



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

0445/13

Paper 1 Design

October/November 2012

1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment

To be taken together with the optional paper for which you have been entered in one session of 2 hours and 15 minutes.



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 a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

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.

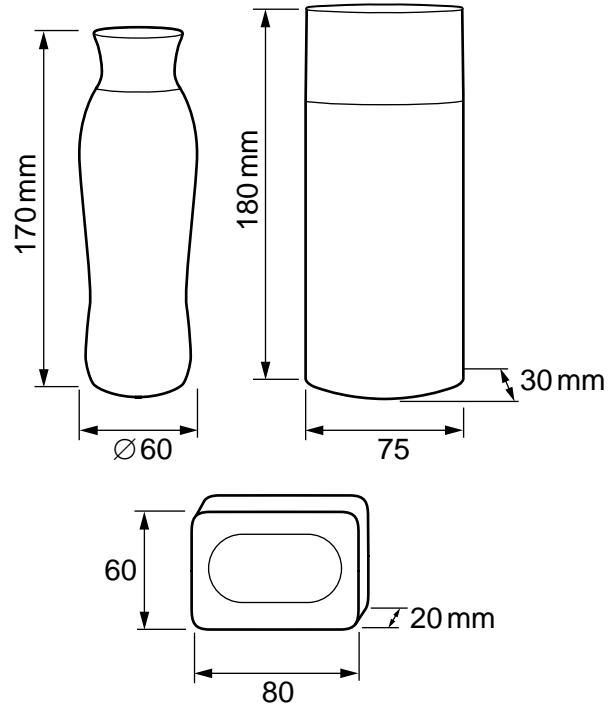
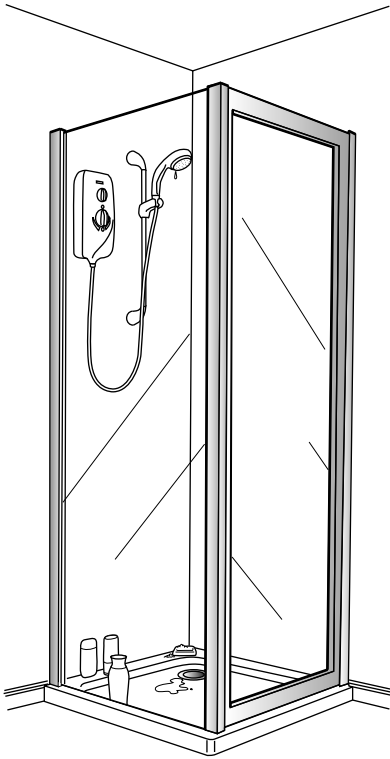
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **4** printed A4 pages and **2** A3 inserts.



Answer **one** question only on the A3 pre-printed answer sheets provided.

- 1 When taking a shower, it is convenient to have essential toiletries, such as shampoo and soap, close to hand.



Design a storage device for inside a shower cubicle that will hold at least two bottles of shampoo and a bar of soap.

- (a) List **four** additional points about the function of such a storage device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods which would allow easy access to storage systems. [4]
- (c) Develop and sketch **three** ideas for the storage 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 major dimensions. [12]
- (f) Suggest suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method of producing **one** part of your solution in the school workshop. [6]

- 2 A shop selling sun protection products requires a point-of-sale display stand which displays products with different sun protection factors. Sun Protection Factors (SPF) 15, 30 and 50 are available. SPF 15 gives the least protection and SPF 50 gives the most protection.

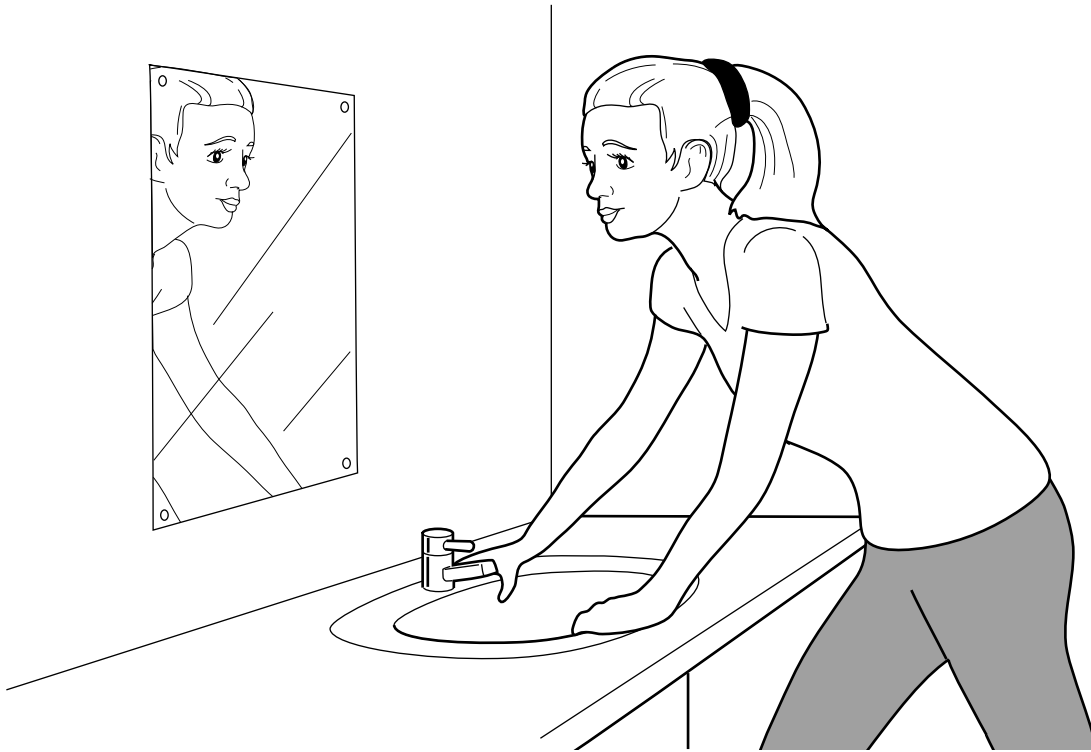


Design a point-of-sale display stand to promote the use of sun protection products, emphasising the increasing protection offered by the products.

- (a) List **four** additional points about the function of such a display unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods by which items can be displayed. [4]
- (c) Develop and sketch **three** ideas for the display 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 major dimensions. [12]
- (f) Suggest suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method of producing a prototype of your solution in the school graphics studio. [6]

4

- 3 Fixed wall-mounted mirrors can often be difficult to use.



Design a wall-mounted mirror which can be adjusted to the needs of the person using it. Your design should incorporate a mechanism to allow the mirror to be adjusted for both height and distance from the person.

- (a) List **four** additional points about the function of such a wall-mounted mirror that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods by which wall-mounted items can be adjusted. [4]
- (c) Develop and sketch **three** ideas for the adjustable wall-mounted mirror. [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 major dimensions. [12]
- (f) Suggest suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method of producing **one** part of your solution in the school workshop. [6]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.