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| Centre Number       |  |  |  |  |  | Candidate Number |  |  |  |  |
| Surname             |  |  |  |  |  |                  |  |  |  |  |
| Other Names         |  |  |  |  |  |                  |  |  |  |  |
| Candidate Signature |  |  |  |  |  |                  |  |  |  |  |

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|---------------------|------|
| For Examiner's Use  |      |
| Examiner's Initials |      |
| Question            | Mark |
| 1                   |      |
| 2                   |      |
| 3                   |      |
| 4                   |      |
| 5                   |      |
| 6                   |      |
| 7                   |      |
| TOTAL               |      |



General Certificate of Secondary Education  
June 2010

# Design and Technology: 45701 Textiles Technology

Unit 1: Written Paper

Tuesday 22 June 2010 9.00 am to 11.00 am

**For this paper you must have:**

- a pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils.

**Time allowed**

- 2 hours

**Instructions**

- Use black ink or black ball-point pen. Use pencil and coloured pencils only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

**Information**

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- The question in Section A relates to the context referred to in the preliminary material that was previously issued.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in question 6 (b).



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**45701**

## Section A

Answer **all** questions.

Question 1 is about design ideas for a textile product.

You should spend about 35 minutes on this question.

### Design Brief

Many high street shops sell Fairtrade textile products which are made by people in developing countries.

As a designer you are working with African craftspeople. You are going to design a textile product.

The textile product must be:

- based on the theme of Africa
- decorated using a range of African inspired textile techniques
- a Fairtrade product that could be made by African craftspeople.

Below are some images associated with the theme of Africa which you may wish to use as well as your own research.



**1 (a) (i)** As a designer you have been asked to research Africa and Fairtrade textile products. This will help you think about a range of ideas to meet the design brief.

List **three** different pieces of information you will need to find out before you start to design.

1 .....

.....

.....

2 .....

.....

.....

3 .....

.....

.....

*(3 marks)*

**1 (a) (ii)** You will need to sketch your initial design ideas before you develop your final product design.

Use a pencil to sketch and label **two** different design ideas based on the design brief.

For each idea 5 marks will be given for the following.

Creativity and originality of idea *(2 marks)*

Use of theme *(1 mark)*

Quality of notes and sketches *(1 mark)*

Use of African fabrics, components and techniques *(1 mark)*

**Question 1 continues on the next page**

**Turn over ►**



**Design Idea A**

*(5 marks)*

**Design Idea B**

*(5 marks)*



1 (a) (iii) Choose **one** of your design ideas for development. Tick the box to show the idea you have chosen to develop.

Design Idea A

Design Idea B

Give **two** reasons why the design idea you have chosen will sell well.

1 .....

2 .....

(2 marks)

1 (a) (iv) A product must meet certain standards to use this logo on the product packaging.



List **two** principles of Fairtrade. An example is given below.

*Children are not employed to make the product.*

1 .....

2 .....

(2 marks)

You will now be asked to develop your chosen idea.

**Question 1 continues on the next page**

**Turn over ►**



**1 (b) (i)** Use sketches, labelling and notes to present a final design for your Fairtrade textile product that is to be made by African craftspeople.

You have this page and the next page to show your design in a presentation drawing.

Marks will be given for the following.

Use of African theme (2 marks)

Originality and quality of the design (4 marks)

Use of decorative techniques inspired by African textile techniques (2 marks)

Use of colour (3 marks)

Use of appropriate African fabrics and components (3 marks)

Presentation of final idea (2 marks)



[Empty box for writing]

Question 1 continues on the next page

Turn over ►



**1 (b) (ii)** Designers test their ideas to find out how to improve them.

The final design for your Fairtrade textile product is too expensive to produce.

List **two** different ways to change your design so that it costs less to produce but is still an attractive product.

1 .....

.....

2 .....

.....

(2 marks)

|           |
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|           |
| <b>35</b> |





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**Section B**

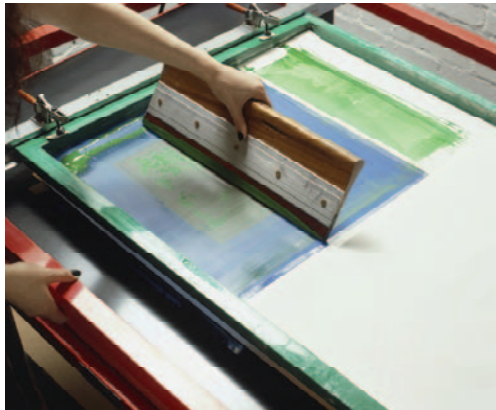
Answer **all** questions.

Question 2 is about printing and using CAD/CAM during product manufacture.

You should spend about 10 minutes on this question. Study the photos below.

**2 (a)** The photographs below show two different methods of printing fabric. Name each method.

**Method A**



Method A ..... (1 mark)

**Method B**



Method B ..... (1 mark)



**2 (b) (i)** Computers can be used to create a print design and to print the design onto fabric.

List **three** advantages of using computers when designing a printed fabric.

Advantage 1.....

.....

