

Design & Technology (Textiles Technology)

General Certificate of Secondary Education **GCSE J307**

General Certificate of Secondary Education (Short Course) **GCSE J047**

Mark Schemes for the Units

January 2010

J047/J307/MS/R/10J

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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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A572 Sustainable design

Question			Expected Answers	Rationale	Marks
1			D	Metal is a non renewable resource	1
Total					[1]

Question			Expected Answers	Rationale	Marks
2			C	Polyester is the fibre not found in eco friendly fabrics	1
Total					[1]

Question			Expected Answers	Rationale	Marks
3			C	Smart materials can be found in medical textiles	1
Total					[1]

Question			Expected Answers	Rationale	Marks
4			B	Taking a product apart is called Product Disassembly	1
Total					[1]

Question			Expected Answers	Rationale	Marks
5			A	Adding design features to make a product outdated is called Planned Obsolescence	1
Total					[1]

Question			Expected Answers	Rationale	Marks
6			<ul style="list-style-type: none"> Hand wash/hand washing only/wash by hand 	Not wash hands	1
Total					[1]

Question			Expected Answers	Rationale	Marks
7			<ul style="list-style-type: none"> Re-used 		1
Total					[1]

Question		Expected Answers	Rationale	Marks
8		<ul style="list-style-type: none"> Primary research of existing products 	Finding info about products/to check against safety standards/taking apart to see how it is made	1
			Total	[1]

Question		Expected Answers	Rationale	Marks
9		Carbon footprint	1 mark	1
			Total	[1]

Question		Expected Answers	Rationale	Marks
10		<ul style="list-style-type: none"> Bio degradable 	1 mark	1
			Total	[1]

Question		Expected Answers	Rationale	Marks
11		True	1 mark	1
			Total	[1]

Question		Expected Answers	Rationale	Marks
12		True	1 mark	1
			Total	[1]

Question		Expected Answers	Rationale	Marks
13		True	1 mark	1
			Total	[1]

Question		Expected Answers	Rationale	Marks
14		False	1 mark	1
			Total	[1]

Question		Expected Answers	Rationale	Marks
15		False	1 mark	1
			Total	[1]

SECTION B

Question	Expected Answers	Rationale	Marks
16 (a)	<p>SUSTAINABLE</p> <ul style="list-style-type: none"> • Animals – alpaca, camel, Llama, goat, sheep, horse, rabbit • Can be sheared without harm • Will all re-grow their coats/fleeces again • All are produced without harm to the environment <p>RECYCLABLE</p> <ul style="list-style-type: none"> • The wool can be reused to make another product • The jumper can be taken to a charity shop/passed onto a friend or relative • Given to a third world country • Wool unwound/re spun/shoddy fabric <p>BIODEGRADABLE</p> <ul style="list-style-type: none"> • Natural fibres • Decomposition, rot • Not harmful to the environment/eco-friendly/without chemicals • Life cycle process 	9x1 mark 3 marks for each sub heading	9
16 (b)	<ul style="list-style-type: none"> • Safety issues e.g. non toxic materials/disposal of waste. • Waste– reduce– re– use– recycle– • Pollution – air, soil, water, factory • Emitting greenhouse gases/carbon dioxide, global warming • Energy consumption – electricity, alternative sources of power. • Bio technology – enzymes used together, bio stoning when dyeing. • Chemicals used and stored. Legal requirements 	2x2 mark TWO marks for each section – risk+ explanation	4

Question		Expected Answers	Rationale	Marks
16	(b)	<ul style="list-style-type: none">• Harmful substances/waste dangerous to wildlife/humans• Using up natural resources/plants so less available		
16	(c)	Name the two symbols: <ul style="list-style-type: none">• Toxic/poisonous/dangerous• Harmful/hazardous/irritant	2x1 mark	2
Total				[15]

Question			Expected Answers	Rationale	Marks
17	(a)	(i)	<ul style="list-style-type: none"> • Old clothes/garments • Fabric from household items – • Accessories – bags/hats/scarves 	1x1 mark NOT – leather/bottles/paper etc without reference to a product Fastenings/can ring pulls... acceptable if possible to construct a belt – accept innovative ideas.	1
17	(a)	(ii)	<ul style="list-style-type: none"> • Cost • Availability of product/materials • Eco friendly/reduces global warming/not ending up in landfill • Individuality/creativity/uniqueness/fashionable/trendy • No new materials used/less wastage/saving energy 	2x1 mark Do not credit reuse Do not accept ‘it helps the environment’ it needs to be qualified	2
17	(b)		<ul style="list-style-type: none"> • Recycle – material, product, disassembly. • Reduce – production process, costs, emissions, wastage materials, dyes, transport, life cycle. • Refuse – use of sustainable materials, biodegradable. Materials we should refuse to use. • Re think – materials & components used purpose of product. • Repair – mending, sewing, fixing products 	2x2 mark 0 mark for the 5R mentioned – marks are for description 1 mark for brief description 2 marks for a detailed description Two separate Rs needed for four marks Do not credit re-use Accept reference to carbon footprint/transport	4

