

Write your name here

Surname

Other names

**Pearson**  
**Edexcel GCE**

Centre Number

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Candidate Number

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# Design and Technology

**Product Design: Resistant Materials Technology**  
**Advanced**

**Unit 3: Designing for the Future**

Friday 9 June 2017 – Morning

**Time: 2 hours**

Paper Reference

**6RM03/01**

**You do not need any other materials.**

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 70.
- 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

**Answer ALL the questions. Write your answers in the spaces provided.**

**1** (a) Designers need to consider ergonomic factors when designing products.

Explain what is meant by the term ergonomics.

(2)

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(b) Explain **two** ways in which products can be designed to accommodate the diversity of human shapes and sizes.

(4)

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**(Total for Question 1 = 6 marks)**

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2 Electronic Data Interchange (EDI) is now a part of everyday life for individuals and businesses.

(a) Explain **three** advantages of using EDI.

(6)

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(b) Give **two** disadvantages of using EDI.

(2)

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**(Total for Question 2 = 8 marks)**



3 (a) Evaluate the use of biofuels as a source of energy.

(6)

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(b) Countries that consume large quantities of timber have a responsibility to minimise deforestation.

State **six** ways that these countries can encourage the development of sustainable timber production and trading systems.

(6)

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4 .....

5 .....

6 .....

(Total for Question 3 = 12 marks)



- 4 (a) Companies are constantly trying to develop new methods of production that are more environmentally friendly.

Explain **four** ways a company could modify its designs in order to achieve cleaner production.

(8)

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(b) Give **four** ways in which electronic point of sale (EPOS) systems may improve a company's efficiency.

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(Total for Question 4 = 12 marks)



\*5 (a) Discuss the use of computer-aided manufacture (CAM) for the production of complex components.

(6)

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(b) Describe how computer-aided quality (CAQ) control systems maintain accuracy during production.

(6)

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(Total for Question 5 = 12 marks)



6 Discuss the impacts of built-in obsolescence on society.

(10)

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(Total for Question 6 = 10 marks)



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\*7 Evaluate the use of flexible manufacturing systems (FMS).

(10)

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**(Total for Question 7 = 10 marks)**

**TOTAL FOR PAPER = 70 MARKS**



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