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 2016

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

These are the annotations, (including abbreviations), including those used in scoris, 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
L2	Level 2
L3	Level 3
SEEN	Noted but no credit given
	Tick

Award No Response (NR) if:

- There is nothing written in the answer space
- There is a comment which does not relate to the question being asked (e.g. can't do, don't know)
- If there is any sort of mark which is not an attempt at the question (e.g. a dash, a question mark).

Award Zero '0' if:

- There is any attempt which earns no credit. This could, for example, include the candidate copying all or some of the question, or any working which does not earn any marks, whether crossed out or not.

Question			Answer	Marks	Guidance
1			**C** Protect the environment	1	
2			**B** Ethical Trading Initiative	1	
3			**B** This product can be recycled	1	
4			**D** Kevlar	1	
5			**A** Oil	1	
6			Wind, hydro, solar, geo thermal, tidal, methane	1	
7			Recycle/ Re use	1	
8			European eco label / European eco-friendly / European eco	1	
9			Product life-cycle/ life- cycle/ life-cycle analysis	1	
10			Control of substances hazardous to health	1	All words must be correct. Spelling does **not** need to be correct to gain a mark.
11			False	1	
12			False	1	
13			True	1	
14			False	1	
15			True	1	

Question			Answer	Marks	Guidance
16	(a)		Any **three** points, one mark each: • hardwearing / durable / strong / long lasting • washable / easy to clean / easy to wash • stable fabric/ not stretchy • can be dyed easily / printed / coloured easily • sustainable fibre • cheap / inexpensive • biodegradable / recyclable. • Lightweight/light to carry	3	Answers can relate to the performance characteristics of cotton fibres or woven fabrics. Reference can be made to sustainability issues. Do **not** accept 'environmentally friendly', flexible, absorbent, breathable, dries quickly, soft, not just 'light' .
16	(b)		Any **three** points, one mark each: • increased profits/ reduces selling price of product • helps the country develop • Fairtrade considerations e.g. workers / health/ community / safety • increases jobs in the country / provides income / jobs for poor people • use skills / techniques of that country / facilities of that country • nearer to raw materials / wider variety of resources / cheaper resources • factories can be opened for 24/7 / longer working hours • cheap labour costs • product becomes more accessible to other parts of the world/ wider market • fewer Health and safety regulations so cheaper • cheaper land for factories • tax incentives	3	Do **not** accept 'cheaper' unless qualified. Do **not** accept faster/quicker unless qualified. Not reduce carbon footprint, less pollution, Do not credit reference to promoting the company abroad. 'Costs less to produce' has to be qualified. Not just cheaper to manufacture without explanation.

Question			Answer	Marks	Guidance
16	(c)		**Six** points**, two** marks from each section: **Educational any two:** • numbers /lettering • colours shown or named • weather • time • animals • interactive activity **Appealing to 5-9 age group any two:** • method of adding colour stated: tie dye, dyes, printing, batik, stencilling • method of embellishment: appliqué, quilting, patchwork, embroidery (hand or machine) • flap/ detachable/ added to top of bag • pocket/s or compartment / pouch added. **Design and construction details any two:** • seams • hems/ edge finishing methods • disposal of fullness methods- gathering, • different straps/ handles / drawstring. • fastenings: buttons, poppers, zip, toggles drawstring, clips, Velcro • measurements •	6	Information must be in notes or annotation. Credit information in drawing and/or annotation/ label. Colours must be specified, not just 'bright' or 'colourful'.
16	(d)		Any **two** points, one mark each: • give to a friend or relative • charity shop • recycling bank • car boot/ jumble sale • reusing it for storage/ rubbish • selling via newspapers or internet websites • sending it abroad/ clothing bank.	2	Answers must relate to primary recycling. Do not accept re-use on its own. Re-use must give an example.

