

Write your name here

Surname

Other names

**Pearson**  
**Edexcel GCSE**

Centre Number

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Candidate Number

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**Manufacturing (Double Award)**  
**Engineering (Double Award)**  
**Unit 3: Application of Technology in Engineering and**  
**Manufacturing**  
**Paper C: Textiles and Clothing**

Friday 23 May 2014 – Afternoon  
**Time: 1 hour 30 minutes**

Paper Reference

**5EM03/3C**

**You must have:**

Notes and sketches collected during your pre-release research.  
Ruler, pen, pencil, rubber.

Total Marks

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### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 110.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed  
– *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

### Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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**PEARSON**

## SECTION A

### Answer ALL questions

Some questions must be answered with a cross . If you change your mind about an answer, put a line through the box  and then mark your new answer with a cross .

1 All of the products listed below belong to a manufacturing sector.

(a) Put a cross in the **two** boxes below where the products belong to the **textiles** sector.

(2)

Products	Put a cross in <b>two</b> boxes below
Reward sticker	<input type="checkbox"/>
Bag for life	<input type="checkbox"/>
Event leaflet	<input type="checkbox"/>
Fabric bracelet	<input type="checkbox"/>
Drill set	<input type="checkbox"/>
Headache capsules	<input type="checkbox"/>

(b) Put a cross in the **two** boxes below where the products belong to the **clothing** sector.

(2)

Products	Put a cross in <b>two</b> boxes below
Ear muffs	<input type="checkbox"/>
School diary planner	<input type="checkbox"/>
Spray starch	<input type="checkbox"/>
Safety boots	<input type="checkbox"/>
Box file	<input type="checkbox"/>
Anti-static mat	<input type="checkbox"/>



(Total for Question 1 = 4 marks)



2 The tables below show some pieces of equipment used during the manufacture of textile and clothing products.

(a) Complete Table 1 by naming each piece of equipment.



(2)

Equipment	Equipment name	Use
		Used to hold fabric tight when doing either hand-sewing or silk painting.
		Used to neaten the edge of fabrics by cutting with a zig-zag shaped blade.

**Table 1**

(b) Complete Table 2 by explaining the use of each piece of equipment.

(4)

Equipment	Equipment name	Use
	<b>Seam ripper</b>	
	<b>Safety pin</b>	

**Table 2**

**(Total for Question 2 = 6 marks)**



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**3** Draw a straight line to link each **Term** listed below to the most appropriate **Key Area**.

Each Key Area can be used more than once.

<b>Term</b>	<b>Key Area</b>
Electronic mail	
Sanitised fabrics	Modern materials
Elastane	
Assembly robot	Control technology
Composites	
Social media	Information and communications technology (ICT)
Continuous operation	

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**(Total for Question 3 = 7 marks)**



4 Umbrellas belong to the textiles and clothing sectors and use control technology and a fabric in their manufacture.

(a) Name **two other** products from this sector that use control technology and a fabric in their manufacture.

(2)

**Product 1**

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**Product 2**

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(b) (i) State **one** type of control technology used in the manufacture of **Product 1**.

(1)

(ii) Explain **two** different reasons why this type of control technology is used.

(4)

1 .....

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2 .....

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(c) (i) Name a suitable fabric that is used in the manufacture of **Product 1**.

(1)

(ii) Briefly describe the characteristics of a fabric used in the manufacture of **Product 1**.

(2)

(Total for Question 4 = 10 marks)



5 Information and communication technology (ICT) and computer-aided manufacture (CAM) are both used by manufacturers of textiles and clothing products.

(a) Describe **one** example of how a manufacturer would use websites to reduce its costs.

(2)

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(b) As a result of high product demand, a manufacturer has changed from using traditional to computer-aided manufacturing (CAM) methods.

Describe **three** benefits of this change for the manufacturer.

(6)

1 .....

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2 .....

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3 .....

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**(Total for Question 5 = 8 marks)**





6 (a) Communications technologies are widely used by manufacturers of textiles and clothing products. Email is an example of an electronic communications technology.

(i) Name **two other** examples of an electronic communications technology. (2)

1 .....

2 .....

(ii) A customer needs products to be made urgently. Describe **two** examples of how a manufacturer could make use of email in this situation. (4)

1 .....

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2 .....

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(b) In the textiles and clothing sectors, smart and modern materials are used in the manufacture of products.

(i) Name **one** smart material used in the textiles and clothing sectors. (1)

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(ii) Explain why finishes are applied to modern materials. (2)

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**(Total for Question 6 = 9 marks)**



**7** Handling information and data is an essential feature in textiles and clothing companies.

Explain **one** benefit that information and data handling systems have for:

(a) Product sales

(3)

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(b) Production

(3)

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**(Total for Question 7 = 6 marks)**

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**TOTAL FOR SECTION A = 50 MARKS**

