

Design technology
Higher level
Paper 3

Thursday 9 November 2017 (morning)

Candidate session number

1 hour 30 minutes

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Instructions to candidates

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Answer all of the questions.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is **[40 marks]**.



Section A

Answer **all** questions. Answers must be written within the answer boxes provided.

- 1. **Figure 1** shows the original Dualit toaster. Built for commercial use, they have since won numerous consumer accolades and come in a range of variants, sizes and colours.

Figure 1: Original Dualit Toaster



[Source: Images provided by Dualit Ltd]

- (a) Identify **two** market research strategies that could have been used in the development of the Dualit toaster. [2]

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- 2. Fisher & Paykel Appliances has long been committed to sustainable production and opened a recycling centre in New Zealand 20 years ago, see **Figure 2**.

This recycling centre is able to save approximately 25 000 appliances from landfill each year and enables the re-use of bulk materials.

Figure 2: Fisher & Paykel Appliances employee taking apart their products at the end of its useful life



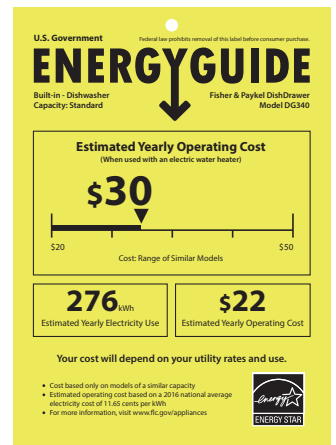
Figures 3 and 4 show the Fisher & Paykel Appliances DishDrawer™ dishwasher. The two drawers allow smaller loads to be washed meaning water consumption and energy are reduced.

Figure 3: Fisher & Paykel Appliances DishDrawer™ dishwasher



[Source: copyright Fisher and Paykel Appliances Limited]

Figure 4: Energy label



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12EP04

(Question 2 continued)

- (a) Outline **one** benefit to the consumer of providing energy labelling on products such as the Fisher & Paykel DishDrawer.

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- (b) Consumers' attitudes and behaviours towards sustainable consumption can be classified in four ways.

Outline the type of consumer who doubts claims related to the sustainable performance of a product such as the Fisher & Paykel DishDrawer.

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- (c) Outline **one** benefit to Fisher & Paykel as the manufacturer of the DishDrawer of using sustainability reporting.

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12EP05

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Please **do not** write on this page.

Answers written on this page
will not be marked.



Section B

Read the case study. Answer the following questions. Answers must be written within the answer boxes provided.

- 3. Every year over 4 million infants in the developing world die within a month of birth. Half of these new born babies would survive if given a warm and clean environment in which to grow stronger.

Figure 5 shows the NeoNurture, a low tech incubator for babies that works by maintaining a warm and clean environment. The NeoNurture is manufactured in developing countries using local resources such as used spare car parts and the expertise of local car mechanics, see **Figure 6**.

In developing countries, not only is there limited access to high-tech incubators, but a lack of replacement parts which make these high tech products useless once they break down.

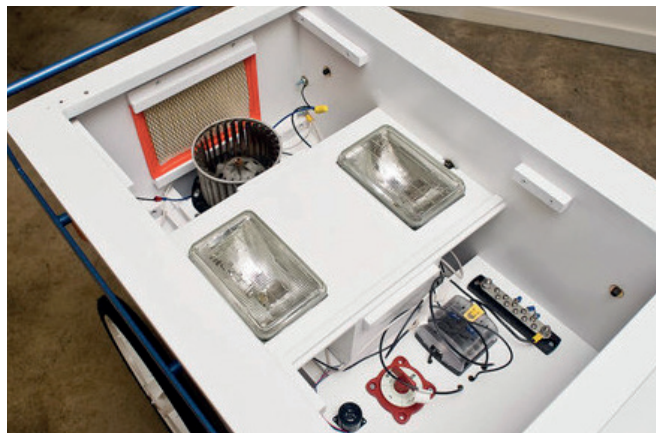
[Source: Copyright © Design that Matters, Inc]

Figure 5: NeoNurture incubator



[Source: Copyright © Design that Matters, Inc]

Figure 6: NeoNurture uses locally available car parts in its design and manufacture



[Source: Copyright © Design that Matters, Inc]

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12EP08

(Question 3 continued)

Figure 7: The user interface provides access to the controls of the NeoNurture, enabling the user to set variables including temperature and time



[Source: Copyright © Design that Matters, Inc]

- (a) Identify **two** usability objectives that may have been used in the design of the NeoNurture.

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12EP09

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(Question 3 continued)

- (b) Identify **two** members of a multi-disciplinary user-centred design team that would be involved in the development of the NeoNurture.

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- (c) Outline **one** advantage of using a personae in the development of the NeoNurture.

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