OCR
Oxford Cambridge and RSA

GCSE

Design and Technology: Textiles Technology

Unit **A575**: Sustainability and technical aspects of designing and making

General Certificate of Secondary Education

Mark Scheme for June 2017

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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These are the annotations, (including abbreviations), including those used in RM Assessor, which are used when marking

Annotation	Meaning
BP	Blank Page – this annotation must be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
L1	Level 1 – to be used at the end of each part of the response in the margin
L2	Level 2 – to be used at the end of each part of the response in the margin
L3	Level 3 – to be used at the end of each part of the response in the margin
REP	Use when additional response seen, but is restating the previous point
SEEN	Not to be used on questions 1-15. Noted but no credit given - to be used to acknowledge additional answer sheets or when an answer has been seen, but warrants no marks.
	Correct - Ticks must be used to show where a mark has been awarded. Marks awarded must be equal to the number of ticks show. (This does not apply to banded questions).

5x1			Answer	Marks	Guidance
1			**A**: Light	1	
2			**B:** Fixed quantities of garments	1	
3			**C:** Coal mine	1	
4			**A:** Fails after a certain time period	1	
5			**D:** Carbon offsetting	1	
6			Eco Design	1	Only correct answer.
7			Tertiary	1	
8			Kite (mark) / British Standards (Institute) / BSI	1	
9			RFID Tags	1	Only correct answer
10			Life Cycle	1	Spelling does **not** need to be correct to gain a mark.
11			True	1	
12			False	1	
13			True	1	
14			False	1	
15			True	1	
16	(a) (i)		**Two** functional design features of the fabric cushion seating. One mark each: • hardwearing/durability • binding/ piping • washable/ easy to clean • padding • comfortable/ comfort • biodegradable/ recyclable • fit/ size/ width • waterproof • zip/ fastening	2	
16	(a) (ii)		**Two** aesthetic design features of the fabric cushion seating. One mark each: • colour • pattern/ logo/ design • binding/ piping on the edges • fashionable/ appealing/ individual/ unique/attractive/ looks nice/ style	2	Do not accept zip or reference to seams.

			• texture/ woven/ silky/ smooth/ soft		
16	(b)		Give **two** reasons why a consumer chooses to buy Fairtrade products. One mark each: • raises profile of Fairtrade companies/ trustworthy label • supports workers in 3rd world countries: fair wages/ sets a fair price for the product • safer working conditions/ no sweatshop conditions/ good working environment/ no exploitation of workers' rights • community support for workers: housing/ education • encourages local production of raw materials/ natural materials • encourages moral buying/ ethical source/ worldwide charity • highlights awareness of social differences in workers • no child labour	2	Do no credit reference to environmentally issues.
16	(c)		State **two** renewable energy sources: • wind • solar/ sun • sea/ ocean/ tidal/ hydropower/ water • biomass (plants) • geothermal • methane		
16	(d)		Any **two** points from each section (3x2) 6 marks on total. The fabric cushion seating is to be updated to appeal to the teenage market. The fabric cushion seating must show: • **Easy to carry and store when not in use.** The design could show: o storage features: fastenings to fold up seat pads, these could include Velcro, fabric ties, press studs, elastic, and flap to fold	6	Information must be in notes or annotation. Marks awarded for: • ease of carrying and storage features, • decorative • construction details. Do not credit reference to storage in a plastic bag

			over and hold pads together. ○ carrying features - different straps/ handles. ○ cushion case /attached/ separate/ make into bag to store cushions in. ○ size dimension/ small easy to store ○ shape: stackable/ interlocking/ able to fold • **Decorative** The design could show: ○ method of adding colour stated - tie dye/ screen printing/ digital fabric printing/ batik / transfer printing/ block printing ○ surface decoration: appliqué/ embroidery/ top stitching/ quilting/ patchwork/ smocking ○ characters for a logo/ all over design/ pattern ○ edge finishing methods – frills/ tassels/ lace/ ribbon/braid. ○ colour- reference to named or shown(shaded) • **Construction details** The design could show: ○ seams ○ hems ○ disposal of fullness methods - gathering, pleats, darts ○ fabric/ materials/ fibre ○ waterproof/ stain proof finish ○ pocket/ drinks holder (must be on cushion not the chair)		**Decorative:** (do not credit reference to piping/ bias)
16	(e)	*	Customers often tire of textile products before they reach the end	6	**Level 3 (5-6 marks)**

