

Write your name here

Surname

Other names

Centre Number

Candidate Number

**Edexcel GCSE**

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

Monday 16 May 2011 – 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

### 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** the 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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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## 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)

Stapler	<input type="checkbox"/>
Perfume	<input type="checkbox"/>
Leather handbag	<input type="checkbox"/>
Chocolate bar	<input type="checkbox"/>
PVC business card holder	<input type="checkbox"/>
Birthday card	<input type="checkbox"/>

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

(2)

Bikini	<input type="checkbox"/>
Envelope	<input type="checkbox"/>
Deck chair	<input type="checkbox"/>
Woollen hat	<input type="checkbox"/>
Coffee granules	<input type="checkbox"/>
Lipstick	<input type="checkbox"/>

(Total for Question 1 = 4 marks)

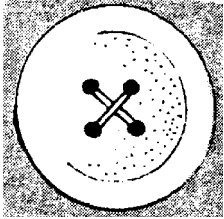



2 The tables below show some components used in the manufacture of textiles or clothing products.

(a) Complete Table 1 by naming each component.

(2)

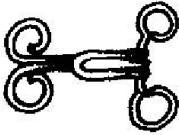

**Table 1**

Component	Component name	Use
		Used to fasten coats, dresses, jackets, cushions, duvets etc. Can also be used as a decorative feature.
		Used to hold fabric together temporarily before tacking. Used to hold a pattern in place on fabric before cutting out.

(b) Complete Table 2 by explaining what each component is used for.

(4)

**Table 2**

Component	Component name	Use
	Hook and eye	
	Reel of thread	

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



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

Each Key Area can be used more than once.

<b>Term</b>	<b>Key Area</b>
Bluetooth	
Robotics	Modern materials
Biostoned fabric	
Liquid crystal coated fabrics	Control technology
Video conferencing	
Computer aided manufacture (CAM)	Information and communications technology (ICT)
Polyvinyl chloride (PVC)	

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



4 Winter cycling gloves belong to the textiles and clothing sector.

(a) Name **two** other products from this sector, apart from winter cycling gloves, that utilise modern materials in their manufacture.

(2)

1 .....

2 .....

(b) (i) State **one** modern material used in the manufacture of a product you named in 4(a).

(1)

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(ii) Explain **two** benefits to the **manufacturer** of using the modern material named in 4(b)(i).

(4)

1 .....

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2 .....

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(c) (i) State **two** smart materials used in the textiles and clothing sector.

(2)

1 .....

2 .....

(ii) Describe the characteristics of **one** smart material named in 4(c)(i).

(2)

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**(Total for Question 4 = 11 marks)**



5 Computer-aided design (CAD) and computer-aided manufacture (CAM) are both used by manufacturers of textiles and clothing products.

(a) Describe why a **manufacturer** would use CAD rather than traditional methods. (2)

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(b) (i) State **two** benefits to the **manufacturer** of using CAM. (2)

1 .....

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2 .....

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(ii) Explain **two** benefits to the **retailer** when the manufacturer uses CAD and CAM. (4)

1 .....

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2 .....

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



6 Systems and control technologies are widely used by manufacturers of textiles and clothing products.

(a) Explain the term 'systems and control technology'.

(2)

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(b) Robotics is an example of a systems and control technology.

(i) Name **one** other example of a systems and control technology.

(1)

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(ii) Name the traditional method this has replaced.

(1)

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(iii) Explain **two** benefits of using robotics in hazardous conditions.

(4)

1 .....

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2 .....

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**(Total for Question 6 = 8 marks)**





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

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

(a) marketing

(3)

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(b) materials supply.