Question			Answer	Marks	Guidance
16	(e)	*	Ways that a manufacturer can ensure that production is environmentally friendly. Points to consider: • reducing energy use – switching off lights, heating, machines when not in us • use of energy efficient machinery • recycle heat • good insulation • using renewable energy sources such as solar, wind, hydroelectric, tidal, geo thermal • use of natural/ sustainable fibres/materials/resources • avoid waste fabric – good lay planning / use of CAD CAM • good planning on how much fabric to buy • find use for waste fabric – patchwork bundles for public • good quality control to avoid 'seconds' or throwing • substandard products away • recycle water in the system • treat water before releasing – avoid chemicals or toxic waste release • reduce chemicals / bleaches in the system • use of enzymes or alternative methods rather than chemicals • carbon offsetting: replanting/replacing • carbon footprint: less Co2/ carbon dioxide emissions/pollution into atmosphere • eco label NB reference to transport or packaging **not** credited as the question asks for 'production processes'.	6	**Level 3 (5-6 marks)** A thorough understanding of production processes used when manufacturing textile products and the changes that can be made to these to make them more environmentally friendly. 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 understanding of the basic production processes used when making a textile product. Some changes to work practices suggested. 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 changed that could be made to production processes to reduce their impact on the environment. 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** **Do not credit recyclable or reference to biodegradable. Answer is referring to the production process**

Question			Answer	Marks	Guidance
17	a		Any **two** points, one mark each: • natural muted colours • reduces cost/ less expensive / cheaper • no allergies from use of chemicals in dye / no chemicals • can be organic • allows the stitch and texture of yarn to be seen more clearly. • Reduces pollution • Dye does not stain clothing / rub off onto clothes	2	Do not accept 'more environmentally friendly' or biodegradable or eco-friendly.
	b	i	Warp knitting ✓	1	
	b	ii	Any **three** points, one mark each: • elastic/ stretchy • keeps shape well / does not change shape • warm • crease resistant • absorbent.	3	
	c		**One** mark for any correct finish **Two** marks for quality of explanation. **Water repellent / proof finish** Silicon based chemicals sprayed onto product/ fabric/ this can be re applied. Process can increase the life of a product and reduce the need for cleaning. **Flame proofing** Chemicals (proban) applied to slow down or prevent burning. Conforms to safety regulations for furniture. **Stain resistant/ Scotchguard** Aa silicon based finish applied to stop the absorption of water or dirt. Reduces the need for cleaning.	3	Not 'crease resistant', anti-bacterial' or 'brushing'. If no finish is given, mark the explanation – maximum of two marks. If a finish is given, the explanation must relate to the finish given. Accept any named specific finish e.g. Scotchguard, Proban, Teflon.

Question			Answer	Marks	Guidance
			Anti-felting A treatment to stop the wool scales to stop them pilling. Appearance is improved and lasts longer. **Anti-pilling** Treated with a polymer, enzyme or solvent to prevent the formation of 'bobbles' on the surface of the fabric. Keeps the fabric looking good and extends its life span. **Moth proofing** Chemicals applied to the fabric to make it inedible to moths. Protects the life span of the product/ fabric. **Rot Proofing** Protects the fabric from organisms that destroy organic substances such as natural fibres. Prolong the life and appearance of the fabric.		
17	d*		A discussion of the **advantages to a manufacturer** of making a prototype. A prototype is an early sample to simulate the final design, aesthetics, materials and functionality of the intended design. Answers may include advantage's or reference to: • a life size working sample of a design used for testing and development and evaluation- check its meets the specification. • industry may use virtual prototypes generated on the computer allows the product to be seen in 3D • prototypes can be shown to clients or the target group to get feedback on the design to improve it – boost profits • test manufacturing methods and amend as necessary to ensure trouble free production saving time and money see how easy it is to make, highlights any problems / dangers when making / check correct methods used to make it.	6	**Level 3 (5-6 marks)** A thorough discussion of the advantages of a prototype to the manufacturer with examples of some or all of the relevant points. 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 discussion of the advantages of a prototype to the manufacturer with one or two examples. 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)**

Question			Answer	Marks	Guidance
			• check pattern works – that the pieces fit together properly to create the product. • costings can be calculated for materials, labour and profit margins • can compare with street prices • can test for sales appeal in market research, exhibitions and ready to wear shows – makes sure product is a success saving time and money • products that are unsatisfactory can be re-worked modifications made to the design, improvements • amounts of fabrics can be calculated • fabric choices can be tested • production can be planned to make best use of time and resources, increasing efficiency and profit can see how long it will take to make • quality control can be devised.		A basic discussion with little or no reference to any details. 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		**One** mark for correct name of fastening **One** mark for naming a different correct textile garment for the fastening. **Name of Fastening** 1.Parachute clip/ clip fastener - accept just 'clip' 2.Hook and Eye – must say both 3.Velcro **Naming of textile garment:** **Credit any correct product e.g.** 1. belt, trousers, waistcoat, jacket, helmet 2. skirt, top, coat, bodice, bra 3. top, jacket, apron, shoes, trainers	6	Do **not** award marks for repeat of a textile garment – the question asks for **different** garments.

