

A-level DESIGN AND TECHNOLOGY (PRODUCT DESIGN)

Paper 2 Designing and Making Principles

Specimen 2016

Morning

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- Normal writing and drawing instruments
- a scientific calculator

Instructions

- Use black ink or black ball-point pen. Use pencil only for drawing.
- Fill in the boxes at the bottom of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided/
- Do all rough work in this book. Cross through any work that you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.

Please write clearly, in block capitals, to allow character computer recognition.

Centre number

Candidate number

Surname

Forename(s)

Candidate signature _____

Section A

Figure 1 and **Figure 2** show two lemon juicers.

This source has been removed
due to third-party copyright
restrictions.

This source has been removed
due to third-party copyright
restrictions.

Figure 1
Aluminium Juicer

Figure 2
Polypropylene juicer

[8 marks]

[illegible]

Suggest how this process could be monitored to reduce the risk of defective products being sold.

[6 marks]

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on its right side, suggesting it's resting on a surface.

3

[4 marks]

[illegible]

4

Two vacuum cleaners are shown below.

Figure 3

This source has been removed due to third-party copyright restrictions.

Figure 4

This source has been removed due to third-party copyright restrictions.

[9 marks]

5

Dieter Rams states that 'good design is understandable'. Use a specific product example to explain what is meant by this.

[3 marks]

6

Define the terms 'quality assurance' and 'quality control'

[2 x 2 marks]

7

The diameter of a drilled hole is specified as 25 ± 0.5 mm.
Calculate the percentage tolerance which would be acceptable on this dimension.

Shade the box with the correct answer.

A 1%

☐

B 2%

☐

C 4%

☐

D 8%

☐

[1 mark]

Using specific examples, evaluate the social, moral and ethical impact of mobile technology on society over the last 30 years.

[illegible]

9	<p>Using specific product examples, analyse the impact of legislation on the design of electronic products.</p>

9	<p>Using specific product examples, analyse the impact of legislation on the design of electronic products.</p>

10

Explain what is meant by the concept of 'upcycling'

[3 marks]

1 1

With reference to a specific product, explain what is meant by the term 'eco labelling'

[3 marks]

With reference to food packaging, explain how designers are reducing the environmental impact of their products

[illegible]

Turn over for next question

1 3

Compare the use of the two materials shown below for packaging large electronic products

[4 marks]

This source has been removed due to third-party copyright restrictions.

Figure 5

Moulded paper pulp packaging

This source has been removed due to third-party copyright restrictions.

Figure 6

Expanded polystyrene packaging

1	4
---	---

A video games manufacturer wants to reduce the amount of packaging for one of their products. The packaging is to keep the same proportions, but has a volume reduction of 25%.

