GCE

Design and Technology

H006/01: Principles of product design

AS Level

Mark Scheme for June 2022

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

MARKING INSTRUCTIONS

PREPARATION FOR MARKING
RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **number of required** standardisation responses.

YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or the RM Assessor messaging system, or by email.

5. **Crossed Out Responses**
   Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Rubric Error Responses – Optional Questions

Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses

When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).
When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses

When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

7 .Award No Response (NR) if:

- there is nothing written in the answer space

Award Zero '0' if:

- anything is written in the answer space and is not worthy of credit (this includes text and symbols).

Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**
If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail.

9. A*ssistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.*

10. For answers marked by levels of response: Not applicable in F501

a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. **Annotations**

Annotation	Meaning
	Blank Page – this annotation must be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
	Tick
	Cross
	Confused (replaces the question mark)
	Benefit of doubt
	AO1 – Knowledge and understanding
	AO2 – Apply knowledge and understanding
	AO3 - Analyse
	AO4 - Evaluation
	Omission
	Not answered question
	Noted but no credit given
	Too vague
	Own figure rule

REP	Repetition

12. Subject Specific Marking Instructions

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:

- the specification, especially the assessment objectives
- the question paper
- the mark scheme.

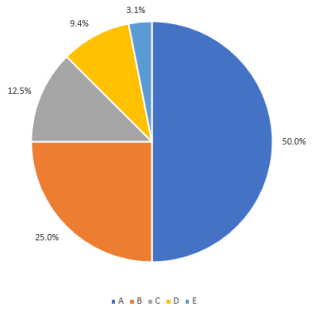
You should ensure that you have copies of these materials.
You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet Instructions for Examiners. If you are examining for the first time, please read carefully Appendix 5 Introduction to Script Marking: Notes for New Examiners.

Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

Question			Answer	Mark	Guidance
1	(a)	(i)	Possible hardwoods may include: • Beech (1). • Maple (1). • Oak (1). • Birch (1). • Teak (1). • Any other valid suggestion.	1	One mark for identifying a suitable hardwood material.
		(ii)	Possible responses may include: If the answer provided by the candidate is beech: • Tough (1) therefore it is likely to withstand heavy use, being moved around a kitchen and walked on without denting (1). • Close grained (1) therefore it is able to have a smooth finish which won't give the user splinters (1). • Attractive (1) so it won't need to have a paint applied to make it desirable (1). • Durable (1) last longer over a period of time (1) • Any other valid suggestion. A similar level of exemplification will be expected from candidates should a different hardwood be given.	4	In each case: One mark for identifying a property of the material identified in part (a) (i). One mark for justifying why the property of the material makes it suitable for the step stool Properties given must relate to the material stated in part (a) (i). Do not award strong unless justified
1	(b)	(i)	Possible standard fixings or components may include: • Cam lock/ Cam fitting (1). • Barrel nut and bolt (1). • Modesty block / corner block (1). • Screw (1). • Any other valid suggestion.	1	One mark for identifying a suitable fixing or component. The fixing must be suitable for flat pack furniture.

		(ii)	Possible benefits to the **manufacturer** may include: • Standard fixings/components could be bought in bulk/at a lower cost (1) saving the manufacturer money as they are already made (1). • Standard fixings/ components do not need to be manufactured (1) saving the manufacturer time (1). • Less skilled workers are needed to make standard fixings/ components (1) therefore saving the manufacturer money (1). • Any other valid suggestion.	**4**	In each case: One mark for identifying a benefit of using standard fixings or components. One mark for justifying why the manufacturer benefits from this approach. Specific reference to the context in the question is needed for marks to be awarded.
1	**(c)**	**(i)**	Possible responses may include: • Drilling Jig (1). Could have been used where the work piece is inserted into the jig and clamped/a template or drill plate is placed over the top to ensure that the holes are in the correct place (1). • Cutting jig (1). Could have been used to slide the workpiece into and cut the length to a specific measurement/ensure the angle of each cut was exactly the same (1). • Sanding jig (1). Could have been used to slide the workpiece into and sand the length to a specific measurement/ensure the angle of each piece was exactly the same (1). • Any other valid suggestion.	**4**	In each case: One mark for identifying a type of jig that could be used in the manufacture of the step stool. One mark for stating one way in which the specified jig could be used in the manufacturing process. Award credit for explanation if no / or incorrect jig stated

