

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 14 May 2012 – 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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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)

Flag	<input type="checkbox"/>
Shower gel	<input type="checkbox"/>
Trampoline frame	<input type="checkbox"/>
Car seat covers	<input type="checkbox"/>
Adjustable spanner	<input type="checkbox"/>
Smartphone	<input type="checkbox"/>

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

(2)

Padlock	<input type="checkbox"/>
Nail varnish	<input type="checkbox"/>
Nylon tights	<input type="checkbox"/>
Scriber	<input type="checkbox"/>
Cagoule	<input type="checkbox"/>
Photographs	<input type="checkbox"/>

(Total for Question 1 = 4 marks)



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

(a) Complete Table 1 by naming each component.

(2)

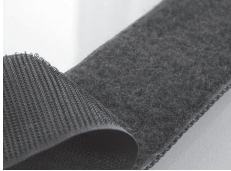

Component	Component name	Use
		A simple fastening which can be closed and pulled apart quickly.
		These small 3D components can add texture to textiles products such as bags and evening wear.

Table 1

(b) Complete Table 2 by explaining what each piece of equipment is used for.

(4)



Equipment	Equipment name	Use
	Thimble	
	Tape measure	

Table 2

(Total for Question 2 = 6 marks)



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.

Term	Key Area
Programmable logic controllers (PLCs)	
Polyester microfibres	Modern materials
Databases	
Pick and place robots	Control technology
Photochromic dyes	
Word processing	Information and communication technology (ICT)
Micro-encapsulated fabric	

(Total for Question 3 = 7 marks)



4 (a) Baby carriers belong to the textiles and clothing sector and use a variety of modern materials in their manufacture.

(i) Name **two other** products from this sector that use synthetic fibres in their manufacture.

(2)

Product 1

Product 2

(ii) Name a synthetic fibre used in **Product 1**.

(1)

(iii) Explain **two** different reasons why this synthetic fibre is used in **Product 1**.

(4)

1

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2

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(b) Systems and control technology is used in the textiles and clothing sector.

(i) Name **one** stage in the manufacture of textiles and clothing products where systems and control technology is used.

(1)

(ii) Explain **one** advantage to a **manufacturer** of using systems and control technology at this stage.

(2)

(Total for Question 4 = 10 marks)



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

(a) Describe **three** ways that CAD contributes to the efficiency of new product development.

(6)

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(b) Explain why a **manufacturer** would use CAM rather than traditional methods.

(2)

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(Total for Question 5 = 8 marks)



6 Communication technology is widely used by manufacturers.

(a) (i) Describe the term 'electronic mail' (email).

(2)

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(ii) Explain **one disadvantage** to a **manufacturer** of using email.

(2)

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(b) Video conferencing is also an example of communication technology.

(i) Name the traditional method it has replaced.

(1)

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(ii) Explain **two advantages** to a **manufacturer** of using video conferencing.

(4)

1

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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.

(a) Explain **one** benefit information and data handling systems have on production efficiency.

(2)

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(b) Explain **two** benefits information and data handling systems have on packaging and dispatch.

(4)

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(Total for Question 7 = 6 marks)

