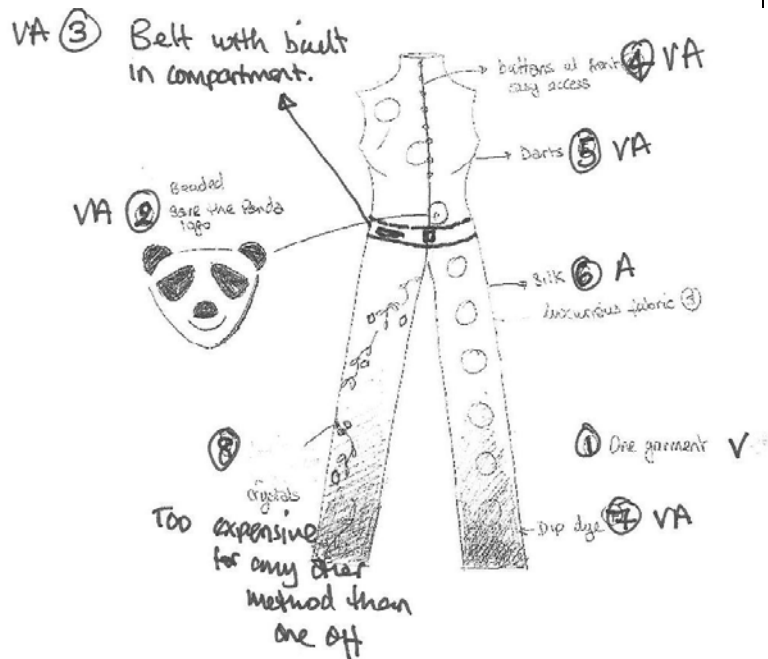
Design idea



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:



Question Number	Answer	Mark
13 (a) (i) 1.1 Natural fibres	<p>One property from:</p> <ul style="list-style-type: none"> • Property - Warm/soft/ comfortable (1) Reason – makes skin contact more appealing (1) • Property - Absorbent (1) Reason – good penetration of colour (1) • Property - Low flammability (1) Reason – increases safety potential of fabric (1) • Property - Crease resistant (1) Reason – will look better in use (1) • Property –Stretchy/ flexible (1) Reason – easier to fit over cushion filling (1) 	(2)

Question Number	Answer	Mark
13(a) (ii) 1.1 Natural fibres	<p>One property/characteristic from:</p> <ul style="list-style-type: none"> • Characteristic - Itchy (1) Reason – lanolin can cause an allergic reaction/fibre structure is scaly/ fibre structure is not smooth as the fabric is felted (1) • Characteristic - Expensive (1) Reason - natural fibres take time to grow so not abundant/ cannot make on demand - which will increase the overall cost (1) • Characteristic – Not suitable for machine washing/ hot wash/ can shrink when washed/needs delicate aftercare/can be dry cleaned (1) Reason - losing the performance, aesthetics and quality/careful consideration needed (1) • Characteristic – Not durable/ not strong (1) Reason – will pill and wear with friction and use/ would snap under tension (1) • Characteristic – Absorbent (1) Reason – Dries slowly so increases laundering time/ gets heavy and can stretch out of shape/ stains soaked in (1) <p><i>No one word answers accepted in reason. Accept answer in any section.</i></p>	(2)

Question Number	Answer	Mark
13 (a) (iii) 1.5 Fabrics	<p>Any two reasons from the following:</p> <ul style="list-style-type: none"> • Felted fabrics do not fray or ladder/ easy to work with (1) - less work e.g. finishing/neatening edges/ machining/ cutting (1) • They have no grain - cutting opportunities broadened (1) increased layplan options (1) • It is cost effective production method/manufacturing process (1) higher profit margins (1) • It is a stable/ does not stretch/ firm/thick base fabric (1) so will take weight and density of additional decorative work/ holds its shape (1) <p>(NB: Attention is to be paid to the bolded words)</p>	(4)

Question Number	Answer	Mark
13(b) 3.1 Analysing products	<p>1 mark- brief mention of how the cushion cover attracts users</p> <p>2 marks – a developed explanation of how the cushion cover attracts users</p> <p>Is attractive to users</p> <ul style="list-style-type: none"> • Themed motif (1) easy to match with décor/ other furnishings (1) • Silk trimmings (1) therefore luxurious, expensive fibre increases the value/desirability (1) • Hand sewn sequins & embroidery/ securely sewn (1) so well-made/ time consuming/more original / high quality/ adds (range of) decoration intricate/detailed design (1) • Shape and size (1) fits standard cushion (1) • Luxury fibre (1) so more desirable (1) <p>(Do not accept one word answers)</p> <p><i>Interchangeable</i></p>	(2)