		(ii)	**Indicative content:** Importance of jigs in commercial production may include: • Speeds up production as there is no time wasted measuring and marking out. This is important for commercial production as it reduces costs because less time is needed to manufacture each part, so the time in the factories is less and a smaller, less skilled work force is required. • Ensures quality and accuracy as commercial products should be made exactly the same to prevent errors. Without jigs there is a greater chance of human error. This is very important as consumer complaints could lead to negative brand association and a fall in sales. Safety could also be compromised which would lead to huge implications for the manufacturer. • Reduces waste from incorrectly made parts. • Any other valid suggestion.	**6** For MB3 to be awarded there will be two or three statements linked to importance. If candidate does not provide an analytical/evaluative response, then only L1 can be awarded.	**Level 3 [5-6 marks]** The candidate has a clear understanding of the importance of jigs in commercial production They produce a thorough discussion in relation to the question by explaining the importance of jigs and why they are used. The explanation related to commercial production is clear and well-developed. **Level 2 [3-4 marks]** The candidate has a reasonable understanding of the importance of jigs in commercial production. They produce a sound discussion in relation to the question by explaining the importance of jigs and why they are used. The explanation is sufficient although one or two opportunities are missed. **Level 1 [1-2 marks]** The candidate has a basic knowledge of the importance of jigs in commercial production. Any reference is descriptive in nature and has little appreciation of importance (the why!). The response contains no analysis or evaluation. **0 marks** No answer or answer not worthy of credit.