(3)

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

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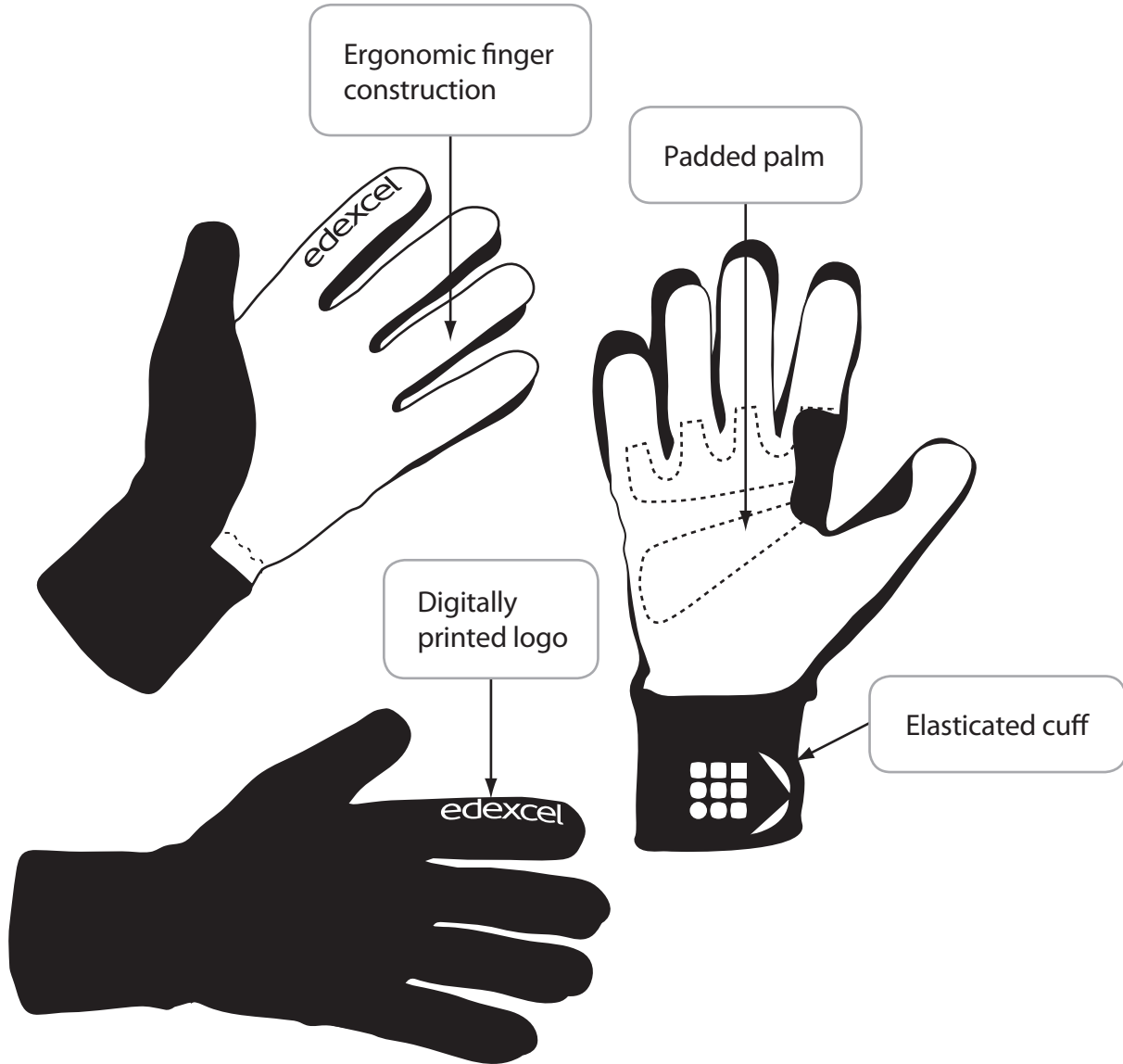
**TOTAL FOR SECTION A = 50 MARKS**



## SECTION B

Answer ALL questions in Section B with reference to the manufacture of mass produced winter cycling gloves.

The diagram below shows some **winter cycling gloves**.



8 Describe, using notes and sketches:

(a) the function of the elasticated cuff

(3)

Elasticated cuff



(b) the function of the padded palm

(3)

Padded palm



(c) the function of the ergonomic finger construction.