Question Number	Answer	Mark																
<p>13. (c) 3.1 Analysing products QWC</p>	<p>Evaluation to address the following issues: Functional requirements: How should fibres, fabrics and components perform within the products?</p> <table border="1" data-bbox="411 439 1233 1543"> <thead> <tr> <th data-bbox="411 439 828 472">Product A</th> <th data-bbox="828 439 1233 472">Product B</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="411 472 1233 506">Function</td> </tr> <tr> <td data-bbox="411 506 828 629">Colourful hand-stitching makes product more delicate, e.g. snags easily</td> <td data-bbox="828 506 1233 824">Concealed (invisible) zip is quick and easy to remove. Does not distract from the design and positioning should not be uncomfortable. CAM to speed up insertion. Extra process.</td> </tr> <tr> <td data-bbox="411 629 828 752">Shorter lifespan e.g. if filling wears out</td> <td data-bbox="828 824 1233 969">Removable cover/fibre content increases life of cushion as it can be easily cared for</td> </tr> <tr> <td data-bbox="411 752 828 898">Cover will get dirty fabric (wool/felt) not easy care e.g. shrink risk</td> <td data-bbox="828 969 1233 1115">Polyester fabrics are hard wearing and colourfast</td> </tr> <tr> <td data-bbox="411 898 828 1021">The whole cushion will have to be washed so internal fibres will need special care</td> <td data-bbox="828 1115 1233 1261">Machine embroidery is stronger than hand-stitching so will machine wash</td> </tr> <tr> <td data-bbox="411 1021 828 1144">Sequins could scratch the skin & so be uncomfortable</td> <td data-bbox="828 1261 1233 1384">Piping adds structure to cushion</td> </tr> <tr> <td data-bbox="411 1144 828 1267">More for display/ decoration</td> <td data-bbox="828 1384 1233 1543">Able to be used around younger TM/ everyday use</td> </tr> </tbody> </table> <p>scale of production What are the considerations that affect the scale of production?</p>	Product A	Product B	Function		Colourful hand-stitching makes product more delicate, e.g. snags easily	Concealed (invisible) zip is quick and easy to remove. Does not distract from the design and positioning should not be uncomfortable. CAM to speed up insertion. Extra process.	Shorter lifespan e.g. if filling wears out	Removable cover/fibre content increases life of cushion as it can be easily cared for	Cover will get dirty fabric (wool/felt) not easy care e.g. shrink risk	Polyester fabrics are hard wearing and colourfast	The whole cushion will have to be washed so internal fibres will need special care	Machine embroidery is stronger than hand-stitching so will machine wash	Sequins could scratch the skin & so be uncomfortable	Piping adds structure to cushion	More for display/ decoration	Able to be used around younger TM/ everyday use	<p>(6)</p>
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	<p>Hand sewn & embroidery, slow production method so more expensive & time consuming</p> <p>Another decorative (sequins) technique so more production time</p> <p>Fiddly trimming to apply More expensive fibres & production method, probably one-off or very small batches</p>	<p>Machine embroidery is much faster/ CAD/ CAM can be used</p> <p>Limited fabrics & components so easy to produce Simple trimming (piping) to apply</p> <p>Putting in zip can add to construction time, although this is still a much quicker production method</p> <p>Can be made in large batches in a range of colours</p>	
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
<p>14 (a) (i) 1.3 synthetic polymers</p>	<p>Any two characteristics with linked reasons from the following:</p> <p>Fibre/Fabric</p> <ul style="list-style-type: none"> • Characteristic - Strong/hard-wearing (even when wet) (1) Reason - so will resist outdoor wear & tear/packing & resurrection, so suitable for outdoor weather (1) • Characteristic - Non-absorbent, hydrophilic, water/wind resistant / proof/repellent (1) Reason - so dries quickly, protects user and contents/ provides shelter (1) • Characteristic - Can be made to suit a variety of end uses (1) Reason - so technical performance is improved (1) • Characteristic - Resistant to biological damage (1) Reason - which it may be exposed to outdoors (1) • Characteristic - Low flammability (1) Reason - so better to have around a campsite/ safety issues (1) • Characteristic - Resists creasing (1) Reason - so will maintain its appearance (1) • Characteristic - Lightweight (1) Reason - so will be easier for camper to carry/set up (1) • Characteristic – Polyester can be sealed with heat tape (1) Reason – to make it water-tight/ retain heat (1) • Characteristic - Fabric less likely to rot (1) Reason - if put away damp (1) <p><i>Do not accept definitions of waterproof or durable</i></p> <p><i>Accept any logical combination of above points.</i></p>	<p>(4)</p>

