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Design technology
Higher level
Paper 3

Friday 6 November 2020 (morning)

Candidate session number

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1 hour 30 minutes

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.

- HeatSmart has developed a range of thermostats for smart homes that are used to manage the temperature of a room. For example, the temperature of a room can be set to 20 °C at midday every day.

HeatSmart have recently introduced their Intelligent Thermostat that automatically sets the temperature of the room based on the preferences of its users. This can lead to a saving of energy and is indicated by the green HeatSmart globe icon that appears on the screen. The temperature for the room can be increased by rotating the dial clockwise, see **Figure 1**. Or it can be decreased by rotating the dial anti-clockwise, see **Figure 2**.

Figure 1: Rotating the dial clockwise

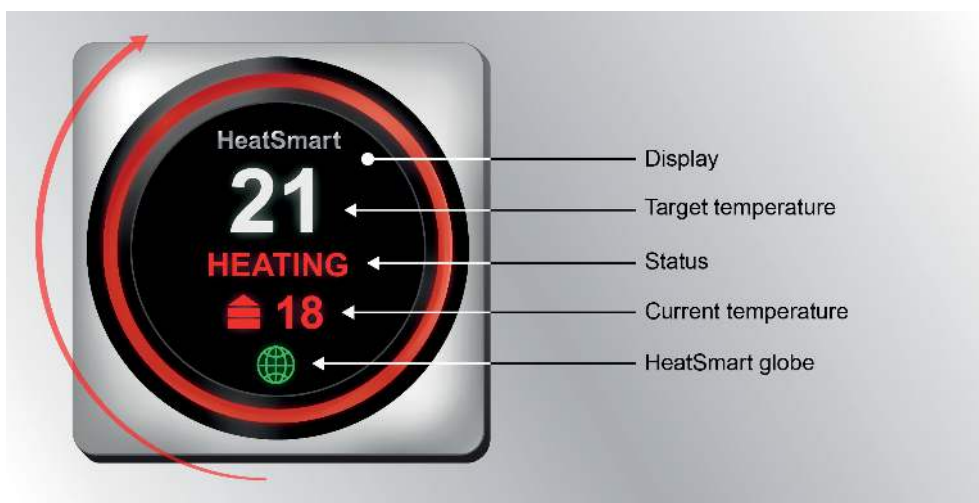


Figure 2: Rotating the dial anti-clockwise



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12EP02

(Question 1 continued)

- (a) List **two** user-centred design (UCD) principles the Intelligent Thermostat's design team may have followed. [2]

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- (b) Outline **one** way that the Intelligent Thermostat's design team would have considered population stereotypes. [2]

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12EP03

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

Answers written on this page
will not be marked.



12EP04

- 2. Mouna & Partners are manufacturers who specialize in school classroom furniture, see **Figure 3**. To meet their customers' orders and reduce the percentage of products that have to be returned to them, they have adopted a lean production philosophy as well as computer integrated manufacturing (CIM).

Figure 3: The company's best seller desk and chair duo



(a) Outline **one** way computer integrated manufacturing (CIM) can enhance quality control. [2]

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12EP06

Section B

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

- 3. Tony's Chocolonely was created by Teun van de Keuken in 2003. Teun had a mission to pay the chocolate farmers a fair wage and raise awareness of the exploitation of workers in the industry, see the logo in **Figure 4**. Customers are also given a guarantee that no rainforest has been destroyed to grow the cocoa trees.

Tony's Chocolonely has a large product family that offers chocolate bars in a number of different flavours and in two different sizes (47g and 180g). The chocolate bars have unequally divided chocolate pieces, see **Figure 4**.

Each year between October and December the company introduces three new limited edition chocolate bar flavours. The most popular of these three limited editions is then added to their product range.

Figure 4: Tony's Chocolonely



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12EP08

(Question 3 continued)

- (a) Describe the corporate strategy that applies to the production of Tony's Chokolonely chocolate bars between the months of October and December. [2]

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- (b) Outline **one** benefit to the company of creating a product family for the chocolate bars. [2]

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- (c) Outline **one** way that pressure groups may have influenced the development of the Tony's Chokolonely brand. [2]

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12EP09

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References:

Figure 1 [heating thermostat] © International Baccalaureate Organization 2020.

Figure 2 [cooling thermostat] © International Baccalaureate Organization 2020.

Figure 4 Images provided with permission from Tony's Choclonely.



12EP12