# OCR
Oxford Cambridge and RSA

# Friday 15 October 2021 — Morning

## A Level in Design and Technology: Design Engineering

**H404/02** Problem Solving in Design Engineering

**Time allowed: 1 hour 45 minutes**

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**You must have:**
- the Resource Booklet

**You can use:**
- a ruler (cm/mm)
- a scientific calculator
- geometrical instruments

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Please write clearly in black ink. **Do not write in the barcodes.**

Centre number | ☐☐☐☐☐  Candidate number ☐☐☐☐

First name(s) _____

Last name _____

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## 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 (*).
- This document has **16** pages.

## ADVICE
- Read each question carefully before you start your answer.

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web astm a6 generally limits the permitted variation in straight ness for a w shape used as beam to 1 8 number of feet of total length 10 for both camber and sweep thus for a 30 long beam the general permissible varia tion from straightness would be 3 8

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web astm a6 sets the acceptable variance for member length straightness camber sweep and cross sec tion properties cross section properties addressed are overall depth and width fl ange and web thickness and fl ange out of alignment see table 1

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