

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

Wednesday 15 May 2013 – 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** 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 the products below belong to a manufacturing sector.

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

(2)

Cushion Cover	<input checked="" type="checkbox"/>
Train ticket	<input checked="" type="checkbox"/>
Aluminium frame	<input checked="" type="checkbox"/>
Brake calliper	<input checked="" type="checkbox"/>
Pasta sauce	<input checked="" type="checkbox"/>
Carpet	<input checked="" type="checkbox"/>

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

(2)

Socks	<input checked="" type="checkbox"/>
e-Book reader	<input checked="" type="checkbox"/>
Fuel cap	<input checked="" type="checkbox"/>
Swimming trunks	<input checked="" type="checkbox"/>
Computer mouse	<input checked="" type="checkbox"/>
Leather wallet	<input checked="" type="checkbox"/>

(Total for Question 1 = 4 marks)



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

(a) Complete Table 1 by naming each component.

(2)

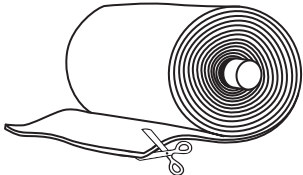
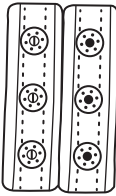
Component	Component name	Use
		A soft and fluffy component which can be layered with other fabrics to add warmth or for quilting.
		A pair of sew on strips used to fasten two pieces of fabric together.

Table 1

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

(4)



Equipment	Equipment name	Use
	Overlocker	
	Steam iron	

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.

Term

Key Area

Computer-aided design

Automated conveyors

Laminated fabrics

Embedded computers

3D prototyping

Tencel fibres

Neoprene

Information and
communication technology
(ICT)

Control technology

Modern materials

(Total for Question 3 = 7 marks)



4 Baseball caps belong to the textiles and clothing sector and use information and communication technology (ICT) in their manufacture.

(a) Name **two other** products from this sector where ICT is used in their manufacture.

(2)

Product 1

Product 2

(b) (i) Name **one stage** where ICT is used in the manufacture of **Product 1**.

(1)

(ii) Explain **two** benefits to a **manufacturer** of using ICT at the stage named in 4(b)(i).

(4)

1

2



(c) (i) Name **one modern material** used in the manufacture of **Product 1**.

(1)

(ii) Describe how this modern material changes the characteristics of **Product 1**.

(2)

(Total for Question 4 = 10 marks)



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

(a) (i) State **one** use of CAM during manufacturing.

(1)

(ii) Explain **one** benefit to a manufacturer of using CAM in processing and production.

(2)

CAD is used when modifying existing products.

(b) (i) State **one other** use of CAD during manufacturing.

(1)

(ii) Explain **one** benefit to a **manufacturer** of using CAD when modifying existing products.

(2)

(c) Explain **one** benefit to the **consumer** when a manufacturer uses CAM.

(2)

(Total for Question 5 = 8 marks)



6 Sourcing and handling information and data is important to manufacturers.

(a) Describe the term **spreadsheet**.

(2)

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(b) A database is also an example of sourcing and handling information and data.

(i) State **one** traditional method it has replaced.

(1)

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(ii) Explain **two advantages** to the **retailer** when a manufacturer uses databases.

(4)

1

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2

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(iii) Explain **one disadvantage** to a **manufacturer** of using databases.

(2)

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(Total for Question 6 = 9 marks)



7 Systems and control technology is an essential feature in textiles and clothing companies.

Explain **one** benefit to a manufacturer of using programmable logic controllers (PLCs) in relation to:

(a) safety during manufacture

(3)

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(b) production efficiency.

(3)

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(Total for Question 7 = 6 marks)