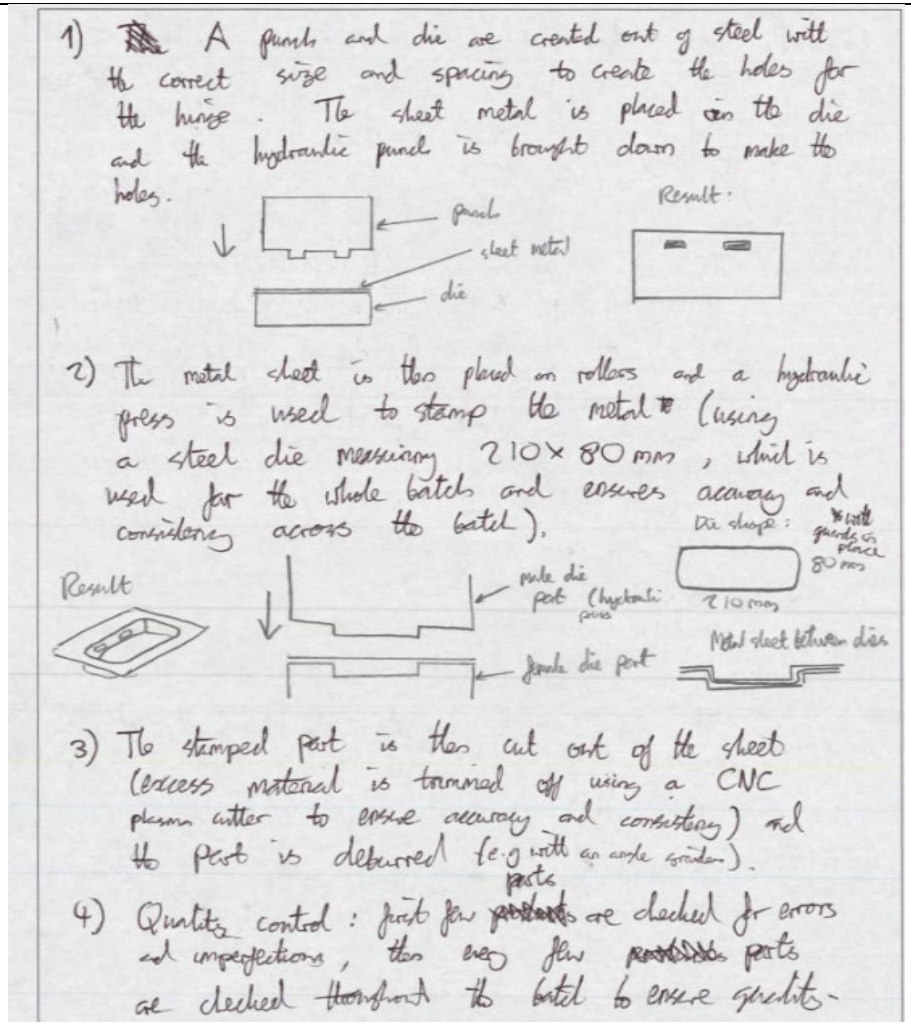
2	(a)		Calculate percentages: Total number of people question 800 A: (400/800) x 100 = 50% B: (200/800) x 100 = 25% C: (100/800) x 100 = 12.5% D: (75/800) x 100 = 9.375% (this could be rounded to 1 decimal place = 9.4%) E: (25/800) x 100 = 3.125% (this could be rounded to 1 decimal place = 3.1%) [1] Total percentages must be 100% Calculate degrees: A*: (50/100) x 360 = 180^0 B*: (25/100) x 360 = 90^0 C*: (12.5/100) x 360 = 45^0 D*: (9.375/100) x 360 = 33.75^0 (or if rounded % = (9.4/100) x 360 = 33.84^0) can be rounded up to 34^0 E*: (3.125/100) x 360 = 11.25^0 (or if rounded % = (3.1/100) x 360 = 11.86) can be rounded down to 11^0 [1] The total number of degrees is 360  [1]	3	Award three marks as follows: One mark for calculating the correct % for each reason. One mark for calculating the correct angle for each reason. One mark for correctly presenting the information in the pie chart. If correct pie chart is shown award full marks (ignore rounding). *Allow error carried forward (ECF) where correct working out is shown. Candidates could round up answers when determining percentages and angles. This approach is valid and should receive the appropriate credit.

	(b)	**(i)**	Minimum length A = 13.4 cm Maximum length B = 18.6 cm (1).	**1**	One mark for identifying minimum length A **and** maximum length B. If only one measurement given award zero marks.
		(ii)	Length of holes: 18.6* cm - 13.4* cm = 5.2 cm (1). Length in between hole centres: 5.2* / 5 (1) = 1.04cm. Strap length at hole C: 13.4* + (2x1.04*) = 15.48 cm (1).	**3**	Award three marks as follows: One mark for calculating the length of the holes. One mark for recognising the total length of holes should be divided by 5. One mark for calculating the strap length at hole C. If correct answer is given without working out shown award full marks. Where an incorrect answer is given working out should be used to credit appropriate marks. *Allow error carried forward (ECF) where correct working out is shown.
2	**(c)**	**(i)**	Number of steps = 6000 (1).	**1**	One mark for identifying 6000 steps from graph.

	(d)		Stride distance in cm: 156 x 0.413 = 64.428 cm (1). Distance travelled in 10 000 strides: 64.428 * x 10 000 = 64 4280 cm (1). Distance in km: 64 4280 / 100 000 = 6.44 km (1).	**3**	Award three marks as follows: One mark for calculating the stride length. One mark for calculating the distance travelled. One mark for converting cm to km. If correct answer is given without working out shown award full marks. Where an incorrect answer is given working out should be used to credit appropriate marks. *Allow error carried forward (ECF) where correct working out is shown.

