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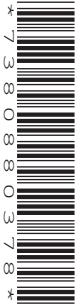
DESIGN & TECHNOLOGY

0445/12

Paper 1 Product Design

October/November 2025

1 hour 15 minutes



You must answer on the two pre-printed A3 answer sheets

You will need: Two A3 pre-printed answer sheets (enclosed)
Standard drawing equipment
Coloured pencils

INSTRUCTIONS

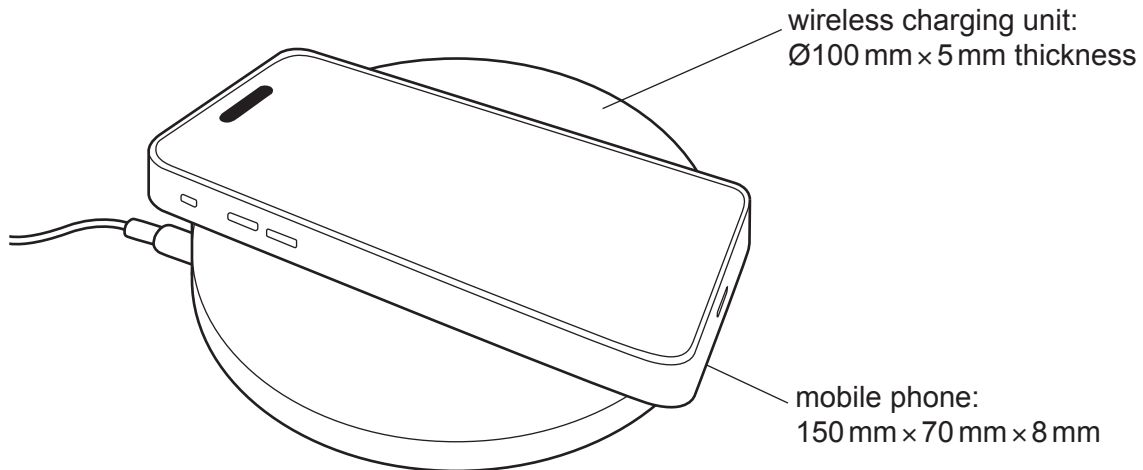
- Answer **one** question.
- Use an HB pencil for any drawings and a black or dark blue pen for any writing.
- Write your name, centre number and candidate number in the space on **both** pre-printed answer sheets.
- Answer in the space provided on the answer sheets.
- Do **not** use an erasable pen, staples, paper clips, glue or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You may use standard drawing equipment, including coloured pencils.
- At the end of the examination, hand in your named A3 answer sheets. Do **not** fasten them together and do **not** punch holes in the sheets or tie with string.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].
- All dimensions are in millimetres unless otherwise stated.

This document has 4 pages.

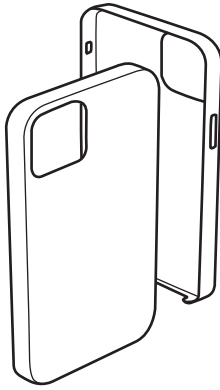
- 1 When staying in a hotel, travellers need to charge their mobile phone.



Design a mobile phone charging station for a hotel room that incorporates the wireless charging unit shown. The charging station must be wall-mounted and be clearly identified as a place where a mobile phone can be charged.

- (a) List **four** additional points about the function of such a mobile phone charging station that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of securely attaching a product to a wall. [4]
- (c) Develop and sketch **three** separate ideas for the mobile phone charging station. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

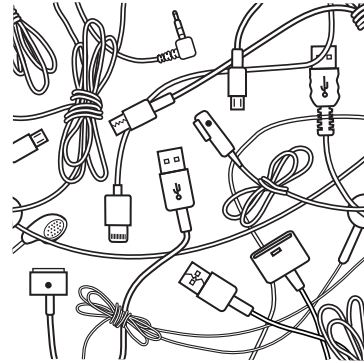
- 2 Rapid developments in mobile phone technology mean that accessories can quickly become outdated.



mobile phone cases



headphones

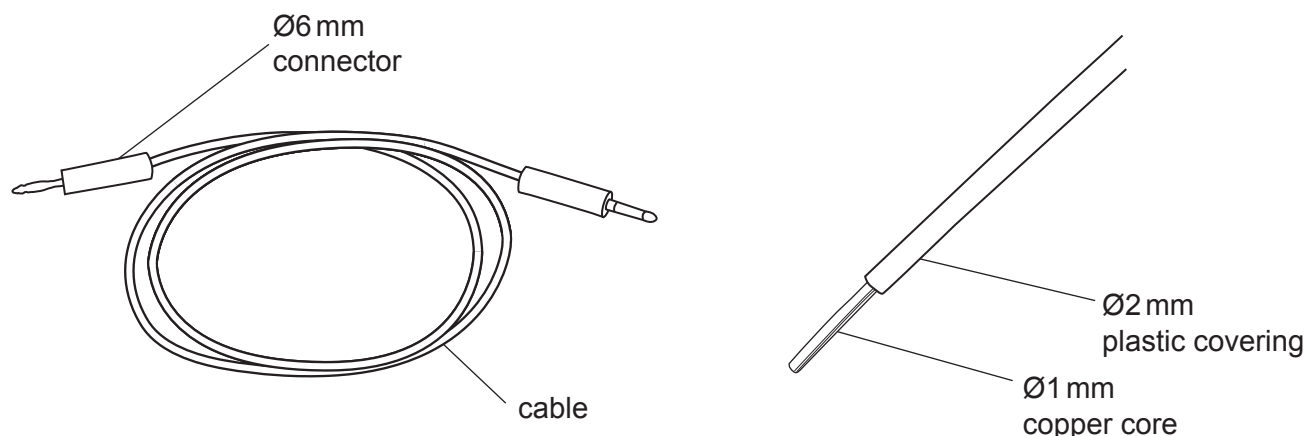


charging cables

Design a recycling unit for depositing outdated mobile phone accessories. The recycling unit must be made from lightweight graphic materials and have clearly identifiable containers for mobile phone cases, headphones and charging cables.

- (a) List **four** additional points about the function of such a recycling unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of identifying containers for items that are to be recycled. [4]
- (c) Develop and sketch **three** separate ideas for the recycling unit. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

- 3 The plastic coverings must be removed from cables in order to recycle the copper wires.



Design a device which will firstly cut off the connectors from the ends of the cable shown and then remove the plastic covering.

- (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** methods of cutting copper wire. [4]
- (c) Develop and sketch **three** separate ideas for a device that will cut the connectors off and remove the plastic covering from the cables. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

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