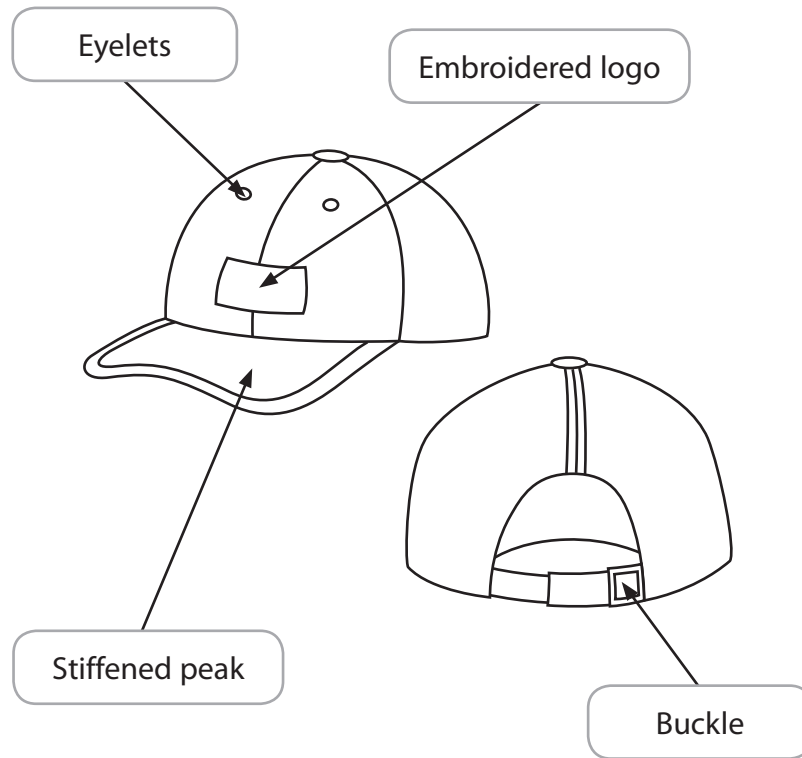
TOTAL FOR SECTION A = 50 MARKS



SECTION B

Answer ALL questions in Section B with reference to the manufacture of mass-produced baseball caps.

The diagram below shows the front and back view of a **baseball cap**.



8 Describe, using notes and sketches:

(a) the function of the stiffened peak

(3)

Stiffened peak

(b) the function of the eyelets

(3)

Eyelets



(c) the function of the buckle

(3)

Buckle

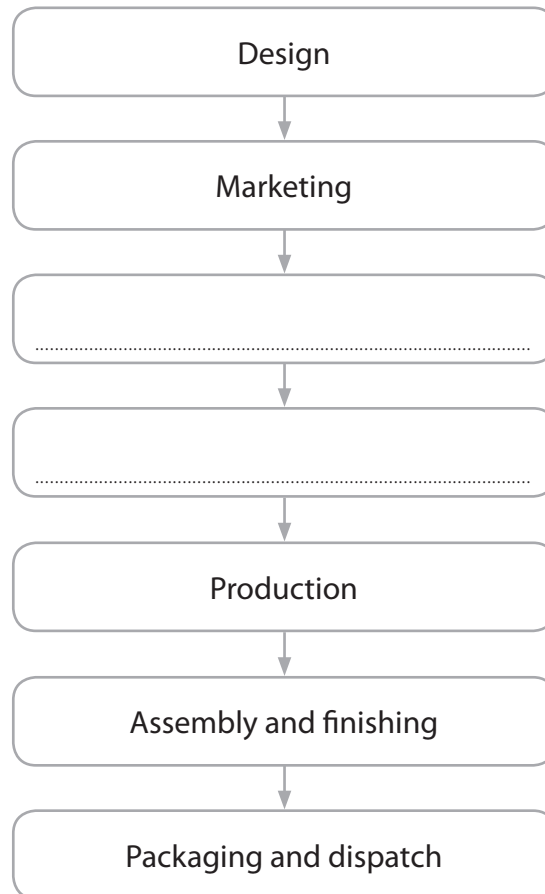
(Total for Question 8 = 9 marks)



9 (a) The incomplete flow diagram below indicates some of the main stages in the manufacture of baseball caps.

(i) Complete the flow diagram by adding the **two** missing main stages in the manufacture of baseball caps.

(2)



(ii) State the stage where the baseball caps would be placed into cardboard boxes.

(1)

Stage



(b) Describe the following **two** stages in the manufacture of baseball caps.

(i) Design

(3)

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(ii) Marketing

(3)

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(Total for Question 9 = 9 marks)



10 (a) State a **specific woven fabric** commonly used for the baseball caps.

(1)

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(b) Lock-stitching and computerised embroidery are processes used to produce some parts of the mass-produced baseball caps.

(i) State **three** production processes, **other than** lock-stitching and computerised embroidery, used during the manufacture of baseball caps.

(3)

Process 1

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Process 2

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Process 3

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(ii) Explain why lock-stitching is a suitable process for making the baseball caps.

(3)

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(iii) Explain why a manufacturer should use computerised embroidery rather than traditional embroidery methods for the production of the baseball cap logo.

(3)

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(Total for Question 10 = 10 marks)



11 Process control and quality control are used in the manufacture of baseball caps.

(a) (i) Explain the term **process control**.

(2)

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(ii) Explain **two** reasons why a **manufacturer** uses process control during automated stages of manufacture.

(4)

1

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2

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(b) Describe **two** examples of quality control used during the **production** stage of the manufacture of baseball caps.

(4)

1

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2

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(Total for Question 11 = 10 marks)



12 (a) The use of modern technology in the manufacture of mass-produced baseball caps has brought changes.

(i) State **two** changes the use of modern technology has had on the **type** of workforce manufacturers require.

(2)

Change 1

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Change 2

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(ii) Describe **two** changes the use of modern technology has had on the production environment.

(4)

Change 1

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Change 2

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(iii) Explain **one** environmental benefit that has resulted from the use of modern technology.

(2)

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(b) The use of barcodes is an important part of control technology in the manufacture of baseball caps.

Describe the advantages to a **manufacturer** of using barcodes at the packaging and dispatch stage.

(4)

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(Total for Question 12 = 12 marks)



13 Modern materials are used in the manufacture of baseball caps.

Explain how the use of modern materials has impacted on customer satisfaction.

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(Total for Question 13 = 4 marks)



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