



2010 Product Design

Intermediate 2

Finalised Marking Instructions

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SECTION A

Q1		Marks
(a) (i)	<p>Suitable manufacturing process and justification:</p> <p>Injection moulding/compression moulding. “Moulding” alone, scores zero</p> <ul style="list-style-type: none"> • Strong • Cheap • Mass produced product • Intricate detail • Fast/quick/speedy • Any other suitable justification <p><i>Where the candidate has given more than one justification <u>only the first</u> should be marked.</i></p> <p>1 mark per correct response for process and one mark for correct justification up to total of 2 marks</p>	2
(ii)	<p>2 reasons for models</p> <p>Three possible categories of answer: Idea generation/communication/testing</p> <ul style="list-style-type: none"> • To generate ideas • Test ergonomics • Test aesthetics/aesthetic survey • Test components fitting together • To see the product in 3D • To see possible sizes • To view from all angles • To see proportion • Show client • Presentation model • To check possible methods of construction/fabrication/assembly • To check/test any mechanisms/extent of moving parts • Etc <p><i>Where the candidate has given more than two answers <u>only the first two</u> should be marked. (not counting repeat answers)</i></p> <p>1 mark per correct response up to total of 2 marks</p>	2

		Marks
(iii)	<p>2 reasons for polypropylene</p> <ul style="list-style-type: none"> • Cheap/cheaper/low cost • Hardwearing/strong/robust/tough • Can be recycled • Resistant to bending/rigid/stiff • Durable • Intricate • Stain proof • Easy to clean • Waterproof • Good electrical insulator • Lightweight • Inbuilt colour/doesn't require a finish • Easy to manufacture/easy to mould • Surface of mould gives fine detail and texture • Etc <p><i>Where the candidate has given more than two answers <u>only the first two</u> should be marked. (not counting repeat answers)</i></p> <p>1 mark per correct response up to total of 2 marks</p>	2
(iv)	<p>Reasons for suitability of nylon</p> <ul style="list-style-type: none"> • Hardwearing/strong/robust/tough/impact resistant • Durable • Inbuilt colour • Easy to clean • It is self-lubricating • Flexible/bendy/springy/high elasticity/good tensile strength • It can be easily moulded/shaped • Suitable for mass production • Will not scratch or damage surfaces • Can be made into thin fibres • Etc <p><i>Where the candidate has given more than two answers <u>only the first two</u> should be marked. (not counting repeat answers)</i></p> <p>1 mark per correct response up to total of 2 marks</p>	2

		Marks
(b) (i)	<p>Anthropometrics</p> <ul style="list-style-type: none"> Any suitable answer linking a human dimension to a part or component of the cordless vacuum cleaner should be awarded 1 mark. <p>Where candidates respond correctly twice they will gain 2 marks.</p> <p>Example: <i>The handle opening in the outer casing has been designed to suit palm width (answer showing link between part and human dimension).</i></p> <p>One part + one justification = one mark One part + two justifications = one mark Two separate parts + two separate justifications = two marks</p>	2
(ii)	<p>Physiology</p> <ul style="list-style-type: none"> Any suitable answer relating to human limitations, linking to part or component of the cordless vacuum cleaner. The use of physical action verbs linking to the use of the cordless vacuum cleaner are to be looked for here. <p>Where candidates respond correctly twice they will gain 2 marks.</p> <p>Example: <i>The Nozzle attachments have been designed to be pushed/fitted easily inside the nozzle.</i></p> <p>One part + one justification = one mark One part + two justifications = one mark Two separate parts + two separate justifications = two marks</p>	2
(iii)	<p>Psychology</p> <ul style="list-style-type: none"> Any suitable answer relating to human thoughts, feelings, user friendliness or psychological signals/backup; linking to the whole, part or component of the cordless vacuum cleaner. Very simple statements such as: “It looks very easy to use” score zero. <p>Where candidates respond correctly twice they will gain 2 marks.</p> <p>Example: <i>The choice of see-through material on the dust collector will ensure that the user is aware when it is time to empty the cordless vacuum cleaner.</i></p> <p>One part + one justification = one mark One part + two justifications = one mark Two separate parts + two separate justifications = two marks</p>	2

		Marks
(c) (i)	<p>Contrast</p> <ul style="list-style-type: none"> Any suitable answer, linking contrasting parts or components of the cordless vacuum cleaner (materials/colours/shapes/forms/textures/finishes/etc.) <p>Where candidates respond correctly twice they will gain 2 marks.</p> <p>Example: <i>The choice of the colours red and white on the cordless vacuum cleaner.</i></p> <p>One part + one justification = one mark One part + two justifications = one mark Two separate parts + two separate justifications = two marks</p>	2
(ii)	<p>Consumer demand</p> <ul style="list-style-type: none"> Any suitable answer relating to consumer demand, linking to the whole, parts or components of the cordless vacuum cleaner. <p>Example: <i>The cordless vacuum cleaner has a variety of attachments. This makes it very versatile and appealing to consumers.</i></p> <p>One part + one justification = one mark One part + two justifications = one mark Two separate parts + two separate justifications = two marks</p>	2
(iii)	<p>Ease of maintenance</p> <ul style="list-style-type: none"> Any suitable answer relating to ease of maintenance, linking to the whole, parts or components of the cordless vacuum cleaner (cleaning/emptying/recharging/replacing filter/ease of dismantling). <p>Example: <i>The dust collector has been designed to be removed easily and cleaned under running water.</i></p> <p>One part + one justification = one mark One part + two justifications = one mark Two separate parts + two separate justifications = two marks</p>	2

