



**General Certificate of Secondary Education
June 2010**

**GCSE Design and Technology:
Textiles Technology 45701**

Unit 1: Written Paper

Final

Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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- 1(a) (i)** They will need to know about:-
 What tools and machinery are likely to be available to the African workforce, African textile techniques, the fabrics and components that are likely to be available in Africa. Fair trade principles, existing fair-trade designs and which ones have sold well in the past. Budget, costs, and product price points. Research based on theme.

Marks awarded as follows:

No answer worthy of credit	0 marks	
3 different research areas,	1 mark each.	(3 marks)

- 1(a) (ii)** Two sketches to show different initial ideas for product. Candidates are not to be penalised if they do not use pencil. Candidates may have designed textile based products such as jewellery, shoes, garments, toys, hats, cushion covers, wall hangings, decorated picture frames or boxes etc. Any textile products are acceptable.

Marks awarded as follows:

No answer worthy of credit	0 marks
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Weak unimaginative idea, poorly presented. Little or no decorative technique detail shown, idea may have little appeal to consumers. Little reference to theme. May have little or no annotation to explain thinking. 1 mark each

A design that will appeal to the target market and that is inspired by the theme of Africa. Decorative techniques will be evident. Candidate will communicate ideas. Idea is fairly well presented with some annotation to explain thinking. 2 -3 marks each

A quality design that is highly creative and original. Inspiration taken from the theme of Africa. Thoughtfully selected decorative techniques will be included. Will appeal to those shopping for a Fair Trade type product. Candidate will communicate ideas very clearly with excellent presentation and annotation to explain thinking. 4 – 5 marks each

Design should be neat and clear for full marks. If both ideas are similar, mark first as it stands; alter second (1 -4 marks instead of 5). **(10 marks)**

- 1(a) (iii)** e.g. will appeal to shoppers who buy Fair Trade products because design features one or more African Textile techniques such as batik, block printing, appliqué, hand stitching etc, or product will promote the country and its people, will have a label to state fair-trade product. African inspired images/colours/shapes used, natural dyes used, features fabrics and components that are inspired by theme. Product is an original, creative design. Product has useful size/shape/pockets/handles etc. as well as decorative features. Looks like a craft product made by African workers.

Marks awarded as follows:

No answer worthy of credit	0 marks	
2 different reasons	1 mark each	(2 marks)

- 1(a) (iv)** e.g. products that promote the country and its people, made by African workers. Natural dyes used, features fabrics and components that are can be sourced locally, supports communities in developing country – Africa, African Craft workers will get employment, workers will get job security and fair pay with good working conditions, workers not exploited, benefits may include family support, education for workers’ children. Community support provided to make employment long term/ product sustainable. Environmentally friendly/sustainable materials and processes may be used, e.g. organic cotton.
Do not accept right amount of money.

Marks awarded as follows:

No answer worthy of credit 0 marks
1 mark for each different principle.

(2 marks)

- 1(b) (i)** Final design to include:

Use of African theme.

Marks awarded as follows:

No answer worthy of credit 0 marks

Little relevance to theme or it is used inappropriately. An existing design may have been copied. 1 mark

Thoughtful and/or imaginative use of theme which is totally appropriate for product. Little evidence that an existing design has been copied. 2 marks

(2 marks)

Originality and quality of the design.

The following should be considered:

Contemporary, creative, original and imaginative design, balanced composition/ effective use of space, effective proportions, appropriate for intended use, will the design work?

Use of decorative techniques and components that are in keeping with the fabrics selected.

Use of textile techniques that are suitable for fairtrade production for products to be made by African handicraft workers.

Marks awarded as follows:

No answer worthy of credit 0 marks

Unimaginative design with some thought given to intended end use though lack of detail. Relates to some areas of design brief but may not be clear, overall balance weak. Decoration added as an afterthought. 1 mark

Good design related to all aspects of design brief with clear detail about product. Design might lack some imagination but is likely to be popular. There may be some lack of clarity about materials and decorative techniques. 2 marks

Product will be highly creative and original and likely to sell well to the target market. Design clearly relates to all aspects of design brief. High quality and very imaginative design for product. Product will be suitable for African handicraft workers to produce. 3-4 marks

(4 marks)

1 (b) (i) Use of decorative techniques inspired by African textile techniques.