Question		Expected Answers	Rationale	Marks
17	(c)	<p>Functional Description of a belts function – hold up trousers, to fit better Comfort of wear/lightweight Storage/attachment of items e.g. keys/money Safety issues – keeps item of clothing in place/keeps shirt in Adjustability – lots of holes in belt Unisex Pockets – hidden or visible – money Size of buckle – large, easy to fasten</p> <p>Aesthetic The look/appearance of the belt – reference to words/images shown on belt – uniqueness Style of belt – waist, hip, tie Fashionability of belt Properties of the product – colour, texture, decoration, pattern Components on the belt/buckle size Logo/brand name on belt. Fit – size/width</p>	<p>2x4 mark Is it fit/capable for its intended purpose/use?</p> <p>Accept one word answers</p>	8
Total				[15]

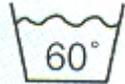
Question			Expected Answers	Rationale	Marks
18	(a)	(i)	Credit any relevant textile product	1 mark Do not credit just fabric or fibre – must be a product – accept jewellery	1
18	(a)	(ii)	<ul style="list-style-type: none"> • A non renewable energy resource comes out of the ground. • Fossil fuel – liquids, gases and solids – coal, oil, petroleum • Considered non renewable as they cannot be replenished/made again in a short period of time/not used again • Labour intensive • Runs out/does not last forever/no more left to work with 	3x1 mark Do not accept – something that cannot be used again unless qualified.	3
18	(a)	(iii)	<ul style="list-style-type: none"> • Wind turbines • Solar energy/sunlight/panels • Hydro/water power • Tidal/wave power • Geothermal 	1x1 mark	2
18	(b)		<ul style="list-style-type: none"> • Raw materials/Natural fibres/materials identified – where they came from/harvested.– sustainable/renewable source – natural dyes • Design process – no built in obsolescence • Use of recycled materials • Dyeing/colouring of fabric/non use of chemicals/natural dyes • Fastenings and components used. • Techniques and or methods identified including reference to manufacturing • Finishing processes • Care considerations/labelling/maintenance minimum washing 	4x1 mark Credit renewable source/sustainability as one mark only	4

Question		Expected Answers	Rationale	Marks
18	(b)	<ul style="list-style-type: none">• Transportation of product/carbon footprint• Packaging – labelling/not using plastic bags• Disposal – recycled/biodegradable.• Limit of wastage of materials• Manufactured and sold locally• Manufacture – use of energy source – renewable/how much used		

Question		Expected Answers	Rationale	Marks
18	(c*)	<ul style="list-style-type: none"> • Reduce the amount of water used in the system e.g. re-cycle • Reduce the amount of chemicals used in the system/use natural dyes. • Reduce the amount of energy used in the system e.g. re-cycle heat used, use energy efficient machinery, avoid wasting energy– windows open, ventilation systems, exits, working by hand. • Use enzymes rather than chemicals – less harmful to the environment • Use biodegradable chemicals – less harmful to the environment and its wildlife. • Regulate and reduce waste products – be more efficient • Remove chemicals such as dyes more efficiently from water and waste products • Reduce emissions into the atmosphere • Use alternative energy sources. Solar/wind power to reduce the use of fossil fuels. • More efficient and less use of packaging and labelling. • Transport issues/locally made, carbon footprint 	<p>Level 1 (0-2 marks) Basic description, showing some understanding of the manufacturing processes to protect and preserve the environment in the context of textile products. Can provide a description of some of the manufacturing processes. 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.</p> <p>Level 2 (3-4 marks) Adequate description, showing an understanding of the manufacturing processes to protect and preserve the environment in the context of textile products. Can provide a description of the manufacturing processes. 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.</p> <p>Level 3 (5-6 marks) Thorough description, showing clear understanding of the manufacturing processes to protect and preserve the environment in the context of textile products. Can provide three clearly different ways of improving using environmental considerations. 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.</p>	6
			Total	[15]