3	**(a)**		Possible sheet metal may include: • Mild Steel (1). High resistance to breakage so withstand the opening and shutting of the tin (1). • Aluminium alloy (1). Good strength to weight ratio so will be light to carry around in a school bag (1). • Stainless steel (1). Tough so will not easily change shape if knocked when in a bag (1). • Any other valid suggestion.	**2**	One mark for identifying a suitable sheet metal. One mark for justifying why the property of the material makes it suitable for the container. Specific reference to the context in the question is needed for marks to be awarded.

	(b)		**Indicative content:** **The candidate is expected to demonstrate their understanding of the process involved through a series of annotated sketches and/or notes. There may be variations to the process as indicated but to get into L3 candidates must demonstrate a clear understanding of the end to end process.** Process: • Details of **Punching** to create a blank. • **Pressing**/Stamping the flat sheet using a stamping press. o The use of a tool and die to form the shape. o The male part of the die is fixed or clamped to a machine bed. o The female die is mounted onto a moving ram. o The blank is placed into the machine and the ram in lowered. o Use of a lubricant to make the metal easier to remove once formed. • Details about how the edge is finished, and holes created for hinge would be expected for Level 3 candidates. Other processes are feasible and will gain credit if the appropriate understanding is shown.	**8** All processes demonstrated must relate to the container. Candidates can draw on practical experience from product analysis and the workshop to support their answer to this question.	**Level 3 [6-8 marks]** The candidate has demonstrated a thorough understanding of the process needed to manufacture the container as a batch of 80 000 with accurate technical terms and detailed consideration of any relevant equipment, machinery and materials required. Sketches if used will be clear and supported with relevant notes. The process will be end to end and clear in the way it is explained. **Level 2 [3-5 marks]** The candidate has demonstrated a sound understanding of some aspects of the process needed to manufacture the container as a batch of 80 000 with reasonable use of technical terms and some consideration of any equipment, machinery and materials required. Sketches, if used, will for the most part be clear and supported with notes most of which are relevant. The end to end process may contain some gaps in understanding. **Level 1 [1-2 marks]** The candidate has demonstrated a limited knowledge of the process, applying this knowledge in a basic way to how the container as a batch of 80 000 would be manufactured with limited use of



technical terms and a basic consideration of any equipment, machinery and materials required. Sketches, if used, will be unclear with only basic notes to accompany them. The end to end process may not exist and if anything is basic in nature.

0 marks
No answer or answer not worthy of credit.

	(c)		**Indicative content:** **The candidate is expected to demonstrate their understanding of the process involved through a series of annotated sketches and/or notes. There may be variations to the process as indicated but to get into L3 candidates must demonstrate a clear understanding of the end to end process.** Processes should all include: • Cleaning of the metal surface. • Masking off areas that don't need to be finished. • Commercial method of applying a finish. • Curing or drying of the finish. If mild steel selected, electrostatic painting could be selected: • The metal surface is cleaned, removing the grease. • Areas that don't need paining should be masked off. • Formed container travels down a conveyor belt. • It is sprayed with electrostatically charged blue paint particles. It gives an even surface, and prevents over-spray reducing costs. • It continues on the conveyer belt to an oven where the paint is cured in an oven. • It is then cooled. Other processes are feasible and will gain credit if the appropriate understanding is shown.	**6** The finishing process must be related to the specific material identified in **part (a).** All processes demonstrated must relate to the blue surface finish. Candidates can draw on practical experience from product analysis and the workshop to support their answer to this question.	**Level 3 [5-6 marks]** The candidate demonstrates a good level of detail of the process needed to apply the blue surface finish using technical terms and consideration of any relevant equipment, machinery and materials required. Sketches, if used will be clear and supported with relevant notes. The process includes all relevant stages. **Level 2 [3-4 marks]** The candidate will demonstrate a sound level of detail of the process needed to the blue surface finish using some technical terms and some consideration of any relevant equipment, machinery and materials required. Sketches, if used, will for the most part be clear and supported with notes most of which are relevant. The process includes some relevant stages. **Level 1 [1-2 marks]** The candidate will demonstrate a limited level of detail of the process needed to the blue surface finish with a limited use of technical terms and basic consideration of any relevant equipment, machinery and materials required. Sketches, if used, will be unclear with only basic notes to accompany them. Few relevant stages are included.