Contd

Marks awarded as follows:

No answer worthy of credit	0 marks	
One or more African inspired textile techniques are included in the design, but in a straightforward manner that has limited effectiveness and may not be appropriate.	1 mark	
One or more African inspired techniques used to good effect.	2 marks	(2 marks)

Use of colour

This is not about colouring in of the design idea. The following should be considered:

How has colour been used? Are the colours toning, contrasting, complementary?

Do they work for the product? Do they promote the African theme?

Marks awarded as follows:

No answer worthy of credit	0 marks	
Use of colour is immature and not used to effect.	1 mark	
Choice is used well but does not make product exciting.	2 marks	
Used effectively/imaginatively, mature and sensitive choice.	3 marks	(3 marks)

Use of appropriate African fabrics and components

Marks awarded as follows:

No answer worthy of credit	0 marks	
Perhaps a limited range of fabrics and components, these may be inappropriate for product, or might not reflect theme or what might be available to African workers.	1 mark	
Good choice of appropriate fabric and components, may not be a wide choice but used effectively, clear indication of what they are.	2 marks	
Candidate has a clear understanding of materials that reflect the theme or could be sourced locally by African workers, might be organic and sustainable. Imaginative choice of appropriate fabric and components, used effectively, clear indication of what they are.	3 marks	(3 marks)

Presentation

Marks awarded as follows:

No answer worthy of credit	0 marks	
Lack of care in presenting work, candidate will not communicate detailed information about product.	1 mark	
Candidate has taken care with presentation, quality of drawing and labelling and information about product is clear.	2 marks	(2 marks)

- 1(b) (ii)** Style altered/ shape simplified/ size reduced therefore less materials. Fewer decorative techniques/simpler or quicker techniques, still effective, but will take less time to make. Less expensive/less variety of fabrics and components. Accept recycling of fabrics and components. Do not accept answers which compromise fair trade principles, e.g. child labour, low pay, poor working conditions etc

Marks awarded as follows:

No answer worthy of credit 0 marks
 1 mark for each correct and different way. **(2 marks)**

- 2 (a) Marks awarded as follows:**

No answer worthy of credit 0 marks
 Photo A: Flat bed screen printing – accept screen printing (1 mark)
 Photo B: Block printing (1 mark) **(2 marks)**

- 2 (b) (i) Marks awarded as follows**

No answer worthy of credit 0 marks

Flexibility of trialling colourways, scale and other variants on the design idea. Speed of creating, can use programmes or import designs/templates etc to aid designing. Quick presentation. Can send design electronically to others for approval/costing/production. Modifications quick to make. Cheaper because less time required to make design alterations – don't accept 'cheaper' without a reason/explanation.

3 different advantages, 1 mark each **(3 marks)**

- 2 (b) (ii) Marks awarded as follows**

No answer worthy of credit 0 marks
 E.g: printed pattern/image more accurate, assures aesthetic quality, speeds printing, registers print colours/repeats quickly/more accurately, reduces labour requirements, safer for workforce as less handling of equipment, reduces production costs, accurate colour mixing of print paste, monitors quality.

3 different advantages, 1 mark each **(3 marks)**

- 3 (a) (i)** Clean, undamaged, no faults, no stains, the correct colour/size/ribbon width /type. Correct amount.

