

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

Wednesday 24 May 2017 – Morning
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.
- 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 in a box ☒. 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 two boxes below
Electric drill	<input type="checkbox"/>
Tea towel	<input type="checkbox"/>
Soldering iron	<input type="checkbox"/>
Toiletry bag	<input type="checkbox"/>
Ring binder	<input type="checkbox"/>
Adjustable spanner	<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 two boxes below
CCTV	<input type="checkbox"/>
T-shirt	<input type="checkbox"/>
Moisturiser	<input type="checkbox"/>
Blender	<input type="checkbox"/>
Parka	<input type="checkbox"/>
Endoscope	<input type="checkbox"/>

(Total for Question 1 = 4 marks)

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

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

(2)

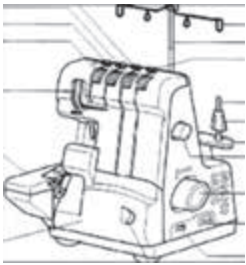

Equipment	Equipment name	Use
		To sew and neaten a seam in one action.
		To flatten fabrics or to add fusible components to a fabric.

Table 1

(b) Complete Table 2 by explaining the function of each component.

(4)



Component	Component name	Function
	Eyelets	
	Chain	

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

System remote panel

Modern materials

Tencel

Database

Control technology

Photochromic fabric

Conveyor systems

Information and communications technology (ICT)

Procion dye

Virtual learning environment (VLE)

(Total for Question 3 = 7 marks)



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4 (a) Printing processes are used when manufacturing rucksacks in the textiles and clothing sector.

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

(2)

Product 1

Product 2

(ii) Name **two** different printing processes used in the manufacture of products from this sector.

(2)

Printing process 1

Printing process 2

(iii) Describe **one** printing process you named in 4(a)(ii).

(2)



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(b) Quality control techniques are used in the manufacture of products in the textiles and clothing sector.

Describe **two** examples of quality control techniques used in the manufacture of products from this sector.

(4)

1

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.....

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2

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(Total for Question 4 = 10 marks)



5 (a) State **two** functions of a computer-aided manufacturing (CAM) system. (2)

1

.....

2

.....

(b) A manufacturer has changed from using traditional production methods to computer-aided manufacturing (CAM) techniques.
Describe **one** disadvantage of this change for the manufacturer. (2)

.....

.....

.....

(c) Programmable logic controllers (PLCs) are a control technology.
Describe **two** benefits of using PLCs for a manufacturer. (4)

1

.....

.....

2

.....

.....

(Total for Question 5 = 8 marks)



6 Communications technologies, including **Wi-Fi**, are used by manufacturers of textiles and clothing products.

(a) (i) Name **one** example, other than **Wi-Fi**, of a communications technology. (1)

.....

.....

(ii) Describe the term **Wi-Fi**. (2)

.....

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.....

(b) Embedded computers are used by manufacturers of textiles and clothing products.
Explain **three** reasons why a manufacturer would use embedded computers during manufacture. (6)

1

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2

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3

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(Total for Question 6 = 9 marks)



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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) design

(3)

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.....

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.....

(b) production planning

(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 rucksacks.

The diagram below shows a rucksack.



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8 Describe, using notes and sketches:

(a) the function of the two-way zip

(3)

two-way zip

(b) the function of the elasticated pockets

(3)

elasticated pockets



(c) the function of the adjustable padded straps

(3)

adjustable padded straps

(Total for Question 8 = 9 marks)

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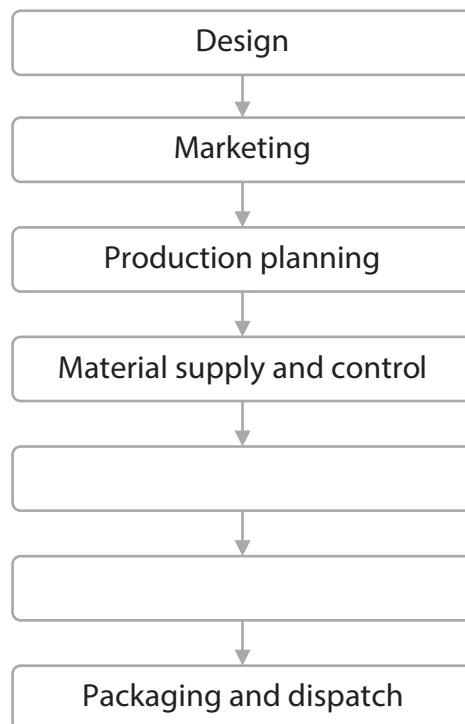
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9 (a) The incomplete flow diagram below indicates some of the main stages in manufacturing.

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

(2)



(ii) State the stage in manufacturing where the drawings for the rucksack are created.

(1)

Stage

(b) List **three** activities carried out at the marketing stage when manufacturing the rucksacks.

(3)

- 1
- 2
- 3



(c) Describe the packaging and dispatch stage when manufacturing the rucksacks.

(3)

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(Total for Question 9 = 9 marks)

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10 (a) State a modern material commonly used for the main body of the rucksack. (1)

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(b) The seams of the rucksack are heat sealed.

(i) State **three** production processes, other than heat sealing, used during the manufacture of rucksacks. (3)

Process 1

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Process 2

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Process 3

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(ii) Explain why heat sealing is a suitable process to use for the seams of the rucksacks. (3)

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(c) Explain how the use of modern materials has helped manufacturers of rucksacks to increase sales.

(3)

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(Total for Question 10 = 10 marks)

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11 Automation is used in the manufacture of rucksacks.

(a) Explain the term **automation**.

(2)

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.....

(b) (i) Describe **three** different examples of automation used in the production stage of the manufacture of rucksacks.

(6)

1

2

3

(ii) Explain **one** disadvantage to the manufacturer of applying a type of automation when manufacturing rucksacks.

(2)

.....
.....

(iii) Explain **one** benefit to the consumer of applying a type of automation when manufacturing rucksacks.

(2)

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.....

(Total for Question 11 = 12 marks)



12 (a) The introduction of modern technology has an impact on safety and efficiency when manufacturing mass produced rucksacks.

(i) State **two** benefits the introduction of modern technology has had for the safety of the workforce.

(2)

1

2

(ii) Explain **two** effects the introduction of modern technology has had on the efficiency of the production process.

(4)

1

2

(b) The introduction of modern technology when manufacturing rucksacks has an impact on the global environment.

Explain **two** advantages the use of modern technology has had for the global environment.

(4)

1

2

(Total for Question 12 = 10 marks)



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13 Information and communications technology (ICT) is an essential feature in the manufacture of mass produced rucksacks.

Explain **two** impacts of ICT on the material supply and control stage in manufacturing.

1

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2

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(Total for Question 13 = 4 marks)