			of their life span. Discuss ways in which textile products can be given a new lease of life. Points to consider: • re-selling: car boots/ rummage sales/ ebay/ gumtree • donating: charity shop/ organisations/ charity bins/ charities abroad • passing onto friends/ family/ • up-cycling and new fashion shops - vintage trend scene • re-making/ modelling of products to create new ones • re-dyeing and embellishing, through addition of appliqué , beading, stitching techniques • repair • inclusion of recycling techniques like rag rugging, weaving • find use for waste fabric – patchwork bundles for (use, re-sale ...) • reusing fibres • reusing components		A thorough discussion and understanding of the many ways in which products can be recycled or reused to give them a new lease of life. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate will demonstrate the accurate use of spelling, punctuation and grammar. Specific examples such as good quality, unwanted socks can end up as yarn. Textiles recycled and made into insulation, stuffing. **Level 2 (3-4 marks)** A sound discussion and understanding of the many ways in which products can be recycled or reused to give them a new lease of life. There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured format. There may be occasional errors in spelling, grammar and punctuation **Level 1 (1-2 marks)** Some basic examples of recycling with limited examples. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised or 'list like'. Errors of grammar, punctuation and spelling may be intrusive. **0 = no response worthy of credit**
17	a		Woollen felt fabrics are made by causing the scales on the wool fibres to become tangled and interlocked, making the fibres stick together to form the fabric. • washed: the wool fibres are treated with an alkaline/ soap/ chemicals solution soap • heated (or washed in hot water)	3x1	Information can be just in the notes or just in the diagrams, do not credit twice. Can be an industrial or craft/ hand method. Do not credit just 'water'.

			• pressure and mechanical action (rubbing) causes the fibres to stick together/ use of felt press • Needle felting could be given as an answer. Special needles that are used and are 'barbed' needles. They have notches along the shaft of the needle that grab the top layers of fibres and tangle them with the inner layers of fibres as the needle enters the wool. Since these notches face down towards the tip of the needle, they do not pull the fibres out as the needle exits the wool. Once tangled and compressed using the needle, the felt can be strong. Use of embellisher		
17	b		Incorrect sewing machine stitch - any **one** correct point: • incorrect tension • top tension too tight • bottom/ bobbin tension too loose • bobbin incorrectly threaded/ incorrectly inserted • machine incorrectly threaded • different threads top and bottom • incorrect thread for fabric • incorrect needle for fabric	1	Do not accept reference to incorrect stitch.
17	c		Name **two** other tools or pieces of equipment needed to make the felt toys. Any two: • scissors/ rotary cutter/ shears • pins • needles • iron/ ironing board • unpicker • tape measure/ ruler • tailor's chalk/ marker pen/ tailor's pencil • thimble • embroidery ring.	1	Do not accept overlocker