Marks awarded as follows:

No answer worthy of credit 0 marks
 Any 2 checks 1 mark each **(2 marks)**

3 (a) (ii) Clean, undamaged, no faults, no pulled threads, the correct colour/weight/type/fabric width. Correct amount.
 No answer worthy of credit 0 marks
 Any 2 checks 1 mark each **(2 marks)**

3 (b) (i) E.g. Testing or checking against the design or manufacturing specification, trialling or testing the product to gain consumer feedback/public opinion. Trying the costume on a model.
 No answer worthy of credit 0 marks
 Any 2 tests 1 mark each **(2 marks)**

3 (b) (ii) Candidate may give examples such as product care testing/testing for fitness for purpose/size/safety testing.
 No answer worthy of credit 0 marks
 Any 2 reasons 1 mark each **(2 marks)**

3 (c) (i) Hat is wrong shape/size, seam is in wrong place/incorrect seam allowance. Brim is too small/large/hem incorrect size. Faulty stitching. Buckle in wrong place/wrong buckle. Fabric band too wide/narrow. Damage to hat. Do not accept fastening doesn't work.
 No answer worthy of credit 0 marks
 Any 3 faults 1 mark each **(3 marks)**

3 (c) (ii) No answer worthy of credit 0 marks
 Quality control check or random sampling 1 mark **(1 mark)**

3 (c) (iii) Marks awarded as follows:
 No answer worthy of credit 0 marks

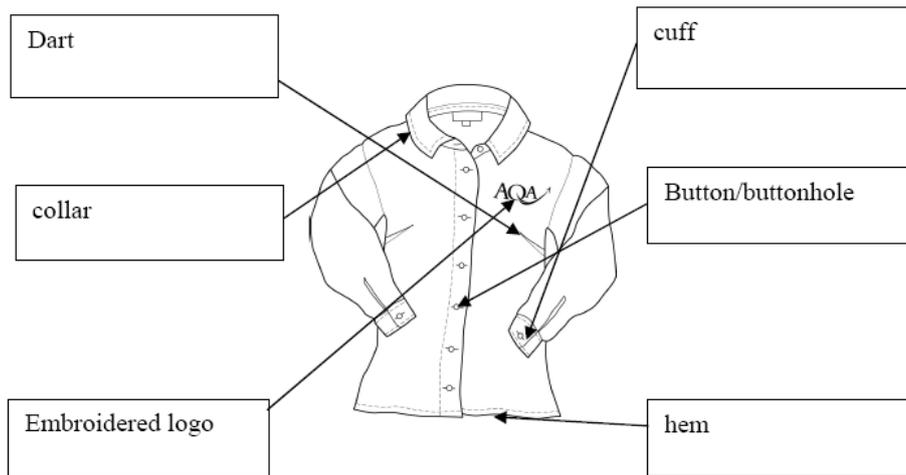
The manufacturer makes sure that the product is of the correct quality. Candidate realises that there is a promise of the product meeting consumer expectations. 1 mark

The manufacturer's guarantee to the consumer that the product is a quality product/meets set standards and consumer expectations for fitness for purpose/safety. There is a system in place to ensure quality products will be made, such as training staff, testing and monitoring production. Candidate gives more detail than for 1 mark. 2 marks **(2 marks)**

Product	Method of production used in industry
A special shirt for a celebrity	One-off, bespoke, custom made, made-to-measure, jobbing (any of these for 1 mark)
Summer 2010 shirts for a high street store	batch
Standard white school shirts for school uniform	Mass or volume production

Marks awarded as follows:
 No answer worthy of credit 0 marks
 1 mark for each correct answer in box, as shown above, up to 1 mark per box. **(3 marks)**

4 (a) (ii)



Marks awarded as follows:

No answer worthy of credit 0 marks
 Example given of correct answers above, but placement of links will vary according to exact choice of individual buttonhole and cuff.
 1 mark for each correct link. **(6 marks)**

4 (b) (i) Marks awarded as follows:

No answer worthy of credit 0 marks
 E.g: use pinking shears to cut edge, overlock, zig-zag stitch, bind with bias binding/tape, turn edges under and stitch down.
 Any 2 ways, 1 mark each, up to 2 marks.
 Accept blanket stitch – do not accept 'iron it'. **(2 marks)**

4 (b) (ii) Marks awarded as follows:

No answer worthy of credit 0 marks
 Simple statement e.g. to strengthen or stabilize fabric 1 mark
 More detailed statement e.g. to strengthen or stabilize fabric to support high density of stitches/embroidered logo, to strengthen or stabilize fabric to prevent fabric from puckering/distortion. 2 marks **(2 marks)**

4 (b) (iii) E.g: to strengthen fabric, to make a stronger/thicker fabric, to make the collar stand up/be rigid/keep its shape. Iron on/Fusible so that it can be applied to main fabric using heat to bond layers together, is quick to apply doesn't need stitching to join, inexpensive as non woven and pieces can be cut in any direction across interfacing fabric to be economic – reduced wastage.