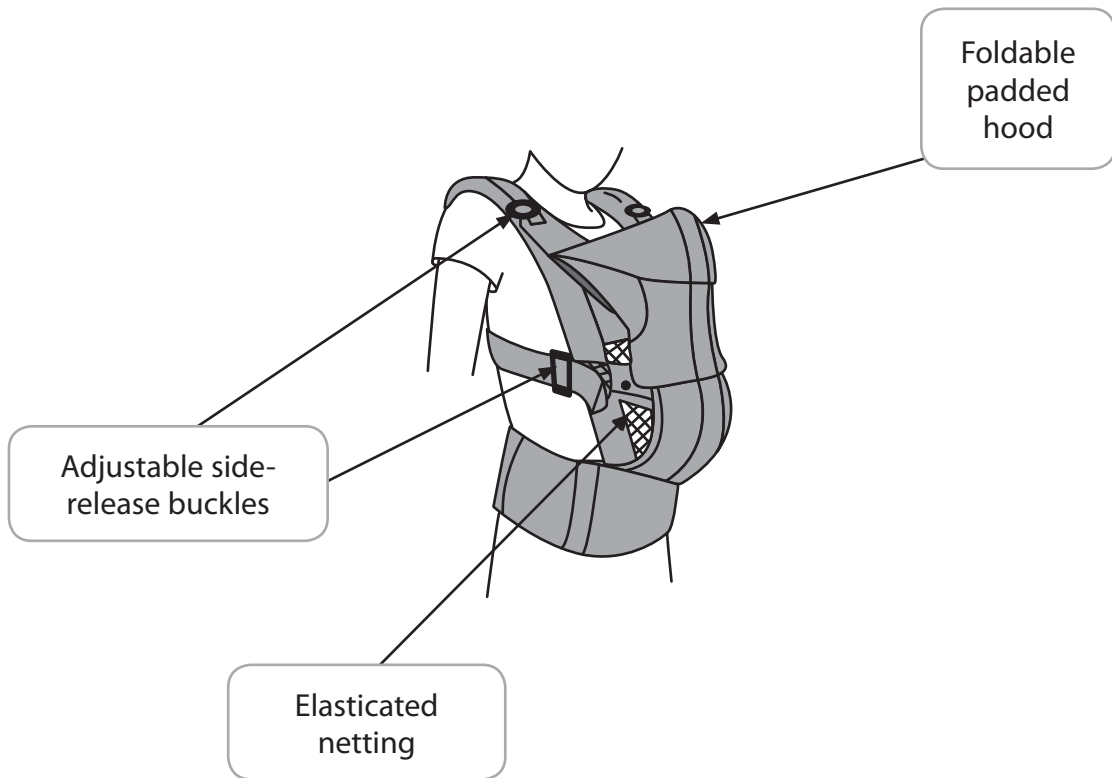
TOTAL FOR SECTION A = 50 MARKS



SECTION B

Answer ALL questions in section B with reference to the manufacture of mass produced baby carriers.

The diagram below shows an adult wearing a **baby carrier**.



8 Describe, using notes and sketches:

(a) the function of the adjustable side-release buckles

(3)

