1.12 Product life-cycle assessment: 10-minute Pack

AQA 8552 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 A designer examines a reusable water bottle from raw material extraction through manufacture and transport to use and end of life. Name the life-cycle stage that comes immediately after manufacture in this sequence. [1 mark]

(Total for Question 1 is 1 mark)

---

2 A fictional product study assigns 10 invented impact points to making a product, 4 to its transport, 6 to its use, and 3 to its end-of-life treatment. A designer proposes changing the material name from Material X to Material Y and claims this guarantees recycling and lower impact. Explain why the supplied data do not support that claim, and calculate the current listed total. The data are teaching assumptions, not measurements. [4 marks]

(Total for Question 2 is 4 marks)

© Revision Library | revisionlibrary.co.uk

3 Fictional teaching data for one desk lamp assign 12 impact points to material supply, 8 to manufacture, 3 to transport, 20 to use and 2 to end of life. Add the stage impacts to find the total. These points are invented for this question and are not measured emission factors. [2 marks]

(Total for Question 3 is 2 marks)

---

4 Two fictional lunch containers provide the same capacity and function for 6 years. For that matched service, Container A has a total of 30 invented impact points and Container B has 42. Calculate the difference and state which has the lower supplied total. The values are teaching assumptions, not measurements. [2 marks]

(Total for Question 4 is 2 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 1.12 Product life-cycle assessment: 10-minute Pack

Question 1

Transport/distribution of the product to its user	**B1**

Answer: Transport or distribution to the user.

Question 2

Adds the supplied values: 10 + 4 + 6 + 3	**M1**
Current listed total = 23 fictional points	**A1**
States that changing a material name alone does not show whether collection, sorting or processing for recycling is available	**B1**
Explains the claim needs comparable stage data and a specific end-of-life route; the supplied data give no alternative values or evidence of actual recycling	**B1**

Answer: 10 + 4 + 6 + 3 = 23 fictional points. Renaming the material does not establish that a local collection and processing route exists. The claim also lacks comparable impacts for the proposed version, so neither recycling nor a lower total is demonstrated.

Question 3

Adds all five supplied stage values: 12 + 8 + 3 + 20 + 2	**M1**
45 fictional impact points	**A1**

Answer: 12 + 8 + 3 + 20 + 2 = 45 fictional impact points.

Question 4

Subtracts 30 from 42	**M1**
12 points; A is lower by 12 points for the same stated 6-year service	**A1**

Answer: 42 - 30 = 12 points. Container A has the lower supplied total by 12 points.

© Revision Library | revisionlibrary.co.uk