



# Cambridge IGCSE™

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## DESIGN & TECHNOLOGY

0445/13

Paper 1 Product Design

May/June 2022

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

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### 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

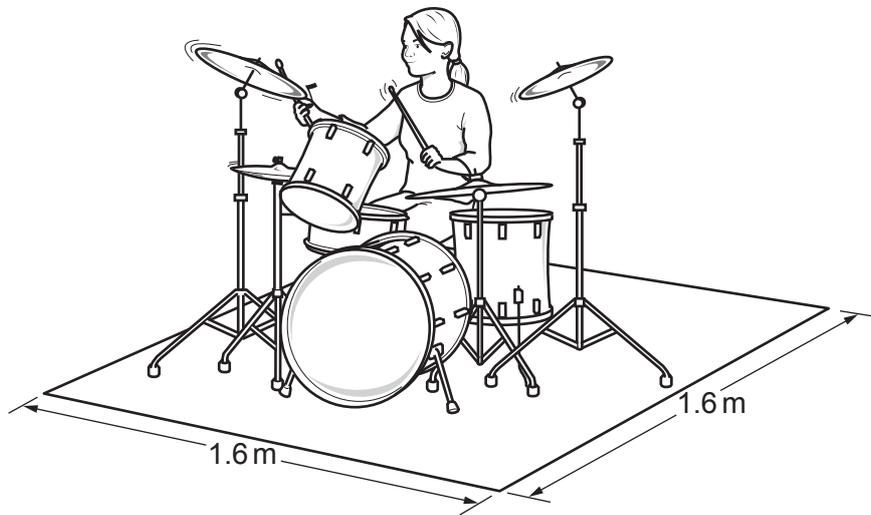
- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].
- All dimensions are in millimetres.

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This document has 4 pages.

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

- 1 A music band requires a raised platform area to allow the drummer to be more visible to the audience.



Design a raised platform area that can be easily transported and used at different venues.

- (a) List **four** additional points about the function of such a raised platform area that you consider to be important. [4]
- (b) Use sketches and notes to show **two** temporary fixing methods that allow the product to be easily taken apart and reassembled. [4]
- (c) Develop and sketch **three** separate ideas for the raised platform area. [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 People often like to eat and drink refreshments while standing watching a concert.



Design a disposable holder for a drink and an item of food that can be held in one hand.

- (a) List **four** additional points about the function of such a disposable holder that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of holding drink and food items. [4]
- (c) Develop and sketch **three** separate ideas for the disposable holder. [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 Music venues often want to know how many people have attended different concerts.



Design a device that will automatically count and display the number of people passing through the entrance into the music venue.

- (a) List **four** additional points about the function of such a counting device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of displaying numerical information. [4]
- (c) Develop and sketch **three** separate ideas for the counting device. [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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