Advantage 2.....

.....

Advantage 3.....

.....

(3 marks)

**2 (b) (ii)** List **three** advantages of using computers when manufacturing printed fabric.

Advantage 1.....

.....

Advantage 2.....

.....

Advantage 3.....

.....

(3 marks)

**Turn over for the next question**

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| <b>8</b> |

**Turn over ►**



Question 3 is about quality control and quality assurance.

You should spend about 15 minutes on this question.

**3** Quality checks are made during the manufacture of the costume below.



**3 (a)** The costume fabric and components are checked for faults when they arrive in the factory.

List **two** checks that could be made on the following.

**3 (a) (i)** Ribbon for front lacing

Check 1 .....

Check 2 .....

(2 marks)



**3 (a) (ii)** Fabric for the overskirt

Check 1 .....

.....

Check 2 .....

.....

(2 marks)

**3 (b)** A prototype costume is made in the sample room to test if the product works.

**3 (b) (i)** List **two** different ways to test the prototype.

An example is given below.

*Test the prototype by comparing it to a similar existing product.*

Test the prototype by .....

.....

Test the prototype by .....

.....

(2 marks)

**3 (b) (ii)** Why is the prototype tested? Give **two** reasons for the tests.

Reason 1 .....

.....

Reason 2 .....

.....

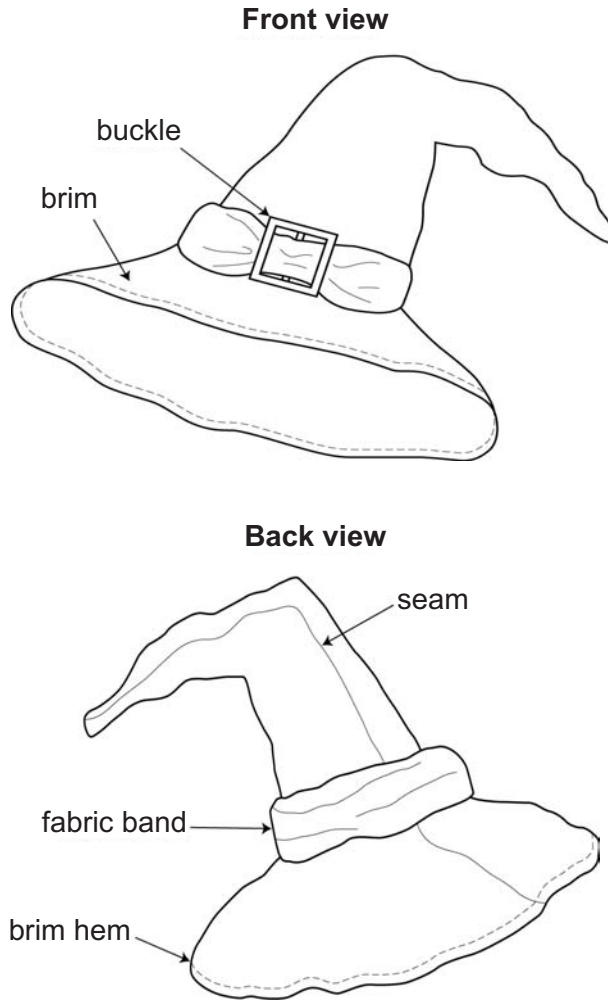
(2 marks)

**Question 3 continues on the next page**

**Turn over ►**



3 (c) Study the hat shown in the drawings below.



3 (c) (i) Checks are made on some of the hats during the production.

List **three** faults that might be found during production.

- Fault 1 .....
- .....
- Fault 2 .....
- .....
- Fault 3 .....
- .....

(3 marks)



**3 (c) (ii)** Give the term used for these production checks.

.....  
(1 mark)

**3 (c) (iii)** Explain the term Quality Assurance.

.....  
.....  
.....  
.....  
(2 marks)

**Turn over for the next question**

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| <b>14</b> |

**Turn over ►**



Question 4 is about production methods and manufacturing techniques.

You should spend about 20 minutes on this question.

**4** White shirts are made for a wide variety of different target markets.

**4 (a) (i)** Complete the table below by giving the production methods used in industry to make each type of shirt.

| Product                                    | Method of production used in industry |
|--|---------------------------------------|
| A special shirt for a celebrity            | .....<br>.....                        |
| Summer 2010 shirts for a high street store | .....<br>.....                        |
| White shirts for school uniform            | .....<br>.....                        |

(3 marks)

**4 (a) (ii)** The main parts of a shirt are shown in the drawing below.

Using a pen, link the text boxes to the shirt to label the product correctly.

Dart

Collar

Embroidered logo



Cuff

Button/buttonhole

Hem

(6 marks)





4 (b) (i) The shirt front and back pieces are joined together using a plain flat seam.

List two different ways to neaten a plain flat seam.

1 .....

.....

2 .....

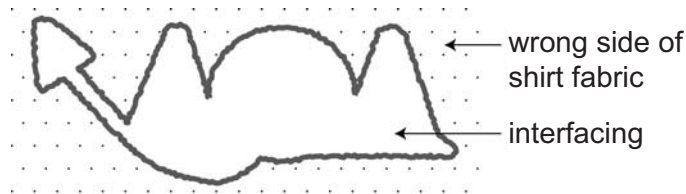
.....