17	d		Electrical safety checking on a sewing machine – any three points: • check for 'green' safety check sticker/ PAT tested • check for CE label • check for BEAB mark • check flex/ lead/ cable for cuts/ twists/ bare wires/tangles • check plug is not cracked/ damaged • check machine case is not damaged • check correct fuse is in the plug • check socket is not damaged/ faulty • check the foot control/ pedal is not cracked or broken • check no loose wires/all wires are secure/ wires on show	3x1	Answers must relate to **electrical** safety. Do not credit reference to safe use/ setting up correctly. Do not credit correct voltage. Do not credit reference to light bulb not working/ broken.
17	e		Explain the **advantages** of using non-woven fabrics, like felt, when manufacturing textile products. Points to consider: • fabrics are usually made directly from fibres, reducing the number of manufacturing processes. • less expensive to manufacture • quicker to manufacture- fewer stages e.g. no neatening • as these fabrics do not have a grain line, pattern pieces can be placed in any position/ tessellated on the fabric avoiding waste material • the edges do not fray so seam allowances can be reduced, reducing the amount of fabric needed/ no warp/ weft • edges do not need neatening, removing a making stage • these fabrics can be made from recycled materials • can be moulded into shapes for hats etc. • stable fabric so easier to handle These characteristics reduce manufacturing costs, reduce manufacturing time and are good for the environment.	6	**Level 3 (5-6 marks)** A thorough explanation and understanding of the advantages of using non-woven fabrics, like felt, when manufacturing textile products. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate will demonstrate the accurate use of spelling, punctuation and grammar. **Level 2 (3-4 marks)** A sound explanation and understanding of the advantages of using non-woven fabrics, like felt, when manufacturing textile products .There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured format. There may be occasional errors in spelling, grammar and punctuation **Level 1 (1-2 marks)** A basic understanding of advantages of using non-woven fabrics, like felt, when manufacturing textile products . There will be little or no use of specialist terms. Answers may be ambiguous or disorganised or 'list like'. Errors of grammar, punctuation and spelling may be intrusive. **0= no response worthy of credit**
18	a		Describe, using notes and/or diagrams, how to work batik Any **six** in a logical order:	6	The information can be presented in the notes or

			• wash fabric • prepare dyebaths • heat/ melt wax • put fabric in a frame/ hoop/ embroidery ring • mark design onto fabric • apply wax • use a tjanting tool • crack wax to create pattern • place in dyebath/ paint/ apply dye and leave for the recommended time - start with the lighter colours first. • remove from dyebath and allow to dry • apply the next layer of wax • put into the next colour dyebath and leave for the recommended time • repeat cycle until all colours have been applied • to remove wax, place the fabric between two pieces of absorbent paper • iron/ heat press to melt the wax – it will be absorbed by the paper • wash in hot soapy water to remove the rest of the wax.		diagrams, but do not credit the same information twice. Accept alternative methods which would work. Credit drawing of a tjanting tool if not named. For example, cover all of the fabric in wax and then scrape off areas before placing the fabric in the dyebath. This can be repeated to create a multi coloured design. Accept industrial methods where the wax may be printed onto the fabric. Method of removal of wax must be described as on mark scheme.
18	b		Explain **two** advantages of using the batch production system to manufacture the batik jacket. • it is flexible and easily changed - to meet the demands of the target market/ consumer/ keep up to date • batches can be repeated as many times as required -if the product sells well, more can be made • if a retailer buys a batch of a product that does not sell, then the producer can cease production without having to sustain huge losses • batch production is also useful for a factory that makes seasonal items, products for which it is difficult to forecast demand • can save on storage due to products being ordered as	2+2	One mark for a basic statement or fact, and additional mark for a detailed explanation / reason. Quick, easy, cheap must be qualified and can only be credited **once** each.

			required • bulk buying of materials and components is possible making production costs relatively inexpensive • a variety of textiles items can be manufactured on the same production line allowing manufacturers to produce more than one product • workers can specialise along a production run improving quality, improving speed • workers have access to more flexible working conditions and training needs - this leads to a well-motivated, well trained work force		
18	c		Name the pre-manufactured components: • thread • elastic/ ribbon/ tape • toggles	3x1	Do not accept measuring tape Do not accept elastane
18	d		Give **two** pieces of information you would expect to find on a label in the batik jacket. Any two, one mark each: • washing instructions • size/ age range • colour • manufacturer/ logo / Fairtrade • country/ origin of manufacture • fibre content/ materials used • special finishes • flammability • recyclable/ recycled fabric/ eco label	1+1	Only credit **one** reference to care instructions.
19	a		A pre-school requires a set of aprons for the children to wear	6x1	Features must be labelled/ annotated to gain marks

