

Write your name here

Surname

Other names

Pearson
Edexcel GCE

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--	--

Design and Technology

Product Design: Graphic Products

Advanced

Unit 3: Designing for the Future

Friday 9 June 2017 – Morning

Time: 2 hours

Paper Reference

6GR03/01

You do not need any other materials.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches it must be dark (HB or B). Coloured pens, pencils and highlighter pens must not be used.
- **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 ►

P49130A

©2017 Pearson Education Ltd.

1/1/1/1



Pearson

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

1 Manufacturers aim to be more environmentally friendly both in the production and distribution of their products.

(a) State **two** ways of reducing the environmental impact during the transportation of products.

(2)

1

.....

2

.....

(b) Discuss common applications of biodegradable polymers.

(4)

.....

.....

.....

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(c) Biodegradable polymers may not be as durable as traditional polymers.

Discuss **other** disadvantages of using biodegradable polymers.

(4)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 1 = 10 marks)

2 Modern industrial and commercial practice incorporates modern technologies that improve the efficiency of industry.

(a) Outline the advantages of Electronic Data Interchange (EDI).

(4)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....



(b) Explain **three** disadvantages of 'just-in-time' (JIT) in lean manufacturing systems.

(6)

1

.....

.....

.....

.....

2

.....

.....

.....

.....

3

.....

.....

.....

.....

(c) Explain the term artificial intelligence.

(2)

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



(d) Outline the characteristics of an expert system.

(4)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 2 = 16 marks)



3 Design movements have influenced the design of commercial products and the built environment.

(a) Discuss the design characteristics of **one** of the following design movements:

- Art Nouveau
- Bauhaus.

Name of the movement you are discussing

(6)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



(b) Evaluate how the work of Philippe Starck has contributed to the design of consumer products.

(6)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 3 = 12 marks)



4 The constant introduction of new technologies and products has had a number of impacts on consumers.

(a) Explain **three** ways built-in obsolescence impacts on consumers.

(6)

1

2

3

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

***5** Smart materials have many applications in today's consumer society.

(a) Outline **two** applications of thermochromic pigments.

(2)

1

.....

2

.....

(b) Evaluate the use of shape memory alloys (SMAs) for spectacle frames.

(6)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 5 = 8 marks)



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

*6 Meeting future energy needs is a concern for governments.

(a) Explain **three** advantages of hydroelectric power.

(6)

1

.....

.....

.....

.....

2

.....

.....

.....

.....

3

.....

.....

.....

.....



P 4 9 1 3 0 A 0 1 1 1 2

(b) Evaluate the use of nuclear energy as a means of satisfying the demand for electricity.

(6)

Area with horizontal dotted lines for writing the answer.

(Total for Question 6 = 12 marks)

TOTAL FOR PAPER = 70 MARKS

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

