

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International Advanced Subsidiary and Advanced Level

MARK SCHEME for the October/November 2014 series

9705 DESIGN AND TECHNOLOGY

9705/12

Paper 1, maximum raw mark 120

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

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Section A

- 1 (a) Each suitable reason given 1 mark
- e.g. available in large sizes [1]
- more stable [1] [2]
- cheaper
- (b) (i) Appropriate cutting and smoothing processes described [0–3]
- Details of appropriate tools, equipment and safety precautions [0–3] [6]
- (ii) Appropriate knock-down fittings identified and illustrated [0–2]
- Appropriate use of knock-down fittings described [0–2]
- Details of appropriate tools, equipment and safety precautions [0–2] [6]
- (iii) Appropriate painting process described [0–3]
- Details of appropriate tools, equipment and safety precautions [0–3] [6]
- [Total: 20]
- 2 (a) Each appropriate advantage 1 mark
- e.g. easier to store when not in use [1]
- less likely to be damaged when not in use [1] [2]
- (b) Pictorial view has been produced [1]
- Parts correctly assembled [0–2]
- Thickness of card shown on at least some parts [1]
- Quality of drawing [0–2] [6]
- (c) (i) Appropriate method of marking out described [0–2]
- Appropriate method of cutting out described [0–2]
- Details of appropriate tools, equipment and safety precautions [0–2] [6]
- (ii) Making of appropriate stencils described [0–2]
- Appropriate use of stencils described [0–2]
- Details of appropriate tools, equipment and safety precautions [0–2] [6]
- [Total: 20]

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- 3**
- (a)**
 - (i)** Suitable plastic named
e.g. acrylic
polystyrene
Perspex
 - (ii)** Suitable glue named
e.g. solvent (or tensol) cement
polystyrene cement
epoxy resin (araldite) [1] [2]

 - (b)**
 - Appropriate (consistent) scale used [1]
 - One piece development (net) drawn [1]
 - 3–4 sides correctly joined [0–2]
 - 5–7 sides correctly joined [0–2] [6]

 - (c)**
 - (i)** Appropriate cutting out and smoothing processes described [0–3]
Details of appropriate tools, equipment and safety precautions [0–3] [6]
 - (ii)** Appropriate bending process described [0–3]
Details of appropriate tools, equipment and safety precautions [0–3] [6]
- [Total: 20]**

Section B

- 4**
- (a)** Explanation of symbol [0–2] [2]
e.g. the **e** mark indicates that the content (in litres) is an average quantity.

 - (b)** Problem one identified and described [0–2]
Problem two identified and described [0–2] [4]

 - (c)** Explanation of how problem one could be overcome [0–3]
Explanation of how problem two could be overcome [0–3] [6]
e.g. increase height of front
add end pieces
add piece similar to front to back to improve stability

 - (d)** Situation has been analysed and relevant issues / points identified [0–3]
Clear and appropriate explanations of why issues / points are considered relevant [0–3]
Specific examples / evidence used to support conclusions [0–2] [8]
- [Total: 20]**

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- 5 (a) Appropriate explanation of the purpose of feature X
e.g. this feature is a pop-up mechanism and makes the design stand off the back surface when the card is opened.
- (b) Problem one identified and described [0–2]
Problem two identified and described [0–2] [4]
e.g. text is missing from some instructions
some instructions do not have any illustrations
- (c) Explanation of how problem one could be overcome [0–3]
Explanation of how problem two could be overcome [0–3] [6]
e.g. appropriate text added to stages 3 and 5
appropriate illustrations added to stages 2, 4 and 8
- (d) Situation has been analysed and relevant issues / points identified [0–3]
Clear and appropriate explanations of why issues / points are considered relevant [0–3]
Specific examples / evidence used to support conclusions [0–2] [8]
- [Total: 20]
- 6 (a) Appropriate explanation of the purpose of feature X [0–2] [2]
e.g. this is the part you hold and twist round to open and close the vice.
- (b) Problem one identified and described [0–2]
Problem two identified and described [0–2] [4]
e.g. no safety guards
machine is not fixed to the floor
- (c) Explanation of how problem one could be overcome [0–3]
Explanation of how problem two could be overcome [0–3] [6]
e.g. appropriate safety guard added
machine is bolted to floor
- (d) Situation has been analysed and relevant issues / points identified [0–3]
Clear and appropriate explanations of why issues / points are considered relevant [0–3]
Specific examples / evidence used to support conclusions [0–2] [8]
- [Total: 20]

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7	<p>(a) One pre-conceived idea presented OR The development and selection of a range of ideas into a single design proposal which would appear to work but lacks some technical detail OR The development and selection of a range of ideas into a single design proposal which would appear to technical detail to show that the proposed solution would clearly work Clarity and quality of sketching and explanatory notes Evaluation (reasons for selection)</p>	<p>[5–8] [9–12] [0–4] [0–4] [20]</p>
	<p>(b) As for part (a)</p>	<p>[20]</p>
	<p>(c) As for part (a)</p>	<p>[20]</p>
	<p>(d) The drawing will exhibit a reasonable standard of outcome and show some of the required design features OR The drawing will exhibit a good standard of outcome and show most of the design features required to make the product function as intended OR The drawing will be completed to a high standard of outcome and fully show the design features required to make the product function as intended</p>	<p>[0–5] [6–9] [10–14]</p>
	<p>Some use made of colour and tone to enhance the visual impact of the drawing OR Good use has been made of colour and tone to enhance the visual impact of the drawing OR Very good use has been made of colour, tone and material representation to enhance the visual impact of the drawing</p>	<p>[0–2] [3–4] [5–6] [20]</p>
		<p>[Total: 80]</p>

Questions 8 and 9 as for Question 7