

# 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 \_\_\_\_\_

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**Section A**

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



**Figure 1**  
**Aluminium Juicer**



**Figure 2**  
**Polypropylene juicer**







4

Two vacuum cleaners are shown below.

**Figure 3**



**Figure 4**





**5**

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

**[3 marks]**

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**6**

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

**[2 x 2 marks]**

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**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]**

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**Turn over for next question**

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1 3

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

[4 marks]



**Figure 5**

Moulded paper pulp packaging



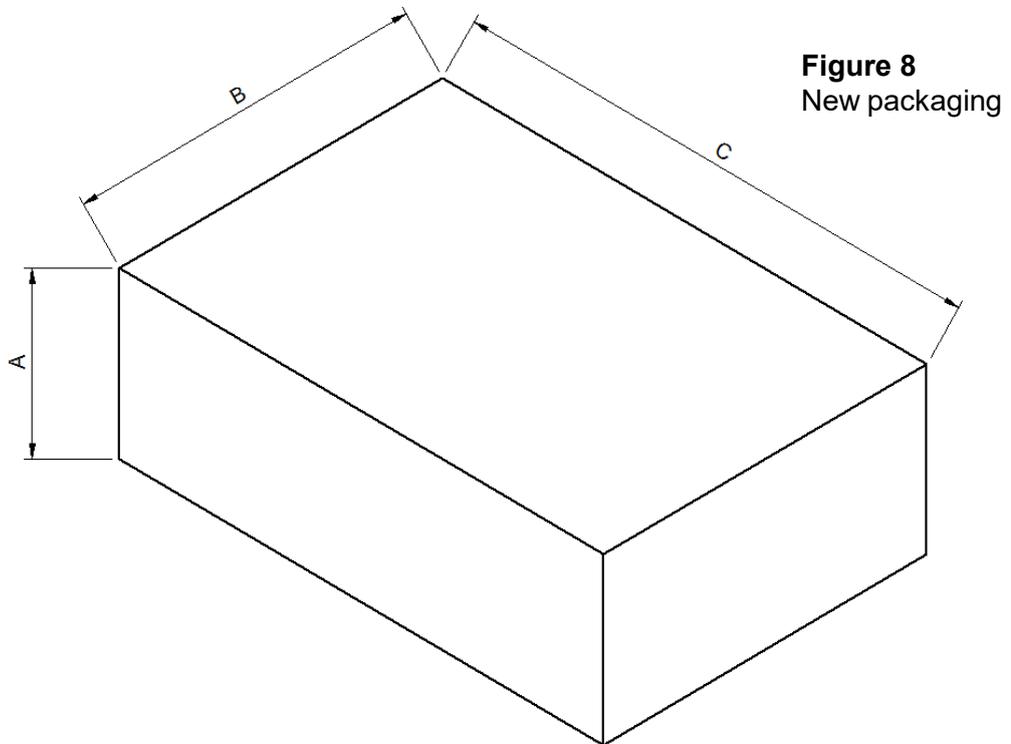
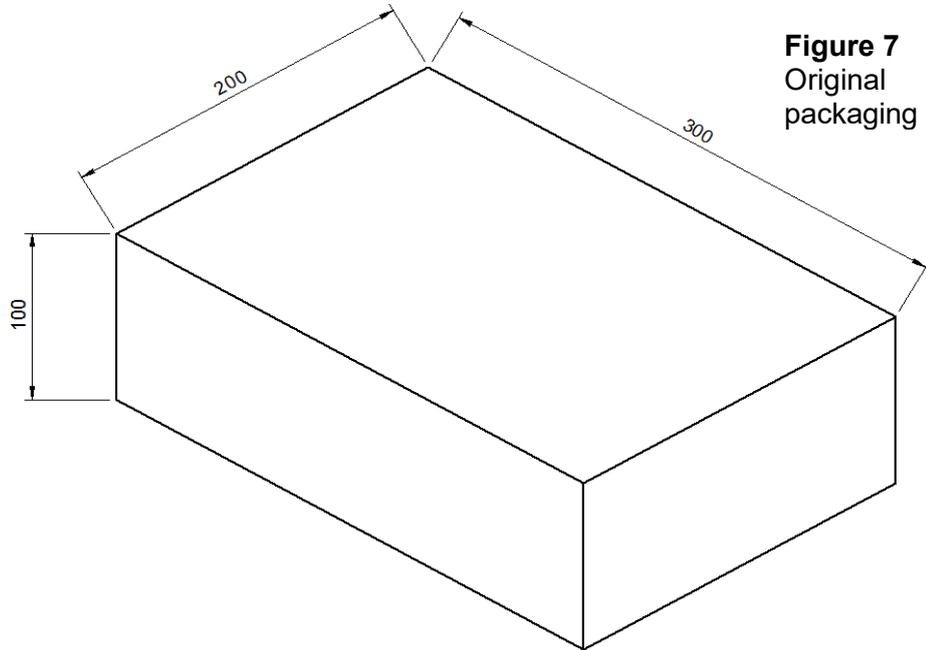
**Figure 6**

Expanded polystyrene packaging



1 4
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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%.



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

**[5 marks]**

A \_\_\_\_\_

mm

B \_\_\_\_\_

mm

C \_\_\_\_\_

mm

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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.

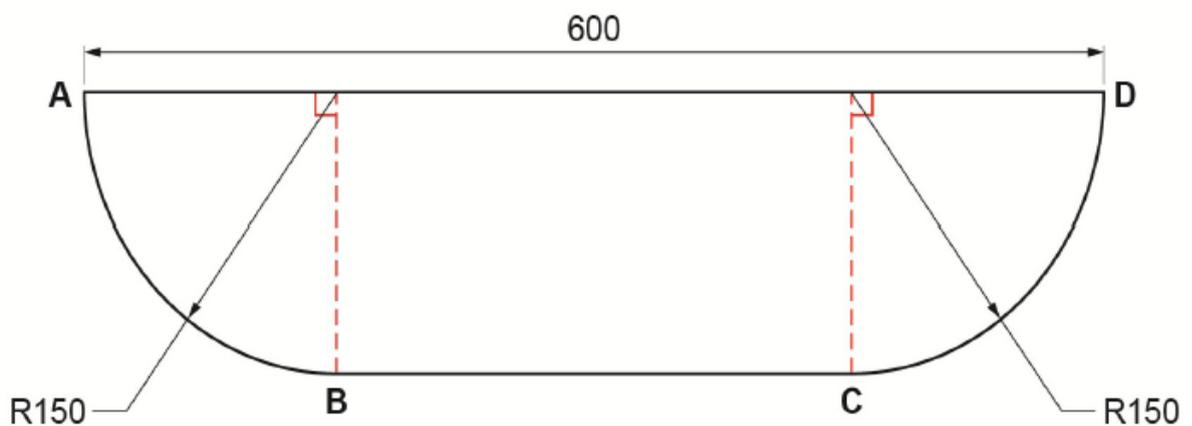


Figure 9 (foam mould)

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]