Question			Answer	Marks	Guidance
	b		Any **six** points in a logical order. Information can be in notes or diagrams. • reinforce areas where buttonholes are to be worked / double thickness /two pieces of fabric • edges of shirt front must overlap at least the diameter of the button • select button before the buttonhole is made / check button fits hole • buttonhole length needs to be the diameter of the button/ larger/plus 2mm • some machines have automatic button holes / description of process – wider zigzag at ends for bar tack, narrower at sides • electronic machines 'remember' the size of the buttonhole and will stitch them all the same size • mark positions / refer to pattern piece / use of tailor tacks / tailors pencil / even spacing / at least the radius of the button from the edge of the fabric • details of how to set up machine to stitch buttonhole / select buttonhole stitch/ set machine to zigzag stitch • use of buttonhole foot/ change machine foot • cut buttonhole after stitching/ using unpicker / buttonhole scissors. • reverse stitch/cut loose threads/ press	6	6 x1 Do not credit 'machine stitch buttonhole' unless explained / qualified – question gives that the buttonhole will be machine stitched. Information can be in notes or diagrams but do not credit the same information twice. **Do not** credit reference to just Zigzag stitch, must relate to the setting up of the machine stitch setting.

Question			Answer	Marks	Guidance
	c		Any **three** quality control checks, one mark each: • no incomplete stitching • no loose stitching / no loose threads • correct sizing / sleeves / leg length • check components are working • components secure/ not loose/ correct size • no broken needles/ metal in garment • completion of garment labels attached • conforms to labelling requirements. • Fabric has no holes / faults / stains or marks • No tucks / catches / folds in fabric	3	Not 'check seams are strong or 'stitching straight on seams'.
19	a		The bib shorts are made from a blend of Nylon/Polyester and Elastane fibres. State **one** advantage of this fibre blend for the bib shorts. • stretch/stretchy / easy to move in • streamlined/ body hugging • easy care • durable • crease resistant • absorbent	1	Do not credit 'cool' or 'breathable'.
	b		Any **four** points, one mark each: • longer legs/ cuffs warmth/protection / socks • lined with a suitable fabric/ removable lining • reflective strip/ stripes- safety/ high visibility • waterproof /wind protection • reinforced stitching/taped seams • pockets to attach clips/ lights • sleeves/ cuffs detachable gloves • ventilation areas • padding around bottom area for added warmth • higher neck / neckline / back / collar / filled in side panels • add a hood • abrasion resistant finish – D30	4	Marks to be awarded for sketches and/or notes. Do credit changes to the fibre / fabric. Do not credit wearing another garment with the bib shorts.

Question			Answer	Marks	Guidance
	c		**Describe three ways in which smart materials can be used to enhance performance characteristics of modern sportswear.** **Three** descriptions, **two** marks each. • Fastskin – used in swimsuits to simulate the texture of sharkskin. Increases speed by reducing drag through water. • Smart-shape memory alloy – returns garments to original shape after washing. • Nanotechnology: silver – odour control- fungus/ threads/ resistance to abrasion/ healing properties • Anti-bacterial/ anti-fungal- smell/ anti-allergy- sports socks • Micro encapsulation- comfort providing chemicals/ reduces body odour/provides vitamins/reduce skin irritation • Electronic/ soft switch – heat pads/ phone/ iPod/ gps/ temperature control, allows keeping in contact and updated positioning of whereabouts/ emergency help contact / lights to make wearer visible • Phosphorescence / Chromatic /luminescent glow in the dark dyes safety when out running/cycling etc • Photo chromic/ thermochromic threads/ change colour when with light / heat, show UV exposure heat loss/ temperature gain. • D30 – a layer that is directly applied to fabrics for impact protection. www.d30.dupont.	3x2	3x2. Three descriptions, two marks each. One mark for identification of smart materials and one for the description.

Question			Answer	Marks	Guidance
19	d		**Describe two advantages to the manufacturer of the JIT manufacturing system.** JIT =Just in time- stock management • Materials/ Components delivered when needed- no money tied up in stock/ storage • Less space is needed for storage- factory space minimised. • No money wasted on surplus stock- less risk of stock becoming obsolete. • Short production runs- easier to stop production and change to another item. • Less financial outlay- less cash outlay in materials/storage. • Production mistakes can be spotted more quickly and corrected. • Lower production costs as no surplus produced-stock will not go out of fashion.	2x2	Two descriptions required, two marks each.

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