

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, 8 June 2018 – 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 ►

P55549A

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Pearson

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

1 Additives can be used in the manufacture of polymers in order to change the property of the polymer.

(a) State **two** types of stabiliser other than biostabilisers that could be added to polymers.

(2)

1

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2

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(b) Give **three** reasons why biostabilisers might be added to a polymer.

(3)

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3

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(c) Describe **three** property changes that occur to polymers when a foamant is added.

(3)

1

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2

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3

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(Total for Question 1 = 8 marks)



P 5 5 5 4 9 A 0 3 2 0

- 2 (a) Once a product has reached the end of its useful life it needs to be processed in an environmentally friendly way.

Outline how products could be designed so that the materials may be recovered more easily.

(5)



(b) Design specifications for industrial production are generally complex but essential.

Describe the advantages of using computers to generate design specifications.

(4)

Area for writing the answer, consisting of multiple horizontal dotted lines.

(Total for Question 2 = 9 marks)

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3 (a) Raymond Loewy is a designer associated with Streamlining.

Outline **four** typical design characteristics of products influenced by the philosophy of Streamlining.

(4)

1

2

3

4



(b) A company wants to increase its sales by entering the global marketplace.

Explain **four** difficulties that the company may face.

(8)

1

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(Total for Question 3 = 12 marks)



- 4 Figure 1 shows a television remote control and its packaging.

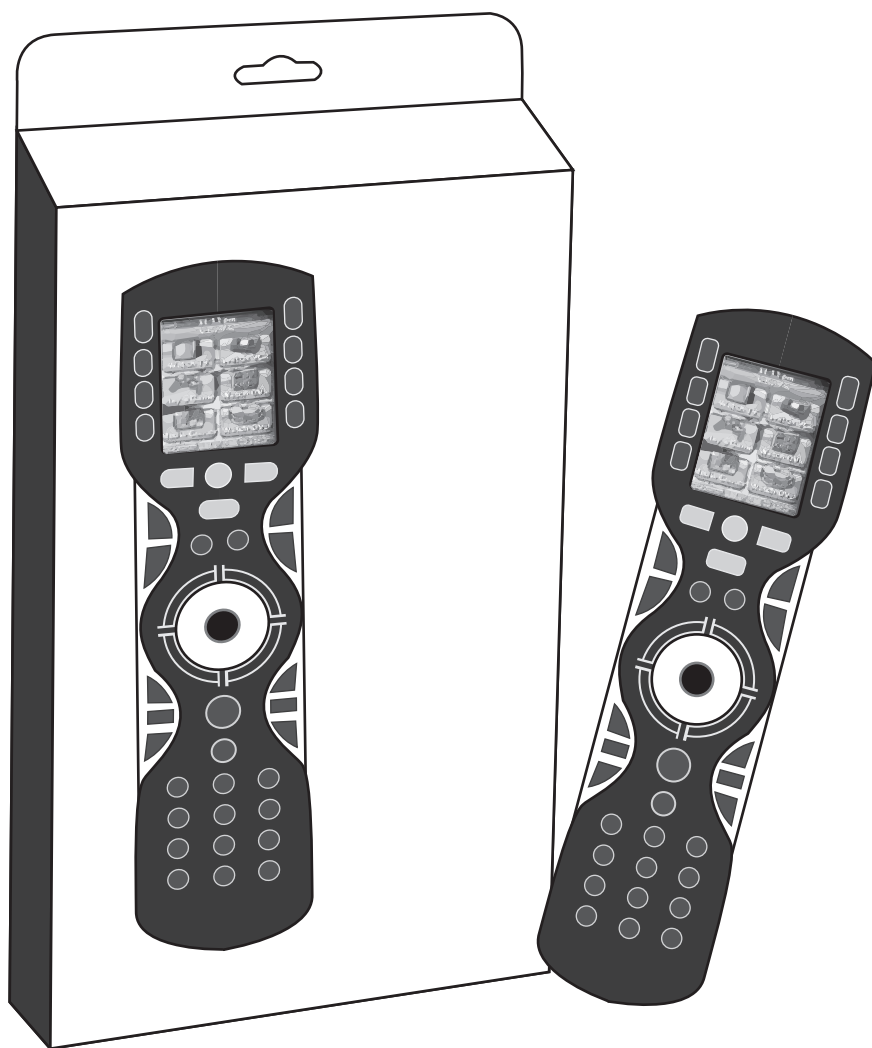


Figure 1

Describe, by completing the table below, how the environmental impact of the television remote control and its packaging shown in Figure 1 can be reduced by carrying out a life cycle assessment.

An example answer has been given.

(8)

Materials	Example answer: reduce the amount of material used by making the television remote control smaller. 1 2
Energy	1 2
Use	1 2
Disposal	1 2

(Total for Question 4 = 8 marks)



- 5 (a) Due to increasing demands for timber, genetic modification is being used to enhance timber production.

Outline the disadvantages of genetically modifying trees to increase their growth rate.

(5)



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(b) Computer-based production scheduling is a necessary part of production planning.

Outline the advantages for a company of computer-based production scheduling.

(6)

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(Total for Question 5 = 11 marks)



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(b) Diesel is commonly preferred to electricity to power delivery vehicles to distribute goods.

Outline the disadvantages of using electricity to power delivery vehicles.

(6)

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(Total for Question 6 = 12 marks)



7 Technological advancements have resulted in smaller products.

Explain the disadvantages that miniaturisation has had on society.

(10)

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(Total for Question 7 = 10 marks)

TOTAL FOR PAPER = 70 MARKS



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