UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

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.

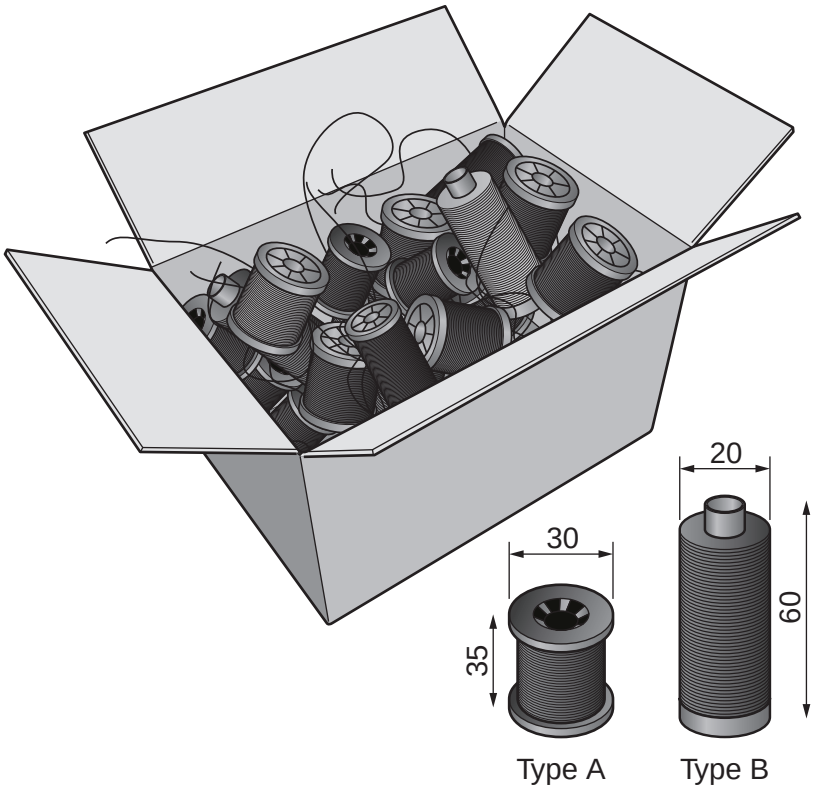
Answer **one** question.
Write/draw your answers in the spaces provided on the Answer Sheets.
You may use a calculator.

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.

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 care



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 count

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]