
DESIGN AND TECHNOLOGY

9705/12

Paper 1

October/November 2018

MARK SCHEME

Maximum Mark: 120

Published

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 International will not enter into discussions about these mark schemes.

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This document consists of **6** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

the specific content of the mark scheme or the generic level descriptors for the question
the specific skills defined in the mark scheme or in the generic level descriptors for the question
the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
marks are awarded when candidates clearly demonstrate what they know and can do
marks are not deducted for errors
marks are not deducted for omissions
answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Section A

Question	Answer	Marks
1(a)	An alloy is formed by mixing two or more metals or other elements to create a new metal (1 mark) which has improved properties (1 mark)	2
1(b)(i)	Appropriate processes for making part A described (0–3) Details of appropriate tools, equipment and safety precautions (0–3)	6
1(b)(ii)	Appropriate processes for making part B described (0–3) Details of appropriate tools, equipment and safety precautions (0–3)	6
1(b)(iii)	Riveting process described (0–3) Details of appropriate tools, equipment and safety precautions (0–3)	6

Question	Answer	Marks
2(a)	Impossible to fit wire through some of the holes (1 mark) because the pre made bends will prevent it going through (1 mark)	2
2(b)(i)	Appropriate processes for making person B described (0–3) Details of appropriate tools, equipment and safety precautions (0–3)	6
2(b)(ii)	Appropriate processes for making part C described (0–3) Details of appropriate tools, equipment and safety precautions (0–3)	6
2(b)(iii)	Appropriate stages identified and described (0–3) Details of appropriate tools, equipment and safety precautions (0–3)	6

Question	Answer	Marks
3(a)(i)	Size related to height of dog described or given in mm	1
3(a)(ii)	Size related to length of dog described or given in mm	1
3(b)(i)	Cutting out and assembling processes described (0–3) Slits cut in top of body so glue tabs are not visible (1) Details of appropriate tools, equipment and safety precautions (0–2)	6
3(b)(ii)	Correct shape for roof development (1) Correct shape for remainder of kennel development (0–3) At least 2 correct glue tabs shown 1 mark OR At least 4 correct glue tabs shown 2 marks (0–2)	6
3(c)	Work plan produced which shows stages in a clear and logical order (0–2) Appropriate processes for cutting out and assembling model described (0–2) Details of appropriate tools, equipment and safety precautions (0–2)	6

Section B

Question	Answer	Marks
4(a)	Space for hand to fit in (1 mark) to lift chair (1 mark)	2
4(b)	<p>Problem one identified and described (0–2)</p> <p>Problem two identified and described (0–2)</p> <p>e.g. chair cannot be fully assembled, some slots are missing and others are in the wrong place and the wrong length.</p> <p>Seat not secure thus can slide out of position</p>	4
4(c)	<p>Explanation of how problem one could be overcome (0–3)</p> <p>Explanation of how problem two could be overcome (0–3)</p> <p>e.g. add slots of correct size and in correct place to the seat, position of slots on the back need to be changed and their length increased</p>	6
4(d)	<p>Situation has been analysed and relevant issues/points identified (0–3)</p> <p>Clear and appropriate explanations of why issues/points are considered relevant (0–3)</p> <p>Specific examples/evidence used to support conclusions (0–2)</p> <p>e.g. Flat packing – Instructions, knock down fittings, transportation and immediate delivery, emotional purchase (likely to keep once built), less expensive, more environmentally friendly to transport (more fit in a container or lorry). Smooth corners to prevent injury.</p>	8

Question	Answer	Marks
5(a)	Makes it easier to tuck the tab in (1 mark) and secures the lid more securely (1 mark)	2
5(b)	<p>Problem one identified and described (0–2)</p> <p>Problem two identified and described (0–2)</p> <p>e.g. the development is not correct and the four parts will not lock together because one part is the wrong way round and one part is not the correct shape</p>	4
5(c)	<p>Explanation of how problem one could be overcome (0–3)</p> <p>Explanation of how problem two could be overcome (0–3)</p> <p>e.g. part D needs to be turned round and part A needs to have a rectangular piece cut out of the bottom edge</p>	6

Question	Answer	Marks
5(d)	<p>Situation has been analysed and relevant issues/points identified (0–3)</p> <p>Clear and appropriate explanations of why issues/points are considered relevant (0–3)</p> <p>Specific examples/evidence used to support conclusions (0–2)</p> <p>e.g. Environment, waste, cost, PR/marketing, weight/size, in transit, legislation</p>	8

Question	Answer	Marks
6(a)	The screw rotates (1 mark) and moves the plastic forward into the mould (1 mark)	2
6(b)	<p>Problem two identified and described (0–2)</p> <p>Problem one identified and described (0–2)</p> <p>e.g. there is no way of getting the plastic granules into the machine (hopper), the plastic needs to be heated, there is no method of doing this shown</p>	4
6(c)	<p>Explanation of how problem one could be overcome (0–3)</p> <p>Explanation of how problem two could be overcome (0–3)</p> <p>e.g. a hopper or other method of feeding the plastic into the machine needs to be shown, an appropriate method of heating the plastic needs to be included</p>	6
6(d)	<p>Situation has been analysed and relevant issues/points identified (0–3)</p> <p>Clear and appropriate explanations of why issues/points are considered relevant (0–3)</p> <p>Specific examples/evidence used to support conclusions (0–2)</p> <p>e.g. Training, repetition, automation (less jobs), Health & Safety</p>	8

Section C

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

Questions 8 and 9 as for Question 7