



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

www.PapaCambridge.com

DESIGN AND TECHNOLOGY

0445/12

Paper 1 Design

October/November 2011

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.

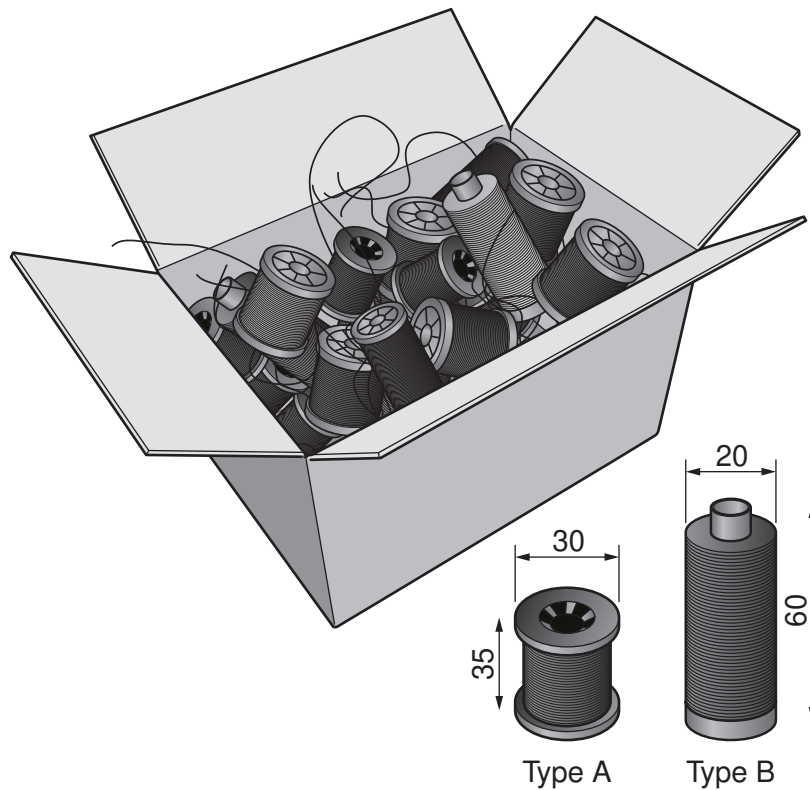
* 9 9 0 7 3 5 1 7 8 6 *

This document consists of 4 printed A4 pages and an Insert.



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

- 1 Cotton reels soon get into a mess and the thread becomes tangled if they are not stored carefully.



Design a storage system to house a selection of cotton reels when not being used. The system should hold at least 15 reels of Type A and 20 reels of Type B. All reels have an 8 diameter hole running through the centre.

- (a) List **four** additional points about the function of such a storage system that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways in which items such as cotton reels could be held in place in a storage system. [4]
- (c) Develop and sketch **three** ideas for the storage 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 used to manufacture **one** part of your solution in the school workshop. [6]

- 2 It is often difficult to get young children to clean their teeth.



Design novelty packaging for toothpaste that would be interesting to young children and encourage them to clean their teeth.

- (a) List **four** additional points about the function of such packaging that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods by which card packaging could be made interesting. [4]
- (c) Develop and sketch **three** ideas for the toothpaste packaging. [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 the novelty packaging in the school graphics studio. [6]

- 3 It can take quite a time to separate coins of different values so that they can be counted.



Design a device that would automatically sort coins into their different values.

- (a) List **four** additional points about the function of such a sorting device that you consider to be important. [4]
- (b) List **four** properties / features that vary between different coins. [4]
- (c) Develop and sketch **three** ideas for the sorting 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 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]