

X211/201

NATIONAL
QUALIFICATIONS
2010

TUESDAY, 18 MAY
1.00 PM – 2.30 PM

PRODUCT DESIGN
INTERMEDIATE 2

50 marks are allocated to this paper.

Where appropriate you may use sketches to illustrate your answer.

Within each question, marks will not be awarded for repetition.



Attempt all questions

SECTION A

1. A cordless vacuum cleaner is shown below.



- (a) (i) State a suitable manufacturing process for the outer casing and justify your answer. 2
- (ii) State **two** reasons why the designer may have produced models when designing this cordless vacuum cleaner. 2
- (Note: different reasons should be given in your answers for (a) (iii) and (a) (iv).)*
- (iii) State **two** reasons why polypropylene is a suitable material for the manufacture of the outer casing. 2
- (iv) State **two** reasons why nylon is a suitable material for the bristles. 2
- (b) Describe **two** ways in which the design of the cordless vacuum cleaner shown above has been influenced by each of the following ergonomic aspects:
- (i) anthropometrics; 2
- (ii) physiology; 2
- (iii) psychology. 2
- (c) Describe **two** ways in which the design of the cordless vacuum cleaner shown above could have been influenced by each of the following design issues:
- (i) contrast; 2
- (ii) consumer demand; 2
- (iii) ease of maintenance. 2

Total for Section A (20)

SECTION B

2. iPod docking stations are shown below.



Before producing a specification for an iPod docking station the designer would have researched various issues.

With reference to iPod docking stations:

- (a) state **four** design issues which would have been researched; and 1
 - (b) justify why **each** of these design issues is important at this stage. 4
- (5)**

[Turn over

3. Five products are shown below.



(a)



(b)



(c)



(d)



(e)

(Note: the products are not shown to the same scale.)

State a suitable manufacturing process for each product **and** state one visual feature which could be found on the product that justifies your answer.

- | | |
|-------------------------------|---|
| (a) Drinks bottle | 2 |
| (b) Electrical socket | 2 |
| (c) Metal model van | 2 |
| (d) Wooden stool frame | 2 |
| (e) Sandwich container | 2 |

(10)

4. Designers try to ensure that their products are “environmentally friendly”.
- (a) With reference to the design of products, explain each of the following environmental terms:
- (i) sustainable forests; 2
 - (ii) planned obsolescence. 2
- (b) The symbol shown below is often found on plastic products which have been mass-produced.



State **two** pieces of information communicated by this symbol.

2
(6)

5. The ability to generate ideas is an important aspect of a designer’s work.
- (a) State **two** idea generation techniques. 2
- (b) Describe **one** of these techniques. 3

(5)



[Turn over for Question 6 on Page six

6. A toaster is shown below.



The manufacturer wishes to carry out an evaluation of the toaster.

Describe an evaluation technique that could be used for each of the following aspects of the toaster.

(Note: a different technique must be used for each aspect.)

- | | |
|-----------------------|------------|
| (a) Ease of use | 1 |
| (b) Aesthetics | 1 |
| (c) Value for money | 1 |
| (d) Speed of toasting | 1 |
| | (4) |

Total for Section B (30)

[END OF QUESTION PAPER]

ACKNOWLEDGEMENTS

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Section B Question 2—Photograph of an intempo iPod docking station is reproduced by kind permission of intempo, Ultimate Products Ltd.

Section B Question 3(*c*)—Photograph of a D R Macleod model van is reproduced by kind permission of D R Macleod.

Section B Question 6—Photograph of a Dualit toaster is reproduced by kind permission of Dualit Ltd.

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