



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

**DESIGN AND TECHNOLOGY**

**0445/12**

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.**

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**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.

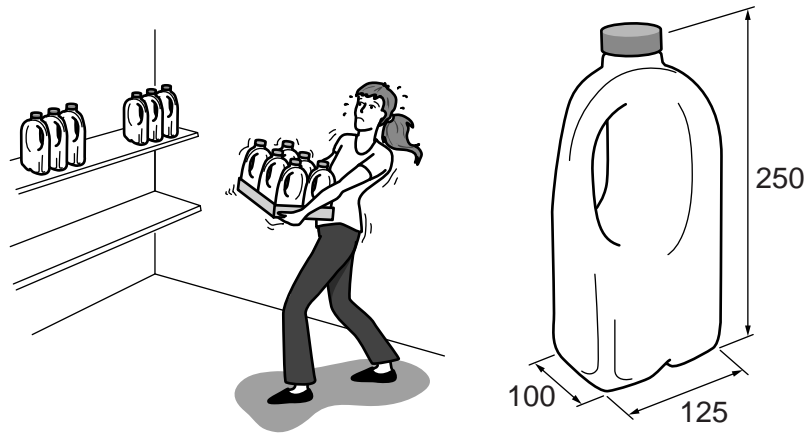
The number of marks is given in brackets [ ] at the end of each question or part question.

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 Shop assistants often have to carry heavy items from the stock-room when stacking shelves.



Design a carrier that would hold six milk containers and help a shop assistant to carry out this task.

- (a) List **four** additional points about the function of such a carrier that you consider to be important. [4]
- (b) Use sketches and notes to show **two** different types of carrying handle. [4]
- (c) Develop and sketch **three** ideas for the carrier. [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 used to manufacture **one** part of your solution in the school workshop. [6]

3

- 2 Plastic bags are a major source of pollution and people need to be encouraged to dispose of them with care.

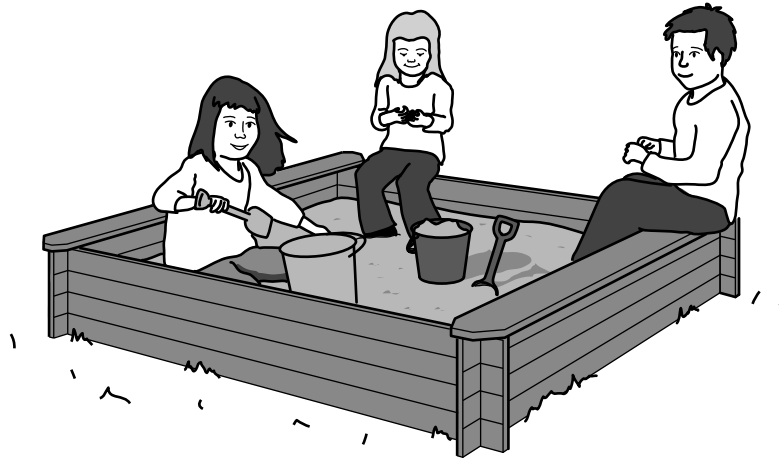


Design a collection system that would encourage people to dispose of plastic bags. The collection system will be made of lightweight materials and sent to shops by parcel post.

- (a) List **four** additional points about the function of such a collection system that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of attracting people's attention to information. [4]
- (c) Develop and sketch **three** ideas for the collection system. [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 Small children enjoy playing in sand but there is often only a small range of toys available.



Design a toy that uses sand to create some form of movement.

- (a) List **four** additional points about the function of such a toy that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways in which movement could be created by using sand. [4]
- (c) Develop and sketch **three** ideas for the toy. [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 materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution in the school workshop. [6]