

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

Friday 12 June 2020 – Morning

**A Level in Design and Technology:
Product Design**

H406/02 Problem Solving in Product Design

**Time allowed: 1 hour 45 minutes
plus your additional time allowance**

**YOU MUST HAVE:
the Resource Booklet**

**YOU CAN USE:
a ruler (cm/mm)
a scientific calculator
geometrical instruments**

Please write clearly in black ink.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

First name(s) _____

Last name _____

READ INSTRUCTIONS OVERLEAF



INSTRUCTIONS

Use black ink. You can use an HB pencil, but only for graphs and diagrams.

Write your answer to each question in the space provided. You can use extra paper if you need to, but you must clearly show your candidate number, the centre number and the question numbers.

Answer ALL the questions.

Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.

Each question tells you which part of the Resource Booklet to refer to.

INFORMATION

The total mark for this paper is 70.

The marks for each question are shown in brackets [].

Quality of extended response will be assessed in questions marked with an asterisk (*).

ADVICE

Read each question carefully before you start your answer.

BLANK PAGE

Answer ALL the questions.

Before responding to the questions in this paper you must spend time reading and familiarising yourself with the Resource Booklet.

- 1 A local council intends to host a street food market during the Summer months to boost visitor numbers and promote economic growth.**

Critically examine the challenges that would be faced in organising the street food market.

In your response you must consider the different needs and requirements of:

existing businesses in the town

residents.

Refer to information on PAGES 4 AND 5 of the Resource Booklet. [8]

[illegible]

- Compare and contrast the functional suitability of both products in FIG. 4 against the list of council requirements in FIG. 3.**

Refer to information on PAGES 6–11 of the Resource Booklet. [12]

[illegible]

[illegible]

- 3 Street food sellers require a level table on which to prepare food. The Council has been advised that the trestle tables that they have available can be upgraded with standard components as shown in FIG. 5 for use at the street food market.**

Use sketches and/or notes to show how this upgrade could be completed.

In your response you must consider:

how to avoid damage to the existing parts of the trestle table

any tools and/or equipment required

health and safety considerations.

Refer to information on PAGES 13–15 of the Resource Booklet. [12]

- 4* The Council agrees to implement a scheme in its street food market during the Summer months whereby each customer will be given a ‘BambEat’ set.**

Critically evaluate the challenges that would be faced in providing and using this product.

In your response you must consider the environmental and commercial impact on:

the Council

customers of all ages.

Refer to information on PAGES 16 AND 17 of the Resource Booklet. [12]

[illegible]

BLANK PAGE

- 5 The designer has created a concept model of a trolley suitable for the storage of dirty ‘BambEat’ sets after customer use.**

In order to lower transportation and storage costs, the manufacturer needs the final product to be flat-packed.

Use sketches and/or notes to outline suitable methods of assembly in order for the trolley, in FIG. 8, to be flat-packed.

Provide annotations of technical information including:

materials

manufacturing processes

finishes

standard components to be used.

Refer to information on PAGES 18 AND 19 of the Resource Booklet. [20]

- 6 In order to assess the viability of the trolley design, shown in FIG. 8, the designer needs to calculate how many ‘BambEat’ cups and plates will fit in it.**

Calculate the maximum quantity of ‘BambEat’ cups and plates that will fit into the trolley.

Show your working.

Refer to information on PAGES 16–19 of the Resource Booklet, specifically FIG. 7 and FIG. 8. [6]

Number of cups _____

Number of plates _____

END OF QUESTION PAPER

BLANK PAGE

BLANK PAGE



Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.