(3)

Ergonomic finger construction

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



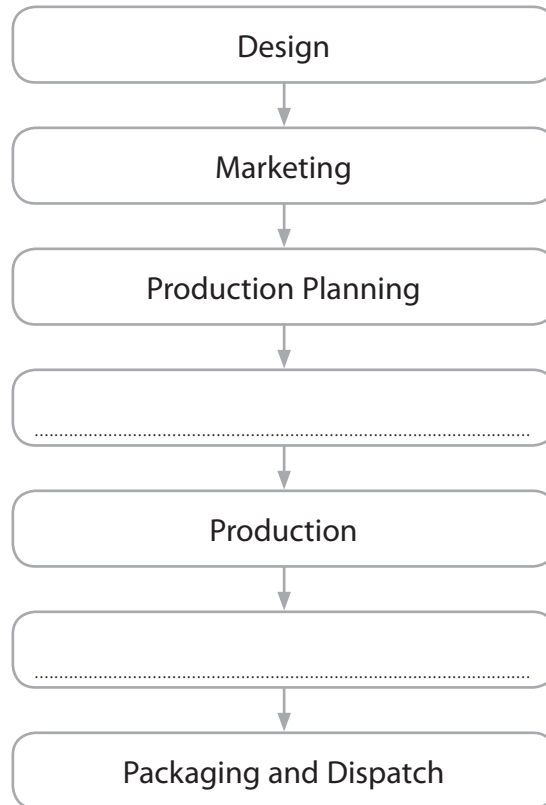
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9 (a) The incomplete flow diagram below indicates some of the main stages in manufacturing winter cycling gloves.

(i) Complete the flow diagram by writing the **two** missing main stages in manufacturing winter cycling gloves.

(2)



(ii) State the stage where the winter cycling gloves would be advertised on websites.

(1)

Stage

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(b) Describe the following **two** stages in the manufacture of winter cycling gloves.

(i) Production planning

(3)

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(ii) Packaging and dispatch

(3)

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



10 (a) State a specific material commonly used for winter cycling gloves.

(1)

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(b) Digital printing is used to print the logo on the winter cycling gloves.

(i) State **three** production processes, other than digital printing, used during the manufacture of winter cycling gloves.

(3)

Process 1

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Process 2

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Process 3

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(ii) Explain why digital printing is a suitable process for printing the logo for the winter cycling gloves.

(3)

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(c) Explain how the use of modern materials has helped the manufacturer of winter cycling gloves to increase sales.

(3)

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



11 Automation is used in the manufacture of winter cycling gloves.

(a) Explain the term 'automation'.

(2)

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(b) (i) Describe **two** examples of automation used at the production stage of the manufacture of winter cycling gloves.

(4)

1 .....

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2 .....

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(ii) Explain **one** benefit to the **manufacturer** of applying a type of automation described in 11(b)(i).

(2)

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(iii) Explain **one** benefit to the **consumer** of applying a type of automation described in 11(b)(i).

(2)

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(c) Explain the difference between automation and mechanisation.

(2)

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

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**12** Communications technology and quality control play an important role in the manufacture of winter cycling gloves.

(a) (i) State **two** types of communications technology used at the **design** stage when manufacturing winter cycling gloves.

(2)

1 .....

2 .....

(ii) Using an example from 12(a)(i), describe **one** benefit of the use of communications technology at the **design** stage.

(2)

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(b) During the manufacture of winter cycling gloves, physical damage quality checks are carried out.

(i) State **one** other quality check used during the **production** stage.

(1)

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(ii) Describe how the quality check stated in 12(b)(i) would be carried out.

(2)

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(iii) Explain the benefits of the use of quality control to the winter cycling gloves end user.

(3)

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



**13** The utilisation of modern technology in the manufacture of winter cycling gloves has brought changes. Explain the effect of these changes for the workforce **and** the working environment.

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

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**\*14** Discuss the impact of the use of modern technologies on the sustainable manufacture of winter cycling gloves.

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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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