Marks awarded as follows:

No answer worthy of credit 0 marks
 Simple statement e.g. to strengthen shirt fabric 1 mark
 More detailed statement e.g. to strengthen or stabilize fabric using a bonding technique. 2 marks
 Candidate also considers method of applying the iron on/fusible interfacing using an iron or heating press and the economic aspects of the non woven interfacing. 3 marks

(3 marks)

4 (c) (i) Marks awarded as follows:

No answer worthy of credit
sub-assembly

0 marks
1 mark **(1 mark)**

4 (c) (ii) Marks awarded as follows:

No answer worthy of credit
Eg: flow chart, product name, description, reference number, date.
Working drawing or photo of product. Fabric and component details and samples. Specific tools needed, such as particular sewing machine needles. Pattern lay plan. Instructions for making. Quality control check points. Tolerance levels. Packaging requirements.

0 marks

Any 3 types of information, 1 mark each, up to 3 marks.

(3 marks)

5 (a)

Hazard warning sign	Textile process	Risk assessment
	Cutting out fabric pieces using a band knife.	Cut fingers
	Storage of chemicals used for adding a special finish to fabric.	Could catch on fire/ignite
	Weaving fabric on noisy looms	Damaged hearing/danger of high level noise
	Dyeing fabric	Toxic/poisonous substance/dye/ inhaling
	Storage of rolls of fabric	Tripping/ falling over, crushed/bruised body part, knock to head. Fire exits clear

No answer worthy of credit

0 marks

1 mark for each correct answer in box, as above, up to 4 marks.

(4 marks)

- 5 (b) (i)**
- Organise safety training, including first aid, for the work force.
 - Ensure machinery, equipment, tools and materials are stored safely, have safety guards and are safe for use, and are regularly tested for safety.
 - Check that workers wear protective clothing, ear defenders, masks, safety gloves and footwear.
 - Ensure that all processes are safe and will not damage health of the employees.
 - Chemicals used in manufacturing processes are recorded, stored and used safely, then recycled or disposed of safely.
 - Check environment is safe with clean and tidy work areas, adequate ventilation to remove dust and fumes, and has noise level control.
 - Proper training of machine operators

Marks awarded as follows:

No answer worthy of credit 0 marks

Any 3 points

1 mark for simple statement e.g. Wear protective clothing (1x3 marks)

2 marks for more detailed statement

e.g. Check that workers wear protective clothing, ear defenders, masks, safety gloves and footwear. (2x3 marks) **(6 marks)**

- 5 (b) (ii)** Safety can be increased by using automated machinery and computers to assist in materials handling, particularly where loads are heavy, or with fast running machinery where heat, or sharp blades or needles are involved. Safety devices are used to check machine settings are correct and to stop machinery in an emergency.