Question Number	Answer	Mark
14 (a) (ii) 1.4 Yarns	One meaning from the following: <ul style="list-style-type: none"> • Continuous fibre • (Very)long fibre • Long chain of polymers 	(1)

Question Number	Answer	Mark
14 (a) (iii) 2.5 finishing processes	Two suitable coatings from the following: <ul style="list-style-type: none"> • Scratchproof/ self-healing (nano)(1)– as things would get dragged in & out of the tent/to prevent damage (1) • Accept finishes e.g. high gloss iridescent, reflective (glow-in the dark) holographic effects (1)more attractive/add to market appeal. (1) • Stain resistant (1) – so liquids would not absorb and damage aesthetics (look) of product (1) • Waterproofing/ repellent/ wiped clean/ self-cleaning finish/non-slip (accept PVC, Teflon, oil/ laminating/wax/polyurethane (PU) silica gel, etc) (1) to keep e.g. stop rain getting in/campers dry/so it is easy to keep clean/spillages (1) • Flame resistant (1) to reduce the risk of injury, prevents it catching on fire (1) • Insect repellent (1) can have medical benefits e.g. mosquito repellent <p><i>Prevents 'wear & tear/ more durable' can be used as a reason once where suitable</i></p>	(4)

Question Number	Answer	Mark
14 (b) 2.4 joining & finishing tech	One explanation from the following: <ul style="list-style-type: none"> • To avoid stitching (1) so they remain completely waterproof / leaking (1). • To ensure it is reliable/ strong/ secure/ durable (1) where there is additional strain (1). • To match the fabric/finishing used (1) e.g. so it remains waterproof (1). • Keeps out weather conditions (1) protects (1) 	(2)

Question Number	Answer	Mark
14 (c) 3.2 Material s & components	<p>One advantage from the following:</p> <ul style="list-style-type: none"> • Quality enhanced/insulation/warmth provided/ thicker (1) by extra layer inside which traps air/ shields against wind (1) • Air flow promoted (1) by loosely knitted/ woven fabric (1) • Ease of putting on increased (1) as slippery fibres/satin fabric is often used (1) • Breathable materials can be used (1) to allow for moisture, vapour transport (1) • Protection given to outside fabric/ stronger product (1) by extra layers support/ reinforcement (1) • So it is opaque/ not sheer/ see through (1) to maintain modesty (1) • Different properties can be applied to the two layers (1) e.g. waterproofing outer and insulating lining/ protects wearer (1) • Aesthetic appeal(1) value increased/desirability/ neatening (1) 	(2)

Question Number	Answer	Mark
<p>14 (d) 1.6 modern & smart materials QWC</p>	<p>Discussion to address the following advantages and disadvantages: for example, light weight, hands free, mobility, safety, access, sensing , detecting</p> <p>Advantage</p> <ul style="list-style-type: none"> • Entertainment value to be gained from MP3 to relieve/ reduces boredom, • Communication technology, e.g. mobile, internet/ will keep people in touch, entertained & informed • Medical benefits including monitors e.g. temperature or heart monitor, blood pressure/ allows for mobility, increases health and independence as patients no longer have to be hooked up to stationary equipment • Outdoor pursuits, GPS ensures that tracking of adventurers is possible, safety • LEDs, lights add aesthetics and entertainment, possibly safety when outdoors • Batteries can be charged by reconvertng energy from activity/renewable sources <p>Disadvantage</p> <ul style="list-style-type: none"> • Expensive due to new technology • Not always reliable - conditions have to be right • Not very robust can be easily damaged (abrasion/impact/liquid spillages) • Susceptible to extreme conditions (temperatures-hot/cold) • Might shorten potential life of product if electronics pack up • Person becomes reliant on technology and so might not learn/pass on skills/techniques for survival • If product fails reliability can lead to severe consequences e.g. reduction of: medical benefits/GPS <p>Give credit for named or described device that can be embedded into fabric or incorporated into clothing.</p>	<p>(6)</p>

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