(2 marks)

4 (b) (ii) There is an embroidered logo on the shirt.



Embroidered logo on shirt front



Wrong side of embroidered logo

The above diagrams show that there is interfacing on the wrong side of the shirt fabric where the logo is stitched.

Explain why interfacing has been used.

.....

.....

.....

(2 marks)

Question 4 continues on the next page

Turn over ►



**4 (b) (iii)** Iron on, non-woven interfacing is used in the construction of the collar and cuffs.

Explain why this type of interfacing has been used.

.....  
.....  
.....  
.....

(3 marks)

**4 (c) (i)** The collar of the shirt is put together in a different area of the factory, before it is attached to the shirt body.

What is the term that describes making smaller parts separately in this way?

.....

(1 mark)

**4 (c) (ii)** The factory workers follow the same manufacturing specification.

List **three** pieces of information that must be on the manufacturing specification so that all the shirts are the same.

1 .....  
2 .....  
3 .....

(3 marks)

|           |
|-----------|
|           |
| <b>20</b> |



**Turn over for the next question**

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Question 5 is about Health and Safety in industrial production.

You should spend about 10 minutes on this question.






**5** Manufacturers must make sure that the working environment is safe for employees.

**5 (a)** Fill in the table below by completing the empty boxes.

Look at the hazard sign for each textile process.

State the possible danger, hazard or risk in the risk assessment box.

The first one has been done for you.

| Hazard and safety warning sign  | Textile process   | Risk assessment    |
|---|---|--------------------|
|    | Cutting out fabric pieces using a band knife                    | <i>Cut fingers</i> |
|  | Storage of chemicals used for adding a special finish to fabric |                    |
|  | Weaving fabric on noisy looms                                   |                    |
|  | Dyeing fabric   |                    |
|  | Storage of rolls of fabric                                      |                    |

(4 marks)



**5 (b) (i)** Health and Safety Officers display safety rules and fire exit signs in the workplace.

List **three** other safety measures that could keep workers safe.

Explain your answers.

1 .....

.....

.....

2 .....

.....

.....

3 .....

.....

.....

(6 marks)

**5 (b) (ii)** Explain how computer aided manufacture can improve safety for the workers on the production line.

.....

.....

.....

(2 marks)

|    |
|----|
|    |
| 12 |

**Turn over for the next question**

**Turn over ►**



Question 6 is about new technologies and integrated electronics in textile design.

You should spend about 15 minutes on this question.

**6 (a) (i)** Exciting new textile products have been developed using new technologies.

Link each product description with a line to the new technology used.

**Product Description**

**New Technology**

Caffeine added to women’s tights to make legs feel more energised

Printed T-shirt that changes colour when the wearer gets hot

‘Aloe Vera’ underwear for women that leave the skin soft and moisturised fresh

Children’s toy with a scratch and sniff fabric that smells like a flower

Mosquito repellent summer clothing

Thermochromatic printing

Micro-encapsulated ‘smart’ fabrics

(5 marks)

**6 (a) (ii)** Name and describe **one** other modern fabric.

.....  
.....  
.....

(2 marks)



**6 (b)** Quality of Written Communication will be tested in this question.

Modern clothing sometimes includes electronic components such as:

- solar panels in rucksacks
- GPS Sat Nav tracking devices in outdoor clothing
- Internet communication and entertainment devices in jackets.

Explain in detail the benefits to the wearer of using this type of new technology.

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*(8 marks)*

|           |
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| <b>15</b> |

**Turn over ▶**



Question 7 is about product design and sustainability.

You should spend about 15 minutes on this question.

7 Study the photograph of the fleece top. Answer the questions which follow.



7 (a) (i) The fleece top is made from polyester fleece fabric.

Give **three** reasons for choosing this fabric for the product.

- 1 .....
- 2 .....
- 3 .....

(3 marks)





**7 (a) (ii)** Many people prefer to buy an environmentally friendly product that is sustainable.

What is meant by sustainable?

.....  
.....  
.....  
.....  
.....

*(3 marks)*

**7 (a) (iii)** Explain how recycled materials can be used to make polyester fleece fabric.

.....  
.....  
.....  
.....  
.....

*(3 marks)*

**7 (a) (iv)** The manufacturer has stitched a 'Hand-me-down ID label' inside this child's fleece jacket. This label encourages the owner to pass the jacket onto another child.

Why does the label make the product more sustainable?

.....  
.....  
.....  
.....

*(2 marks)*

**Question 7 continues on the next page**

**Turn over ►**



7 (b) (i) Circle the **two** symbols that could be shown on the polyester fleece jacket label.



(2 marks)

7 (b) (ii) The manufacturer's care labelling often encourages consumers to wash products at 30 °C.

Explain why this advice is given.

.....

.....

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.....

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(3 marks)

**END OF QUESTIONS**

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|-----------|
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| <b>16</b> |



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