					0 marks No response or no response worthy of credit.
	(d)		Possible explanations may include: • To identify hazards in the forming and finishing of the container. (1) This will enable employers to decide on control measures (1) for example to provide appropriate training on operating the stamping machine / PPE for the employees while finishing the metal e.g. masks (1). It will prevent accidents and protect employees (1). • Any other valid suggestion.	**3**	Up to three marks for explaining the reasons for undertaking risk assessments during the manufacturing processes described in **part (b) and part (c).** Use mix and match approach. Two reasons needed linked to the context, one of which expanded to access the full three marks. If three reasons identified award MAX two marks. Do not accept one word answers such as 'safety'.

4	**(a)**		Possible features that enhance **aesthetics** may include: • The shape of the multi-tool is of a crab, with the tools creating the claws (1). This makes people want to buy the product as it is a fun item that has personality (1). • The wooden facia (1) gives the product a softer appearance (1). • The finish of the metal is shiny (1) which creates more of a luxurious product and encourages sales (1). • Any other valid suggestion.	**4**	In each case: One mark for identifying a feature of the multi-tool that enhances aesthetic appeal. One mark for justifying why this feature enhances aesthetics in relation to the product specified. Any answers relating to function cannot be awarded credit. Specific reference to the context in the question is needed for marks to be awarded.
	(b)		Possible features that enhance **usability** may include: • The tools can be rotated into the 'shell' of the crab (1). This enables the multi-tool to become portable and put in a bag or pocket (1). • The tools have small indentations (1) that enable the user to grip onto the side making it easier to pull out (1). • The size of the crab (1) enable it to be easily held and used in one hand. (1) • Tools can be rotated out of the crab (1) so more comfortable to use and gain leverage (1) • Hung up • Crab legs can be used (1) for display (1) • Any other valid suggestion.	**4**	In each case: One mark for identifying a feature of the multi-tool that enhances usability. One mark for justifying why this feature enhances usability.in relation to the product specified. Any answers relating to aesthetics cannot be awarded credit. Specific reference to the context in the question is needed for marks to be awarded.

<table>
<tr>
<td></td><td>(c)</td><td>(i)</td><td>Possible ferrous metals may include:

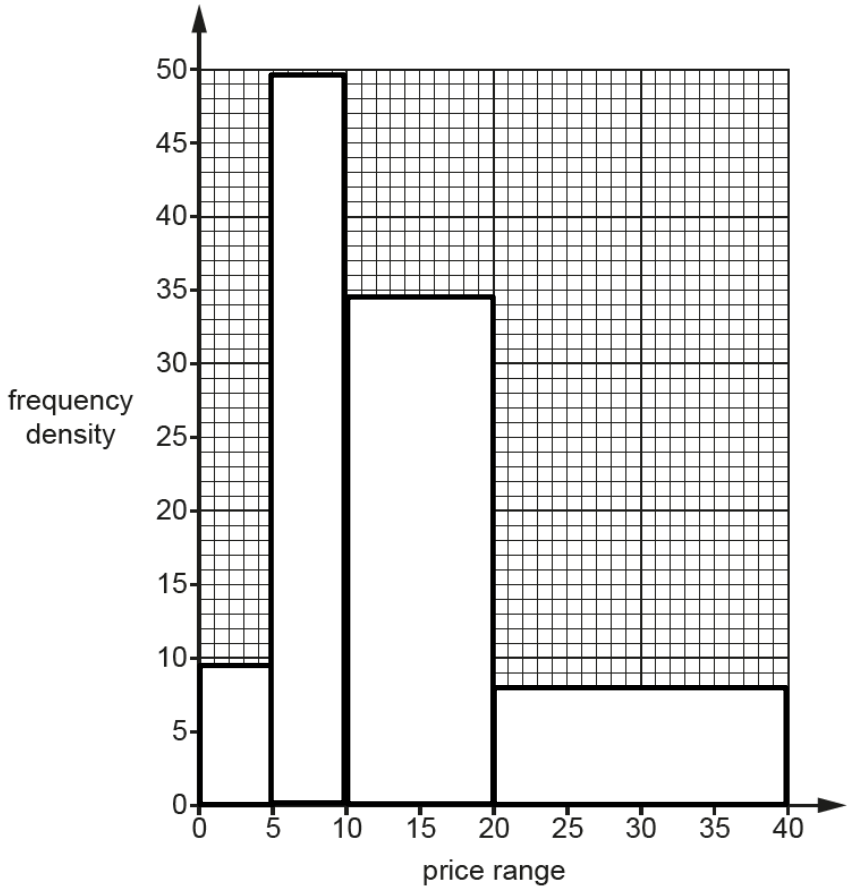
• Stainless steel (1).
• High carbon steel (1).
• Any other valid suggestion.</td><td>1</td><td>One mark for identifying a suitable ferrous metal.