SECTION B

Q2		Marks
(a)	<p>iPod specific issues</p> <ul style="list-style-type: none"> • Size of iPod • Shape • Socket • Fashion • Access to dials • Etc. <p>Generic design issues Function/ergonomics/environmental concerns/durability/safety/cost/aesthetics/materials/existing products/etc.</p> <p>Any four relevant design issues.</p> <p>1 mark for 4 correct responses up to total of 1 mark</p>	1
(b)	<p>Each issue should be explained and justified with specific response to iPod docking station design. Where a mark is awarded the candidate must show the justified link between the issue and iPod docking station design.</p> <p>This example scores zero as it is too generic: <i>Ergonomics should be researched so that the designer can ensure it is easy to operate.</i></p> <p>1 mark for each correct response up to total of 4 marks</p>	4

Q3		
(a)	Blow moulding, plus correct identifiable visual feature.	2
(b)	Compression moulding, plus correct identifiable visual feature. Assembly/fabrication is also an acceptable answer.	2
(c)	Die casting, plus correct identifiable visual feature. Assembly/fabrication is also an acceptable answer.	2
(d)	Laminating/KDF/flat pack/fabricating/bending/screwing/jigs and fixtures, plus correct identifiable visual feature.	2
(e)	Vacuum forming, plus correct identifiable visual feature. Vacuum MOULDING scores zero.	2
	<p>1 mark per correct manufacturing technique up to total of 1 mark per section</p> <p>1 mark per correct identifiable visual feature up to total of 1 mark per section</p>	

Q4		Marks
(a) (i)	<p>Sustainable forests</p> <p>Advantages and/or disadvantages of sustainable forests with reference to the environment/manufacturer/consumer/designer.</p> <p>Candidates do not need to mention any link to product to gain marks if they sufficiently explain the environmental term.</p> <p>Responses having no reference to the environment score a maximum of 1.</p> <p>Description of environmental term marked holistically using the following statements.</p> <p>2 marks: shows clear understanding 1 mark: shows basic understanding 0 marks: shows no understanding</p> <p>Response marked up to total of 2 marks</p>	2
(ii)	<p>Planned obsolescence</p> <p>Advantages and/or disadvantages of planned obsolescence with reference to the environment/manufacturer/consumer/designer.</p> <p>Candidates do not need to mention any link to product to gain marks if they sufficiently explain the environmental term.</p> <p>Responses having no reference to the environment score a maximum of 1.</p> <p>Description of environmental term marked holistically using the following statements.</p> <p>2 marks: shows clear understanding 1 mark: shows basic understanding 0 marks: shows no understanding</p> <p>Response marked up to total of 2 marks</p>	2
(b)	<p>symbol</p> <ul style="list-style-type: none"> • Type of plastic/name of plastic • Group of plastic/recycling group • Is Poly Vinyl Chloride • Is made from/made out of PVC • Recyclable/able to be recycled • Reduce, reuse, recycle (scores 2 marks) • “Has been recycled” scores zero marks <p>1 mark per correct response up to total of 2 marks</p>	2

Q5		Marks
(a)	<p>Any recognised idea generation technique.</p> <p>Morphological analysis/technology transfer/design stories/mind maps/lifestyle boards/mood boards/brainstorming/thought showers/existing products/lateral thinking/analogy/addition and subtraction of shapes/geometric shapes/biomorphic shapes/spider diagram/pencil walking/various sketching methods/brain writing.</p> <p>Questionnaires/surveys were also accepted where the candidate's explanation in part (b) showed it to be a valid method of generating ideas.</p> <p>Internet research is NOT an acceptable response</p> <p>1 mark per correct response up to total of 2 marks</p>	2
(b)	<p>Description of technique marked holistically using the following statements.</p> <p>3 marks: shows clear understanding 2 marks: shows limited understanding 1 mark: shows minimal understanding 0 marks: shows no understanding</p> <p>Response marked up to total of 3 marks</p>	3

Q6		
	<p><i>Candidates are not awarded marks where they have simply named the technique. Marks are awarded for a description of the named technique.</i></p> <p><i>Where candidates have incorrectly named, but correctly described a suitable evaluation technique, marks should be awarded for that description.</i></p> <p><i>Where the candidate has given more than one answer <u>only the first</u> should be marked.</i></p> <p><i>No marks are awarded for simply naming a technique.</i></p>	
(a)	<p>Ease of use</p> <p>Description of: User trial/trial/user trip/user test/specific activity relating to trials etc.</p> <p>1 mark per correct response up to total of 1 mark</p>	1
(b)	<p>Aesthetics</p> <p>Description of: Questionnaire/survey/asking a group of people/visual comparison.</p> <p>1 mark per correct response up to total of 1 mark</p>	1
(c)	<p>Value for money</p> <p>Description of: Comparison to other products/long-term trial/specific activity relating to comparison/value judgement based on features/value judgement based on features in a survey format, etc.</p> <p>1 mark per correct response up to total of 1 mark</p>	1
(d)	<p>Speed of toasting</p> <p>Description of: Testing ending with a result/comparative testing with other toaster/s.</p> <p>1 mark per correct response up to total of 1 mark</p>	1

[END OF MARKING INSTRUCTIONS]