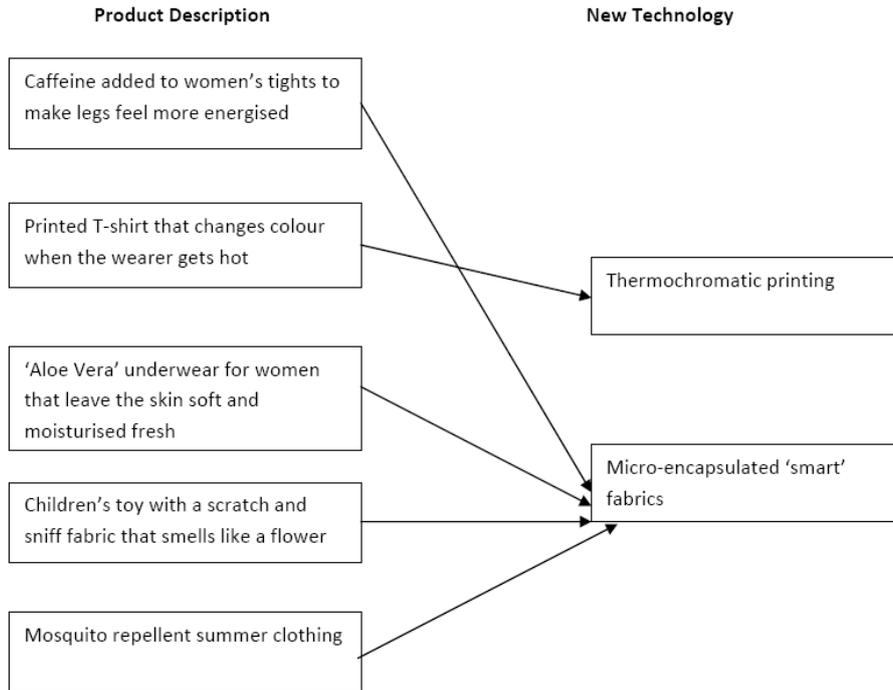
Marks awarded as follows:

No answer worthy of credit 0 marks

Simple statement e.g. Computers can stop machine in an emergency 1 mark

Simple statement with example given e.g. Safety devices are used to check machine settings are correct and to stop machinery in an emergency. 2 marks **(2 marks)**

6 (a) (i)



(5 marks)

- 6 (a) (ii)** Eg: microfibres used to make fabrics, laminated fabrics such as Gortex, Fastskin, reflective, nanotextiles, phosphorescent, stomatex etc. Any other recognised modern fabric. Not lycra.
 If name is correct but description is wrong = 1 mark

Marks awarded as follows:

No answer worthy of credit	0 marks	(2 marks)
Named modern fabric	1 mark	
Named and description given	2 marks	

6 (b)

- solar panels in rucksacks – provides rechargeable power supply to those on the move. Could be used to power lap top, ipod etc.
- GPS Sat Nat tracking devices in outdoor clothing – Can show where a person is when walking/climbing/skiing etc. Can be used to track an avalanche victim/child or mentally disabled person – their whereabouts can be monitored.
- Internet communication and entertainment devices in jackets – computer and electronic devices can be incorporated into clothing to give convenient handsfree facility. Can be for general entertainment and social interaction e.g. facebook/music/video/computer games etc or for military/police use.
- Other examples might be mentioned by candidates and credit should also be given to these. E.g.: sound and light features, technology that is used to monitor, record and transmit heart rates. Electronic textiles (e-textiles) are innovative textile materials, (fabrics, yarns and threads), that incorporate conductive fibres or elements directly into the textile itself. Internet gives other examples.

6 (b) Marks awarded as follows:**Contd** No answer worthy of credit

0 marks

Simple statements e.g. Electronics can be added to clothing to connect you to the internet. Candidate will tend to concentrate superficially on only a few ideas and offers little information, many aspects will be ignored. Little connection made between modern entertainment hand held devices/ integrated electronics and clothing. Response is structured poorly with little or no use of Design and Technology terminology and with numerous errors in grammar, punctuation and spelling.

1-2 marks

More detailed information with example(s). This candidate has some understanding of new technologies integrated electronics/incorporation of electronic devices, at a basic level or may have more detailed understanding of a few examples. Response is fairly well structured with some use of Design and Technology terminology and with a small number of errors in grammar, punctuation and spelling.

3-4 marks

Sound understanding of a variety of examples with accurate and detailed information. Response is well structured with good use of appropriate Design and Technology terminology and shows a good grasp of grammar, punctuation and spelling

5-6 marks

Excellent understanding of a variety of examples with accurate and detailed information. Response is well structured with good use of appropriate Design and Technology terminology and shows a good grasp of grammar, punctuation and spelling. If bullet points are used to structure answer, then full, detailed sentences must be employed. Eg: Woven into 'The Hub' snowboard jacket are electrically conductive fabric tracks which connect the chip module to a fabric keyboard and built-in speakers in the snowboarder's helmet or audio hat. The iPod provides entertainment whilst a Bluetooth device can control a mobile phone, with the microphone integrated in the collar of a jacket or into a hat. Similarly, the tailored jacket with specially shaped and sized pockets for gadgets and positioned holes to accommodate wires, responds to the needs of a professional man who seeks stylish wearable electronics in his work wear.

