

## Cambridge International Examinations

Cambridge International General Certificate of Secondary Education

## **DESIGN AND TECHNOLOGY**

Paper 1 Product Design

0445/13 October/November 2015 1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment and coloured pencils.

## 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.DO **NOT** WRITE IN ANY BARCODES.

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

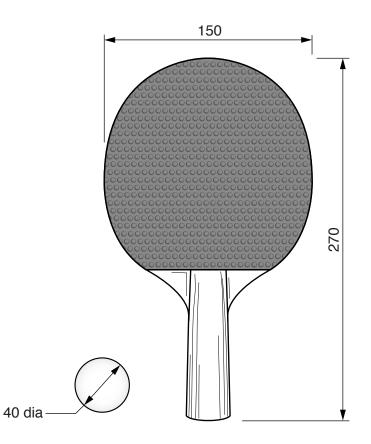
At the end of the examination, fasten all your work securely together. The number of marks is given in brackets [] at the end of each question or part question. The total of the marks for this paper is 50.

This document consists of 4 printed A4 pages and 2 A3 Inserts.



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

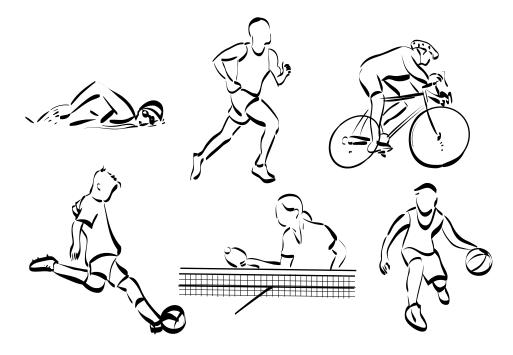
1 Sports equipment needs to be stored carefully when not in use.



Design a unit to store four table tennis bats and six table tennis balls.

- (a) List **four** additional points about the function of such a unit that you consider to be important. [4]
- (b) Use sketches and notes to show two ways by which a table tennis ball could be held in the unit so that it does not roll around. [4]
- (c) Develop and sketch three ideas for the 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 two 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. [6]

2 People are encouraged to take part in sports to help them keep fit and healthy.



Design a display for use in the entrance to a sports centre that will encourage people to take part in a sport of your choice. The display must include a slogan and some form of moving feature.

- (a) List four additional points about the function of such a display that you consider to be important. [4]
- (b) Use sketches and notes to show two ways by which movement might be achieved on such a display.
  [4]
- (c) Develop and sketch three ideas for the display. [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 two 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. [6]

[6]

**3** Golfers need to walk to retrieve the ball when practising putting.





Design a device that could be used to return the ball to the golfer after each successful putt.

- (a) List four additional points about the function of such a device that you consider to be important. [4]
- (b) Use sketches and notes to show two ways by which a golf ball could be sent back to the golfer. [4]
- (c) Develop and sketch three ideas for the 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 important dimensions. [12]
- (f) Suggest two 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.

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