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**DESIGN AND TECHNOLOGY**

**0445/13**

Paper 1 Design

**May/June 2014**

**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 an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, 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.

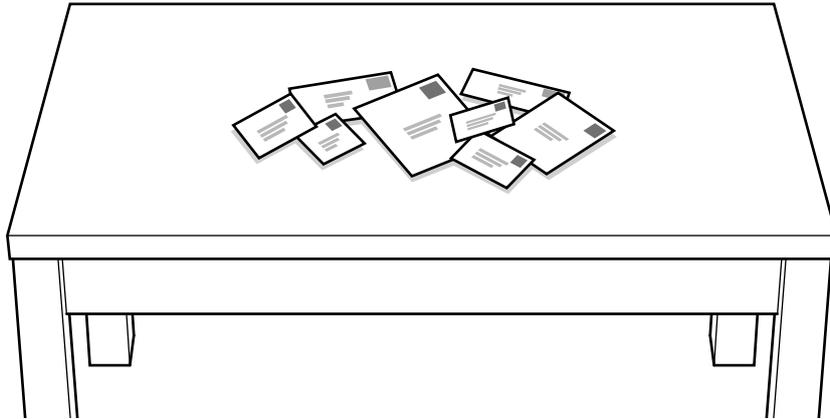
The number of marks is given in brackets [ ] at the end of each question or part question.

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This document consists of 4 printed pages and 2 A3 Inserts.

Answer **one** question

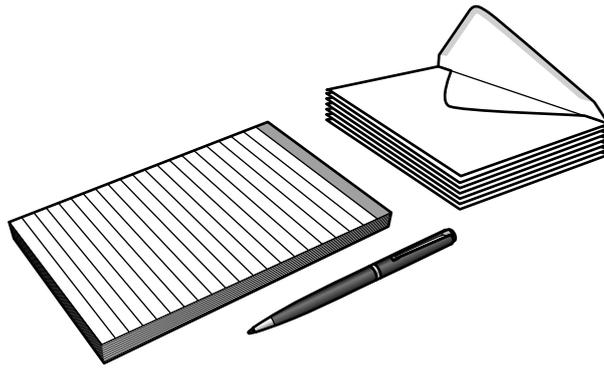
- 1 Envelopes are delivered in different shapes and sizes.



Design a rack which could accommodate several different sizes of envelope and also store a device to open them.

- (a) List **four** additional points about the function of such a rack. [4]
- (b) Use sketches and notes to show **two** different methods of opening envelopes. [4]
- (c) Develop and sketch **three** ideas for the rack. [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]

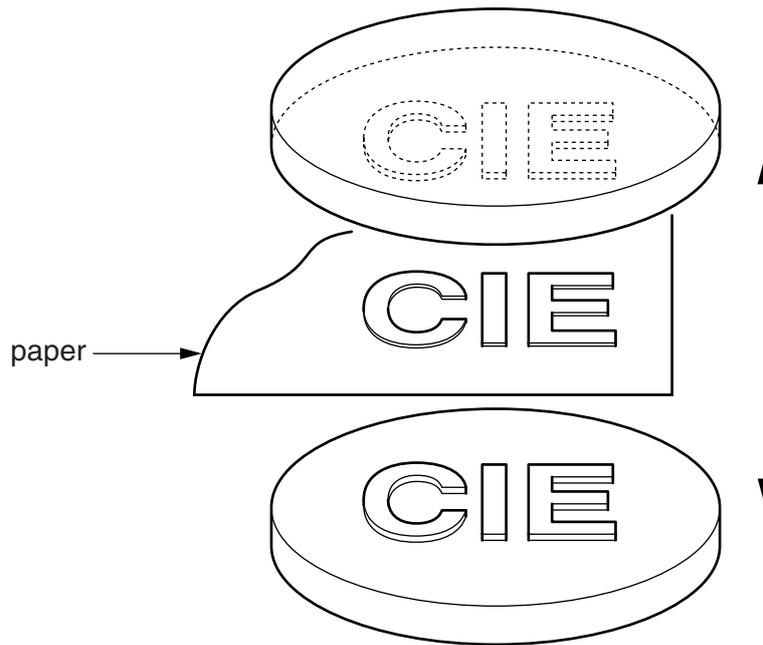
- 2 A manufacturer wishes to design a presentation box for a pen, writing paper and envelopes.



Design a presentation box which holds the items shown above. The design should allow the items to be seen when the box is closed.

- (a) List **four** additional points about the function of such a presentation box. [4]
- (b) Use sketches and notes to show **two** different methods that could be used to strengthen the edge of card. [4]
- (c) Develop and sketch **three** ideas for the presentation box. [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 To provide a security mark, letters can be embossed with the initials of a person or company.



Design a hand-operated device that will allow the user to bring together the two discs shown above to leave an embossed shape on a single sheet of paper.

- (a) List **four** additional points about the function of such an embossing device. [4]
- (b) Use sketches and notes to show **two** different mechanisms that could be used to move two surfaces together and apart again. [4]
- (c) Develop and sketch **three** ideas for the embossing 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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