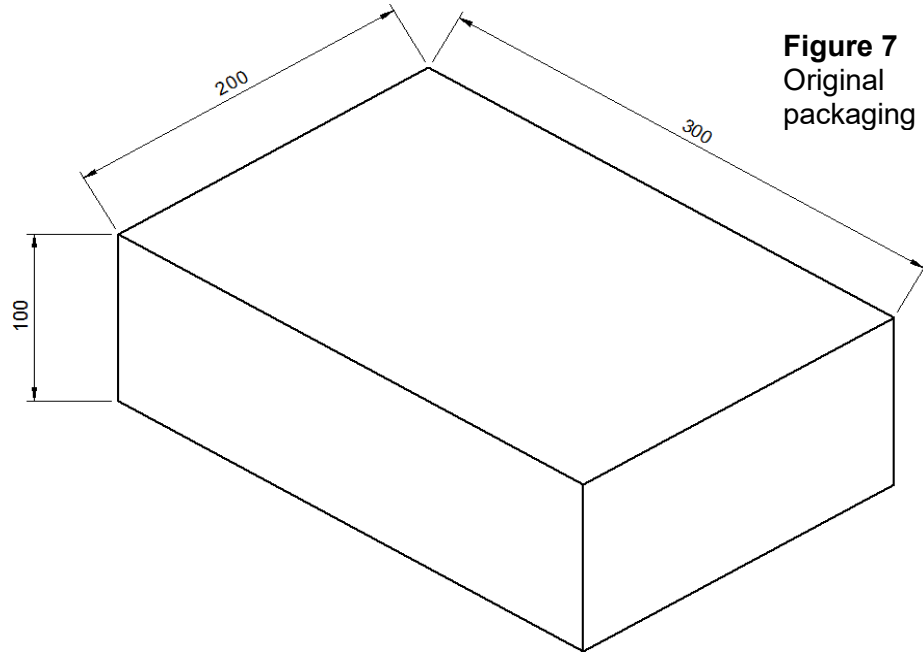


Figure 7
Original
packaging

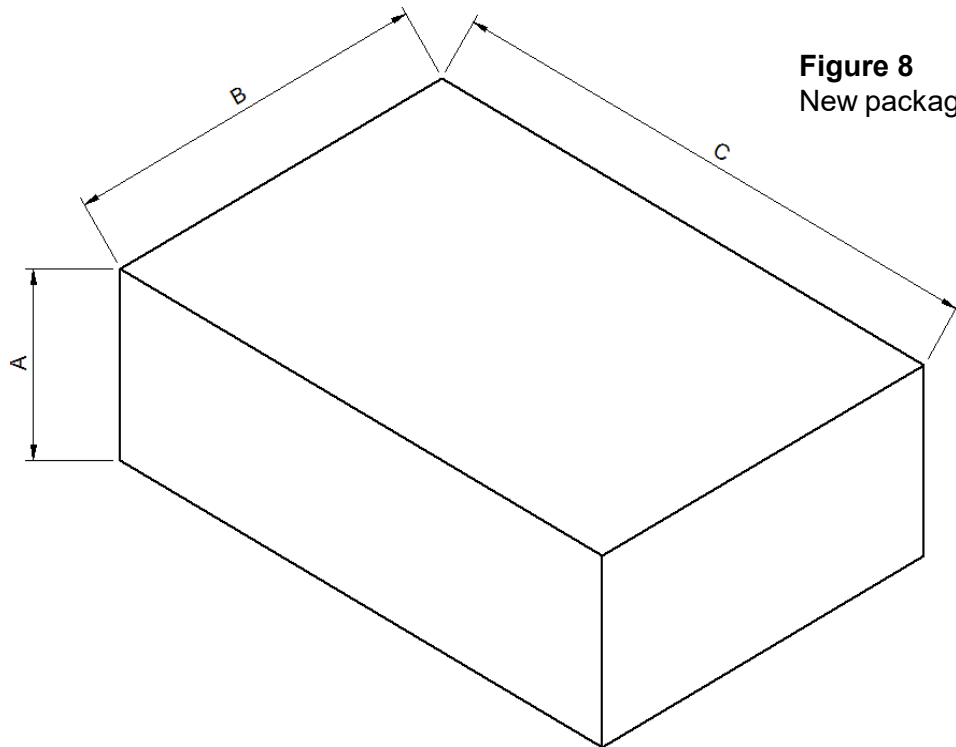


Figure 8
New packaging

Calculate the new length of each side to 2 decimal places. Show your working.

[5 marks]

A _____

mm

B _____

mm

C _____

mm

1 5

The photograph below shows an Eames chair.



Chattanooga, TN / USA - 01312019: Smart Furniture Studio

A furniture maker is manufacturing a replica of the foot stool shown above, using a one-piece foam mould and vacuum bag.

It is going to be manufactured from seven layers of 1.5mm plywood.

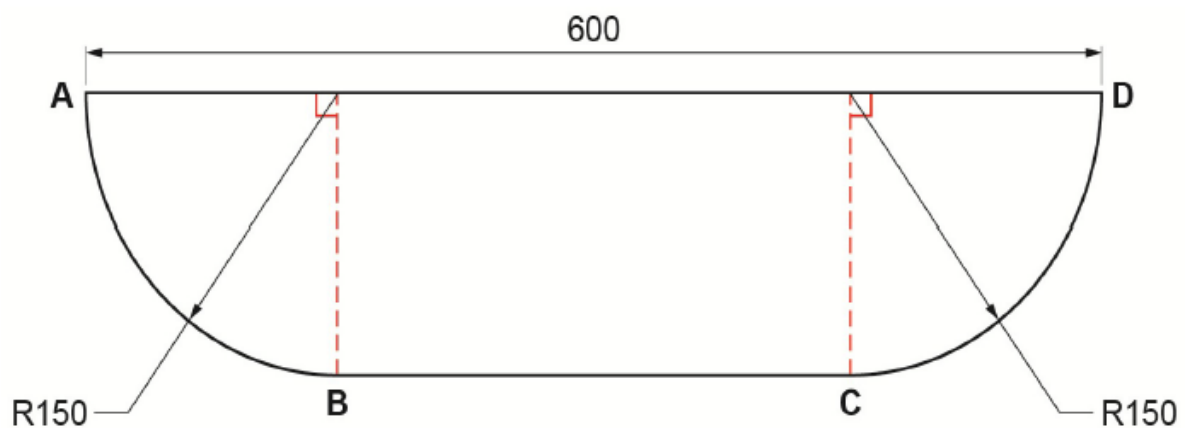


Figure 9 (foam mould)

Not drawn to scale
All dimensions in mm

It is going to be manufactured from seven layers of 1.5mm plywood. Using the dimensioned drawing (**Figure 9**), calculate the length of plywood needed for the **outside** layer of the lamination along the length ABCD to the nearest millimetre.

[4 marks]

