



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

0445/13

Paper 1 Design

May/June 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.

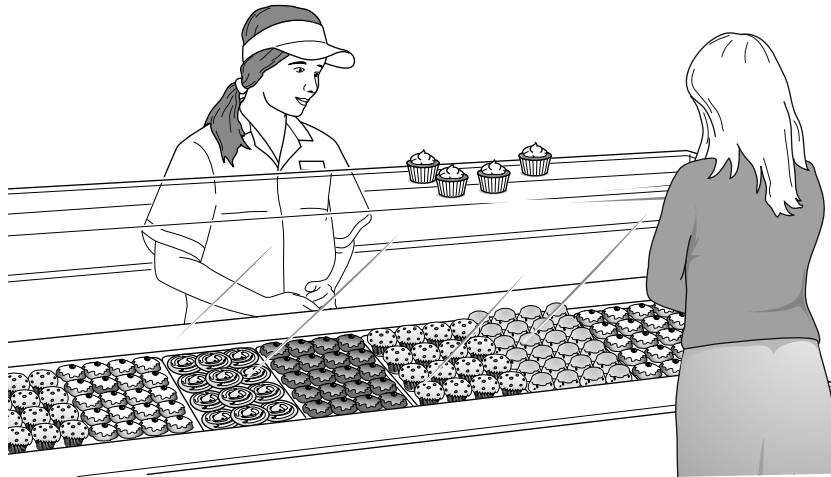
- 1 People spend many hours fishing. Sometimes they have to carry their equipment to the fishing site.



Design a mobile fishing unit to allow the transport of all of the equipment to the fishing site. The unit should allow the person to sit when they are fishing.

- (a) List **four** additional points about the function of such a mobile fishing unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** different methods by which the mobility of such a unit could be achieved. [4]
- (c) Develop and sketch **three** ideas for the mobile fishing 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 used to manufacture **one** part of your solution in the school workshop. [6]

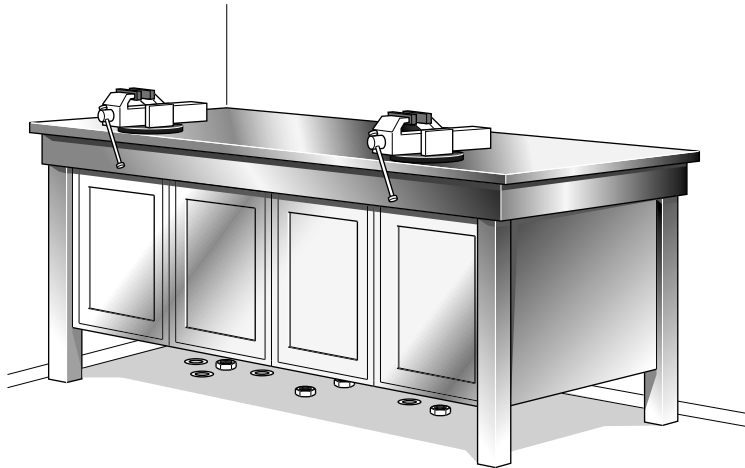
- 2 Shops often sell small cakes which are delicate and fragile.



Design a carrier made from card which would hold up to four small cakes. Your solution should be easy to assemble without the use of glue.

- (a) List **four** additional points about the function of a cake carrier that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods by which joints can be made in card without the use of glue. [4]
- (c) Develop and sketch **three** ideas for the cake 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 of producing a prototype of your solution in the school graphics studio. [6]

- 3 In the workshop small metal items sometimes fall off a bench and roll beyond reach underneath a piece of heavy equipment.



Design a device which allows the retrieval of metal items from beneath such a piece of heavy equipment. Your solution should be able to retrieve both ferrous and non-ferrous items.

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

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