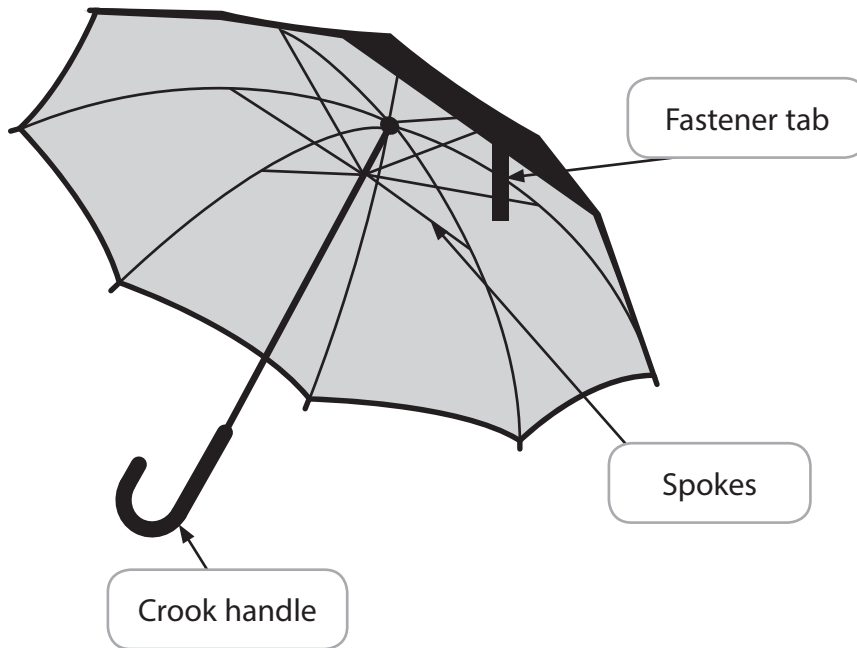
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## SECTION B

Answer ALL questions in Section B with reference to the manufacture of mass produced umbrellas.

The diagram below shows an **umbrella**.



8 Describe, using notes and sketches:

(a) the function of the crook handle.

(3)

Crook handle

(b) the function of the spokes.

(3)

Spokes



(c) the function of the fastener tab.

(3)

Fastener tab

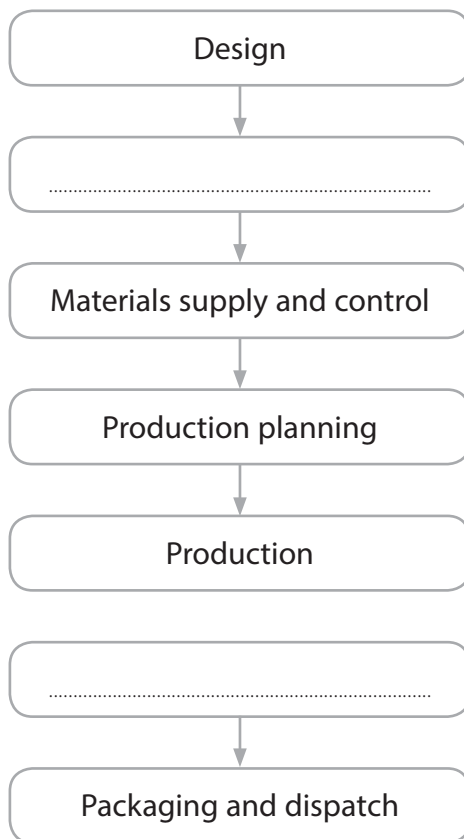
**(Total for Question 8 = 9 marks)**



9 (a) The incomplete flow diagram below indicates some of the main stages in manufacturing umbrellas.

(i) Complete the flow diagram by adding the **two** missing stages in manufacturing umbrellas.

(2)



(ii) State the stage in manufacturing where the colours and shape of the umbrella would be decided.

(1)

Stage

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(b) List **three** activities carried out at the materials supply and control stage when manufacturing umbrellas.

(3)

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

(c) Describe the production planning stage when manufacturing umbrellas.

(3)

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**(Total for Question 9 = 9 marks)**



10 (a) State a specific fastening commonly used on the umbrella's fastener tab.

(1)

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(b) Injection moulding is a process used to produce the crook handle for the umbrella.

(i) State **three** production processes, other than injection moulding, used during the manufacture of umbrellas.

(3)

Process 1

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Process 2

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Process 3

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(ii) Explain why injection moulding is a suitable process for making the crook handle.

(3)

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(c) Explain how the use of modern materials has reduced the environmental impact of manufacturing umbrellas.

(3)

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**(Total for Question 10 = 10 marks)**

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**11** Information and communication technology (ICT) plays an important role in the manufacture and sales of umbrellas.

(a) (i) State **two** uses of ICT at the design stage.

(2)

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

(ii) Describe **two** uses of ICT in the packaging and dispatch stage.

(4)

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

(b) Explain **one** benefit of the use of ICT to the retailer of umbrellas.

(2)

- .....
- .....
- .....
- .....



(c) Explain the impact ICT has on the design, development and production of umbrellas.

(4)

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**(Total for Question 11 = 12 marks)**



**12** A manufacturer of umbrellas is considering increasing its use of automation. It is aware that an increase in its use of automation will have an impact on the workforce and working environment.

(a) Explain **two** different effects the increased use of automation will have on the workforce.

(4)

1 .....

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2 .....

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(b) Explain **two** benefits the increased use of automation will have on the working environment.

(4)

1 .....

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2 .....

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(c) State **two** other issues that the manufacturer should consider, other than the impact on the workforce and working environment.

(2)

1 .....

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2 .....

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**(Total for Question 12 = 10 marks)**



**13** Most modern production processes generate heat.

Explain how waste heat can be used by a manufacturer of umbrellas.

(4)

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**(Total for Question 13 = 4 marks)**



\*14 Discuss the benefits of using 'just-in-time' techniques when manufacturing umbrellas.

(6)

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**(Total for Question 14 = 6 marks)**

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**TOTAL FOR SECTION B = 60 MARKS**  
**TOTAL FOR PAPER = 110 MARKS**



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