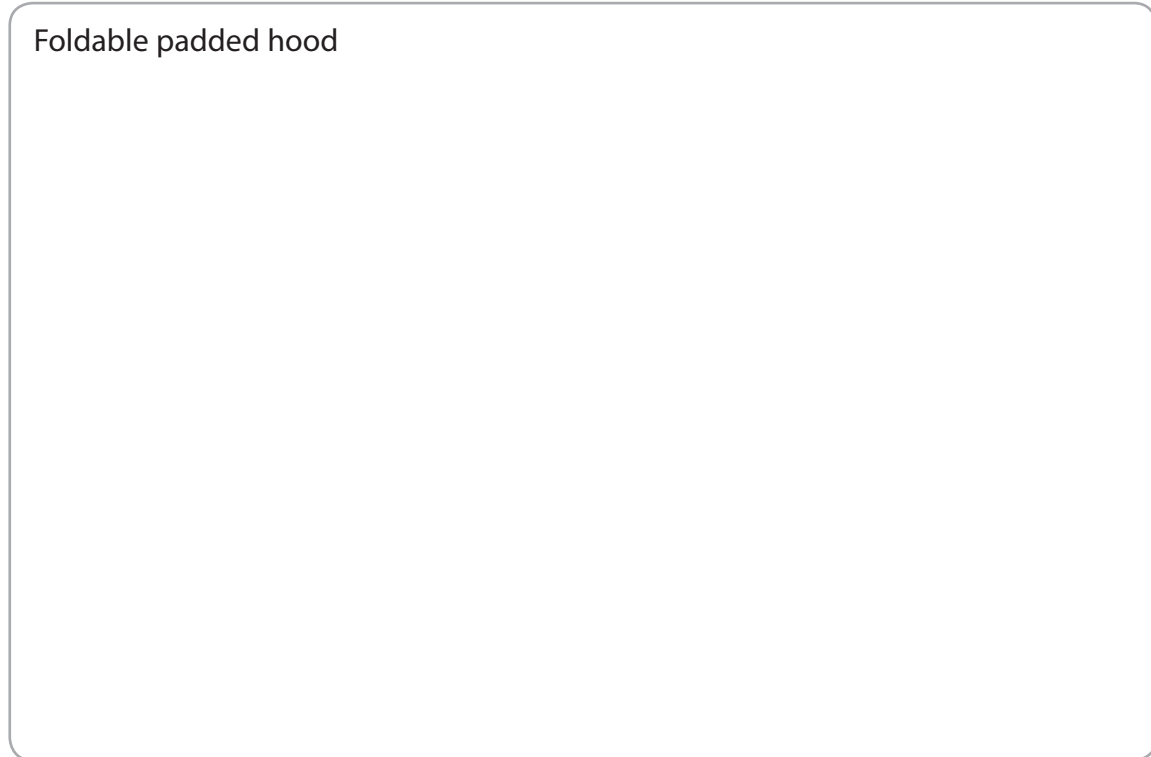
Adjustable side-release buckles



(b) the function of the foldable padded hood

(3)

Foldable padded hood



(c) the function of the elasticated netting

(3)

Elasticated netting

(Total for Question 8 = 9 marks)



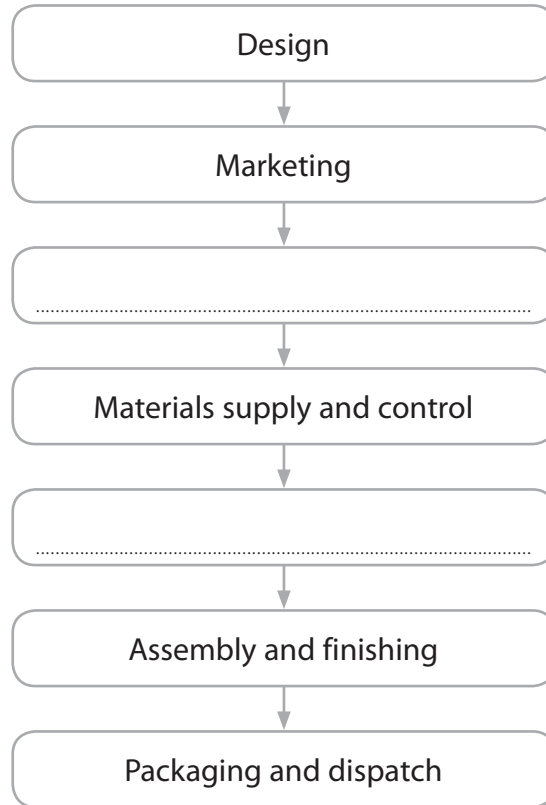
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9 (a) The incomplete flow diagram below indicates some of the main stages in manufacturing baby carriers.

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

(2)



(ii) State the stage where the ideas for the baby carrier would be generated.

(1)

Stage



(b) Describe the following **two** stages in the manufacture of baby carriers.

(i) Marketing

(3)

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(ii) Materials supply and control

(3)

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(Total for Question 9 = 9 marks)



10 (a) State a specific **woven** fabric commonly used in the manufacture of baby carriers. (1)

(b) Overlocking is a process used to assemble many parts of the baby carrier.

(i) State **three** production processes, other than overlocking, used during the manufacture of baby carriers. (3)

Process 1

Process 2

Process 3

(ii) Explain why overlocking is a suitable process for assembling the baby carrier. (3)



(c) Explain how the development of modern materials has helped the manufacturer of baby carriers improve their products.

(3)

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(Total for Question 10 = 10 marks)



11 Quality control and automation are used in the manufacture of baby carriers.

(a) (i) Describe **two** examples of quality control used at the packaging and dispatch stage during the manufacture of baby carriers.

(4)

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(ii) Describe **two** examples of automation used at the packaging and dispatch stage during the manufacture of baby carriers.

(4)

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(b) Explain **one** advantage to the **manufacturer** of applying quality control during automated stages of manufacture.

(2)

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(Total for Question 11 = 10 marks)



12 (a) A manufacturer of baby carriers has changed their working environment from traditional to modern technology as a result of high product demand.

Explain the impact of these changes for:

(i) employees

(3)

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(ii) the global environment

(3)

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(b) Information and communication technology (ICT) plays an important role in the manufacture of baby carriers.

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

(2)

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2

(ii) Describe **one** use of ICT at the assembly and finishing stage.

(2)

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(iii) Explain **one** benefit of using ICT to the retailer of baby carriers.

(2)

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(Total for Question 12 = 12 marks)



13 Control technology is an essential feature in the manufacture of baby carriers.

Explain the impact of control technology on safety when manufacturing.

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(Total for Question 13 = 4 marks)



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