A574 Technical aspects of design and making

Question			Expected Answers	Rationale	Marks
1	a	i	<p>1(a) Any three points, one mark each:</p> <ul style="list-style-type: none"> • Strong/hardwearing/durable • Washable/hygienic/easy care • Not damaged by heat/will not melt • Stable fabric • Dyes/colours well to match kitchen • Twill weave shows dirt less than other weaves • Good resistance to acids and alkaline – food stuffs in kitchen • Reasonable resistance to bleach – hygienic <p style="text-align: right;">[1+1+1]</p> <p>(b) Twill weave [1]</p> <p>(c) Accept answers as diagrams <u>or</u> text. Mark answers in any box but must link to stage.</p> <p><u>Preparation of fabrics</u> – any two</p> <ul style="list-style-type: none"> • Mention of three layers, outer, inner and wadding • Place three layers together, RS facing out • Pin and tack layers together • Start from the centre and work out to edges • Make sure layers are smooth, no creases or wrinkles • Mark stitching lines with tailors pencil/chalk <p style="text-align: right;">[1+1]</p> <p><u>Preparation of machine</u> – any two</p> <ul style="list-style-type: none"> • Thread machine/set up with suitable colour • Increase stitch length • Change presser foot to quilting foot/attach quilting bar • Reduce pressure on presser foot/walking foot <p style="text-align: right;">[1+1]</p>		1

Question	Expected Answers	Rationale	Marks
	<p><u>Machine Stitching and finishing</u> – any two</p> <ul style="list-style-type: none"> • Stitch along tailor pencil lines/use quilting foot guide • Reverse at the start and end of each row • Use of embroidery ring • Start in centre and work out to edges • Remove tacking/pins • Cut loose threads <p>Press finished work lightly</p> <p>(d) One mark for each answer:</p> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="flex-grow: 1;"> <p>can be washed/hand or machine/max 60 degrees</p> </div> <div style="text-align: right; flex-grow: 0;"> <p>[1]</p> </div> </div> <div style="display: flex; align-items: center;">  <div style="flex-grow: 1;"> <p>can be ironed/hot iron/210 degrees</p> </div> <div style="text-align: right; flex-grow: 0;"> <p>[1]</p> </div> </div> <p style="text-align: right; margin-top: 20px;">Total [12]</p>		

Question	Expected Answers	Rationale	Marks
	<p>2(a) Any two, one mark each:</p> <ul style="list-style-type: none"> • Tailors chalk/pencil • Tailor tacks • Pins • Tracing wheel and carbon paper • Drill marker • Dye marker • Hot notcher <p>(b) One mark each:</p> <ul style="list-style-type: none"> • Straight stitch/running stitch • Zig– zag stitch <p>(c) Any two, one mark each:</p> <ul style="list-style-type: none"> • Concentrate/no distractions/keep children away/one person per machine • Keep fingers away from needle • Switch off when threading/keep foot away from peddle • Tie long hair back/secure loose clothing/apron/overalls • Reference to positioning of flexes • Check for damage/needle not bent/needle in correctly/no cuts in flex • Switch off when not using • Remove pins/place at right angles/pin head away from needle • Keep away from water/no wet hands/no wet fabric/no drinks near machine • Check for green sticker/safety check up to date • Don't go too fast/stay within your control <p>Not Check light works Correctly set up</p>	<p>[1+1]</p> <p>[1]</p> <p>[1]</p> <p>[1+1]</p>	

Question	Expected Answers	Rationale	Marks
	<p>(d) Any six points in a logical order, in notes or diagram form:</p> <ul style="list-style-type: none"> • Turn hem to inside • Correct amount/measure/check pattern piece • Pin/tack/press in place • Trim excess fabric/trim to suitable/even depth • Neaten raw edge/fold under again and press/use of bias or tape • Use of narrow hemming foot on machine/suitable hand stitch – herringbone/slip hemming • Stitch in place/straight stitch • Finish – trim loose threads • Press finished hem <p style="text-align: right;">[1+1+1+1+1+1]</p> <p style="text-align: right;">Total [12]</p>		

Question	Expected Answers	Rationale	Marks
	<p>3(a) Any two, one mark each:</p> <ul style="list-style-type: none"> • Free machine embroidery <ul style="list-style-type: none"> • Appliqué • Screen printing • Transfer printing • Computer controlled embroidery • Block printing • Batik • Hand embroidery <p style="text-align: right;">[1+1]</p> <p>(b) Two advantages explained, one mark for a shallow explanation, two for a detailed one:</p> <ul style="list-style-type: none"> • Intelligent tagging used to identify specific items for specific manufacturing depots – allows tracking of where the product was made – problems can be resolved • They are programmed with a unique identifier which describes the item, time, date and status information before the product is despatched to the store – manufacturer and retailer can store/access this information • Automated system – antenna is used to read the tags as the product arrives at the retailers and updates the stores computerised stock control system – reduces workload and removes human error – saves time therefore money • Checks can be made on the movement of the product within the store – or out of it – until the tag is removed – reduces theft and monitors stock – saving time and money and keeping a computerised record • Tag can be re-programmed and reused to reduce costs and be environmentally friendly. <p style="text-align: right;">[1+1 x2]</p>		