Do not accept ‘steel’.</td>
</tr>
<tr>
<td></td><td></td><td>(ii)</td><td>Possible industrial processes may include:

• Piercing (1) could be used to create the hole for the pivot (1).
• Blanking (1) could be used to sheer the shape of the scissor (1).
• Forming (1) could be used to force the surface of the metal into the contour of a die (1).
• Accept any valid specific forming or stamping process.
• Any other valid suggestion.</td><td>2</td><td>Up to two marks for identifying and describing a suitable industrial process that could be used to manufacture the scissor tool part A.</td>
</tr>
<tr>
<td></td><td>(d)</td><td>(i)
(ii)</td><td>
<table>
<tr><th>Price range (£)
(p price)</th><th>People surveyed %</th><th>Number of people (frequency)</th><th>Class width</th><th>Frequency density</th></tr>
<tr><td>0 >= p ≤ 5</td><td>6</td><td>48</td><td>5</td><td rowspan="2">9.6*
49.6*</td></tr>
<tr><td>5 > p ≤ 10</td><td>31</td><td>248</td><td>5</td></tr>
<tr><td>10 > p ≤ 20</td><td>43</td><td>344</td><td>10</td><td>34.4*</td></tr>
<tr><td>20 > p ≤ 40</td><td>20</td><td>160</td><td>20</td><td>8*</td></tr>
<tr><td></td><td></td><td>(1)</td><td></td><td>(1)</td></tr>
</table>
</td><td>2</td><td>Award two marks as follows:

One mark for calculating the four frequencies.

One mark for calculating the frequency density for the four price ranges.</td>
</tr>
</table>

		(iii)		**1**	One mark for drawing a histogram to represent the information you calculated in **part (d) (ii)**. *Allow error carried forward (ECF) if incorrect information has been carried forward from table. Plotting the decimal places on the graph is not going to be possible. A margin of error is permitted when awarding credit for this question. Rough alignment is sufficient to be awarded the one mark available.

		(iv)	Possible responses may include: • Initial models could be created and shown to stakeholders for feedback (1). This could be done throughout the design process to increase usability / interest or funding (1). • Focus groups could be set up to discuss consumer needs (1). This could be done at the beginning of the design process to test the feasibility of an idea (1). • Questionnaire (1). This could be done to gather interest in the product before it is launched (1). • Any other valid suggestion.	**4**	In each case: One mark for identifying a different method for exploring stakeholder requirements. One mark for describing when this method would be used in the iterative design process. Specific reference to the context in the question is needed for marks to be awarded. Do not award marks for 'survey'.