7-8 marks

Bullet points may be used in answer to this question, as appropriate.

(8 marks)

- 7 (a) (i)** E.g. a soft, fuzzy fabric, warm, wool-like material, extremely durable fabric that holds in warmth, resists moisture and dries quickly. It does not pill-bunch up into little balls-after extended use, lighter weight and warmer than wool. Can be brightly coloured, be printed.
 No answer worthy of credit 0 marks
 Any three appropriate points 1 mark each **(3 marks)**
- 7 (a) (ii)** Just 'environmentally friendly' = 0 marks
 Simple statement to explain that product is made with little or no negative impact on the environment and on the health and well being of the workers 1 mark
 Candidate gives more detailed statement, with reference to product being environmentally and ethically sound, renewable energy used, little or no carbon emissions. 2 marks
 Candidate has a sound understanding of environmental and ethical issues involved and gives one or more examples. May use the term fair-trade. 3 marks **(3 marks)**
- 7 (a) (iii)** E.g. Could recycle unwanted or worn out fleeces to make new polyester fabric or make it from recycled soda/plastic bottles – recycled PET (polyethylene terephthalate).
 Fabric production can use up valuable non-renewable energy and resources such as oil to produce virgin polyester fibres, so recycling is more sustainable although post consumer plastic bottles and discarded fleeces will need to be transported to recycling factory. Energy is used in all manufacturing processes which leads to CO₂ emissions and other by-products which can harm the environment – could use renewable sources such as wind generated electricity etc. Chemicals used to colour and finish fabrics can produce harmful waste. Large amounts of water can be used in finishing processes.
 Short product lifecycle - made for a growing child, could be passed on/donated to charity to extend useful life of product, and prevent it from being discarded and put in landfill (some fabrics take many years to decompose and landfills can leak water and soil contamination), or discarded and incinerated - need to reduce toxic emissions from incinerators . Some new polyester fabrics are biodegradable so this would lessen the impact on the environment.
Marks awarded as follows:
 No answer worthy of credit 0 marks
 Simple statement identifying materials to be recycled e.g. 'you could use unwanted polyester fleeces, or plastic bottles'. 1 mark
 Simple statement identifying materials to be recycled e.g. 'you could use unwanted polyester fleeces, or plastic bottles' This candidate also has some understanding of environmental issues at a basic level. 2 marks
 Identifies materials to be recycled e.g. 'you could use unwanted polyester fleeces, or plastic bottles' And has a sound understanding of environmental issues involved and product lifecycle explaining why it would be a sustainable product. 3 marks **(3 marks)**

7 (a) (iv) Marks awarded as follows:

No answer worthy of credit

0 marks

Simple statements eg: so that another child could use the fleece when the owner had finished with it, so that it could be passed down to a younger child. To reuse jacket.

1 mark

More detailed statement with implications of reusing the garment stated. Eg: So that the garment is reused to extend product lifecycle/so that it does not end up in a landfill site when the first owner has finished with the jacket. So that the garment can be used by several children before it is discarded/sent for recycling.

2 marks

(2 marks)

7 (b) (i)



Marks awarded as follows:

No correct answer

0 marks

Symbols correctly circled as above, 1 mark for each correct answer.

If 1 correctly circled symbol included

1 mark

If 3 symbols are circled, with 2 correct included

1 mark

If 4 symbols are circled

0 marks

(2 marks)

7 (b) (ii) Marks awarded as follows:

No answer worthy of credit

0 marks

Simple statement e.g: to save energy

1 mark

More detailed statement with implications of saving energy used to wash the garment during the products life stated.

2 marks

Has a sound understanding of environmental issues involved and product maintenance, explaining why it would be a more sustainable product if the product label stated it should be washed at a lower temperature. Might quote 'think climate', as seen on product wash labels.

3 marks

(3 marks)