			when taking part in craft activities. **A logo for the pre-school shown** one mark only - no additional marks available for this specification point. Position or placement of logo shown on apron. **Protect the children's clothes** one mark for: • sleeves drawn/ comment about the length of the apron/ front and back fastened at the side to cover all of the clothes /tabard drawn / high collar drawn. **Be easy to put on and take off** one mark for: • ties Velcro, zip, buttons, poppers at the sides on tabard style/ elasticated or Velcro at the cuffs/ large neck opening or elastic/ opening at the back/ shoulder opening with fastening. **Be suitable for children aged 18 months to 3 years** one mark for: • bright colours to appeal to young children/ decorated with popular characters from TV, cartoon, film characters/ suitable design for child / made to look like a dressing up outfit/ adjustable size or length/ ties or elastic at end of sleeve to make adjustable. **Additional marks** up to a maximum of **two** can be awarded for the following: • fibre or fabric named • wipe clean/ easy to wash / water or stain proof • pockets • construction techniques such as seams, hems • decorative techniques such as printing, appliqué, quilting, patchwork		except for. To gain full marks, candidates must address all **four** specification points. The additional two marks can come from either a second explanation of a specification point or from the list of additional marks. **NB to gain full marks candidates must address all four specification points.** To include safety issues as the product is designed for small children; no long ties etc.
19	b		**Process for computerised sewing machine** **Prepare Machine**	5x1	**Prepare machine –** do not credit just 'set up machine'

			Any one: • programme/ input data/ download data/ USB/ SD card/ choose stitch/ transfer design to machine/ scan/ size design/ connect machine to computer/ thread machine/ choose thread/ choose colour. **Prepare fabric** Any one: • mark position of motif on apron/ reinforce fabric/ use of stabiliser/ interfacing/ stitch and tear/ put in hoop/ frame/ embroidery ring. **Working** Any one: • position apron under machine/ start machine/ press 'start'/ sew/ monitor machine/keep an eye on it/ change colour as necessary. **Finishing** Any one: • remove apron from machine/ hoop/ / remove stabilizing material/ press/ cut threads **Quality Control** Any one: • check correct colours have been used/ sections of stitching match/ no missed/ loose stitches / no stabilising fabric left/ logo is straight/ lined up in correct position on apron/ logo is matched to design/ no fabric caught/ no loose threads		Some stages could fit into more than one box. Credit correct answers but do not credit repeats of information.
19	c		Give **two** examples of how microencapsulation can be used in textile products. **Underwear** – fabrics scented with fruity smells, lavender or calming scents and moisturising oils/ fragrances/ perfumes. Masculine scents can be used for men's underwear with smells such as musk and sandalwood.	2x1+1	**ONE** mark for naming a specific product type (underwear, medical, toys, sportswear…) or a specific individual item (bra, bandage, sock…) and **ONE** mark for the use of microencapsulation.

			Medical industry – antiseptic capsulated products such as wound dressings, bandages and medical stitches. Also medical and hospital garments to absorb moisture. **Children's wear** – vests for children with sensitive skin can be encapsulated with moisturisers and oils. Swimwear can be encapsulated with sun block to prevent sunburn. **Sportswear** – socks and sports clothing can be encapsulated with chemicals to repel odour or fungal infections. **Household Textiles** – bed linen can be encapsulated with lavender or camomile to aid relaxation and rest. **Childrens toys-** scented with lavender to help them sleep, antiseptic capsulated products **Novelty items** – eg T shirt with a screen printed image encapsulated to give off a smell of chocolate.		Microscopic capsules containing beneficial substances are applied to yarns or fabrics. These substances are released gradually through abrasion when the product is in contact with the skin. Substances include: vitamins, oils, antiseptics, aromatic chemicals, moisturisers, antibacterial chemicals. The effect will last for quite a time and products can be washed as normal. Medical products can be designed to release the substance over a set period of time.

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