	(e) *		**Indicative content:** Possible ways that the design of today's products is often influenced by historical design movements, designers and their methods may include the following stages: • Clear identification of specific designer. • Explanation of their work. • How this has influenced development in product Design. • Clear use of examples to support discussion. Possible indicative content could include: • Marcel Breuer: o Bauhaus designers. o Form follows function. o Classily chair. o Have gone on to influence: ▪ Modernist architects such as Gerrit Rietvelt who designed the red and blue chair and was driven buy the function of building the chair rather than the shape. ▪ Post modernism designers, such as Philippe Starck who rebelled against this design thinking and believed function should follow form, when they designing the Juicy Salif. This is one example of a specific designer. Other designers would be equally valid and will be assessed along similar lines.	**8** If candidate does not provide an analytical/evaluative response then only L1 can be awarded.	**Level 3 [6-8 marks]** The candidate has a clear understanding of the influence of their chosen designer. They produce a thorough discussion in relation to the question by explaining how their work and methods have influenced developments in product design. The explanation is clear and well-developed and specific examples are used to exemplify the points being made. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated with the use of examples.* **Level 2 [3-5 marks]** The candidate has a reasonable understanding of the influence of their chosen designer. They produce a sound discussion in relation to the question by explaining how their work and methods have influenced developments in product design. The explanation is sufficient although one or two opportunities are missed in referring to different examples. *There is a line of reasoning presented with some structure.*

					The information presented is for the most part relevant and supported by some evidence. **Level 1 [1-2 marks]** The candidate has a basic knowledge of the influence of their chosen designer. Any reference to a designer and their work and methods is largely descriptive in nature. The response contains no analysis of evaluation. *The information has some relevance and is presented with limited structure or detail. The information is supported by limited evidence.* **0 marks** No response or no response worthy of credit.

5	**(a)**		Possible ways that planned obsolescence is designed into products could include: • Washing machines have parts that are designed to wear out after five years (1) so the user has to purchase new machines or parts (1). • Software could go out of date for example Windows operating systems create new versions which will not run on old machines and are no longer supported (1) so users have to buy a new computer (1). • Medical equipment such as surgical gloves are disposed of after one use for reasons of health and hygiene (1) so hospitals have to purchase new stock (1). • Products are styled to for a specific trend or design movement (1), these are seen as less stylish or dated after a period of time (1). • Any other valid suggestion.	**6**	In each case: Up to two marks for describing how planned obsolescence is designed into products. Specific reference to the context in the question is needed for marks to be awarded.

	(b) *		**Indicative content:**
			
			Possible discussions of the impact of planned obsolescence on the environment may include:
			
			• Planned Obsoleses creates waste in the whole life cycle of a product. Reference could be made to any stage of the life cycle, extraction, processing, transportation, manufacturing, use and disposal and its impact on the environment.
			• Examples could include products that:
			  ○ are single use e.g. coffee cups/ straws.
			  ○ need replacement parts regularly e.g. car tyres.
			• The throw away culture has led to huge amounts of waste that has to go to landfill. Countries are now being held accountable for their waste and need to reduce it.
			• Positive impacts of planned obsolesce could include the product is designed for disposal, for example, the use of biodegradable materials in products that are going to be used only once, e.g. bio polymers.
			• Any other valid suggestion.
				8
				
				If candidate does not provide an analytical/evaluative response then only L1 can be awarded.
					Level 3 [6-8 marks]
					The candidate has a clear understanding of the impact of planned obsolescence. They produce a thorough discussion in relation to the question by explaining how it impacts the environment. The explanation of the impacts is clear and well-developed and a number of examples are used to exemplify the points being made.
					
					There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated with the use of examples.
					
					Level 2 [3-5 marks]
					The candidate has a reasonable understanding of the impact of planned obsolescence. They produce a reasonable discussion in relation to the question by explaining how it impacts the environment. The explanation of examples is sufficient although one or two opportunities are missed in referring to different products.
					
					There is a line of reasoning presented with some structure. The information presented is in the most part relevant and supported by some evidence.

					Level 1 [1-2 marks] The candidate has a basic knowledge of the impact of planned obsolescence. Any reference to this issue is descriptive in nature and has little appreciation of this impacts the environment. The response contains no analysis or evaluation. *The information has some relevance and is presented with limited structure or detail. The information is supported by limited evidence.* **0 marks** No answer or answer not worthy of credit.

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