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]
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]