Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

DESIGN AND TECHNOLOGY
Paper 1  Product Design

October/November 2017
1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment and coloured pencils.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces on both printed Answer Sheets.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.
DO NOT WRITE IN ANY BARCODES.

Answer one question.
Write/draw your answers in the spaces provided on the Answer Sheets.
You may use a calculator.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [  ] at the end of each question or part question.
The total of the marks for this paper is 50.

This document consists of 4 printed A4 pages and 2 A3 Inserts.
Design a unit that can be used at a convenient height when a person is filling plant pots with compost soil. The unit should fold flat for storage.

(a) List four additional points about the function of such a unit that you consider to be important. [4]

(b) Show two different methods which could be used to provide a folding feature on such a unit. [4]

(c) Develop and sketch three ideas for the unit. [12]

(d) Evaluate your ideas and justify why you have chosen one idea to develop more fully. [8]

(e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]

(f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]

(g) Outline a method used to manufacture one part of your solution. [6]
A company wishes to promote a range of greenhouses. Potential customers will receive the model in an envelope in flat-pack form.

Design a three dimensional (3D) flat-pack model of a greenhouse.

(a) List four additional points about the function of such a 3D model that you consider to be important. [4]

(b) Use sketches and notes to show two different methods of making a flat-pack 3D model pop up when released from an envelope. [4]

(c) Develop and sketch three ideas for the 3D model. [12]

(d) Evaluate your ideas and justify why you have chosen one idea to develop more fully. [8]

(e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]

(f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]

(g) Outline a method used to manufacture one part of your solution. [6]
3 Greenhouse doors are left open during hot days.

Design a device which will automatically close a greenhouse door when the temperature falls.

(a) List four additional points about the function of such a device that you consider to be important. [4]

(b) Use sketches and notes to show two mechanisms which could be used to convert rotary to linear motion. [4]

(c) Develop and sketch three ideas for the device. [12]

(d) Evaluate your ideas and justify why you have chosen one idea to develop more fully. [8]

(e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]

(f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]

(g) Outline a method used to manufacture one part of your solution. [6]