Question	Expected Answers	Rationale	Marks
	<p>(c) Level 1 (0-2 marks) Basic discussion, showing limited understanding. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised. Errors or grammar, punctuation and spelling may be intrusive</p> <p>Level 2 (3-4 marks) Adequate discussion, showing some understanding. There will be 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.</p> <p>Level 3 (5-6 marks) Thorough discussion, showing detailed understanding. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.</p> <p>Discussion might include reference to:</p> <ul style="list-style-type: none"> • Reduced storage needs/costs as stock is delivered when it is needed and not before • Helps manage and control stocks– less to be monitored • Capital not tied up in stock – production is quick so items sold soon after stock has been bought • Suppliers must be reliable – deliver materials on time so as not to hold up production • Raw materials must be of good quality – returns will leave the production line waiting for deliveries to work with • Effective and increases productivity, work performance, product quality <p style="text-align: right;">[6]</p> <p style="text-align: right;">Total [12]</p>		

Question	Expected Answers	Rationale	Marks
	<p>4(a) Marks allocated as follows:</p> <ul style="list-style-type: none"> • Some attempt made to sketch an idea but no annotation – 1 mark • Two sketches with no notes, or one sketch with notes – 2 marks • Two sketches with some reference to the specification – 3 marks • Two sketches with detailed notes relating back to the specification – 4 marks <p style="text-align: right;">[4]</p> <p>(b) A maximum of 8 marks to be allocated as detailed below:</p> <ul style="list-style-type: none"> • Colours indicated [1] • Measurements/sizes given [1] • Fastenings shown – sustainable [1] • Suitable decoration/motif/logo [1] • Pockets [1] • Fabrics (not fibres) indicated – sustainable [1] • More than one view shown, e.g front and back, close up details of an area [1] • Construction details given e.g. seams, hems, facings, lining, hems, finishing methods [up to 2 marks] • Decorative techniques given e.g. appliqué, screen printing, machine stitching, transfer printing etc. [up to 2 marks] • Reflection of healthy eating message explained [up to 2 marks] • Suitability of design for male and female staff explained [up to 2 marks] • Sustainability of materials explained [up to 2 marks] <p style="text-align: right;">[8]Total [12]</p>		

Question	Expected Answers	Rationale	Marks
	<p>5(a) One mark for a shallow explanation of the point made, two if detailed,</p> <ul style="list-style-type: none"> • Costs the company money in the long run – substandard products made which do not meet the specification, do not sell and have to be disposed of • More reworks costing time and money • Items may need to be sold at a lower price as ‘seconds’, costing the company money • Costs the company it’s reputation – known as a company that produces poor quality goods – loss of business • Rejects waste materials and components – not environmentally friendly • Image and reputation of the company lost as poor quality goods produced • Loss of customer base, dissatisfied customers, inconsistent product • Can’t gain accreditation from organisations such as British standards – suggests goods are not safe • Goods have to be sold at a lower price as poor quality • If materials not checked before production begins, manufacturing time wasted <p style="text-align: right;">[1+1 x 3]</p> <p>(b) Level 1 (0-2 marks) Basic discussion, showing limited understanding. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised. Errors or grammar, punctuation and spelling may be intrusive</p> <p>Level 2 (3-4 marks) Adequate discussion, showing some understanding. There will be 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.</p> <p>Level 3 (5-6 marks) Thorough discussion, showing detailed understanding. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.</p>		

Question	Expected Answers	Rationale	Marks
	<ul style="list-style-type: none"> • Availability of materials and components – buy up front or JIT • Tools and equipment available – are there any other orders in the factory at the same time? • Sequence of making needs to be decided – prototype – minimum time for maximum profit • Skills of the work force – will they need re-training? Enough people? Additional costs incurred • Number to be made – how much raw materials to buy and the best system for the amount • Costs incurred – wages, equipment etc • Time needed to make each unit • Computerised operations – can they be used? • Health and safety issues – safe working practices, protective clothing • Economical preparation of materials • Colour range – how many to make of each colour and whether to work simultaneously or one after another • Environmental issues – using environmentally friendly products, disposing of waste effectively, avoiding waste where possible, economical use of energy and water <p style="text-align: right;">[6]</p> <p style="text-align: right;">Total [12]</p>		

Grade Thresholds

General Certificate of Secondary Education
Design and Technology (Textiles Technology) (J047 J307)

January 2010 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	a*	a	b	c	d	e	f	g	u
A571	Raw	60	54	48	42	36	30	24	18	12	0
	UMS	120	108	96	84	72	60	48	36	24	0
A572	Raw	60	50	44	38	33	27	21	16	11	0
	UMS	80	72	64	56	48	40	32	24	16	0

Total number of entries for A571 were 7

Total number of entries for A572 were 583

There were no entries for A573 and A574

Statistics are correct at the time of publication.

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