Design & Technology
A-Level

Stages of a products life cycle

Materials required for questions

- Pencil
- Rubber
- Calculator

Instructions

- Use black ink or ball-point pen
- Try answer all questions
- Use the space provided to answer questions
- Calculators can be used if necessary
- Use a cross in the box to mark you answer 

Advice

- Marks for each question are in brackets
- Read each question fully
- Try to answer every question
- Don’t spend too much time on one question

Good luck!

Q1. What happens to a product when it reaches the maturity stage of the product life cycle?

A Sales revenue grows over time ☐

B Sales revenue declines over time ☐

C Sales revenue is constant over time ☐

Q2. Which of these statements about product life cycles is true?

A The length of every product's life cycle is the same ☐

B The length of each phase in a product's life cycle can be different ☐

C A product will be withdrawn once it enters maturity ☐

Q3. In which phase of the product life cycle is a product launched?

A Growth ☐

B Maturity ☐

C Introduction ☐

Q4. What is the purpose of a product extension strategy?

A To lengthen the life cycle of a product ☐

B To prevent a product being successful ☐

C To lengthen the introduction phase of a product's life cycle ☐

Q5. Which of these extension strategies would be most likely to succeed in extending the life cycle of a breakfast cereal?

A Making the breakfast cereal available in a new flavour ☐

B Increasing advertising of the breakfast cereal ☐

C Increasing the price of the breakfast Cereal ☐

Q6. Which of the following statements is true?

A Disposal is the final step in a product life cycle ☐

B Using cheapest material will always Extend a product life ☐

C Maturity is when the sales start to decline ☐

Q7. Companies try to reduce the environmental impact of a product at all stages of its life cycle.
Give two environmental considerations for each stage.
An example answer is already given for raw materials. **(10 marks)**

Life cycle stage	Environmental considerations
Raw materials	Example answer: Use a smaller quantity of material in the production of a product. 1. _____ 2. _____
Manufacture	1. _____ 2. _____
Distribution	1. _____ 2. _____

Use	1. 2.
End of life	1. 2.

Q8. Explain how a company may benefit from carrying out a life cycle assessment on its products. **(4 marks)**

Answers

Q1. C
Q2. B
Q3. B
Q4. A
Q5. A
Q6. A

Q7.

Use any ten of the following answers.

Raw materials

1. Use less material (example answer) (no marks to be awarded)
2. Use materials/extraction methods which cause less environmental impact/easier to extract (1)
3. Use recyclable/ recycled /renewable /sustainable /biodegradable /degradable materials (1)
4. Follow relevant legislation (1)
5. Use materials which are in close supply (1)
6. Use materials from managed stock (1)

Manufacture

7. Reduce energy use/emissions wherever possible (1)
8. Simplify process if possible/reduced wasted time (1)
9. Reduce/reuse/safe disposal of waste (1)
10. Use natural resources as efficiently as possible (1)
11. Reduce the number of components/range of materials needed (1)
12. Reduce weight (1)
13. Improve workflow (1)

Distribution

14. Reduced/lightened/efficient packaging (1)
15. Reduce mileage to suppliers / customers (1)
16. Use most efficient modes/types/routes/times of transport (1)
17. Improve driving attitude/style of staff (1)
18. Bulk methods for distribution (1)

Use

19. Increase durability/length of life of products (1)
20. Encourage use of refillable products (1)
21. Use 'green' credentials as a positive marketing strategy (1)
22. Promote efficient use of a product/energy efficient products (1)
23. Encourage/facilitate repair / Replaceable components (1)

End of life

24. Can be reused (1)
25. Can be recycled / recyclable (1)
26. Reduce waste to landfill (1)
27. Can biodegrade/degrade (1)

Q8.

1. Determine/investigate cradle to grave (mention of any stage of life) carbon footprint/energy use/environmental impact/materials used (1)
2. Reduce a carbon footprint/emissions/meet emission targets/environmentally friendly (1)
3. Reduce the volume / range / amount of materials required (1)
4. Reduce manufacturing/material costs/waste/errors (1)
5. Savings made/increased profit (1)
6. Reduce the amount of energy required to manufacture /distribute the product / reduce energy costs. (1)
7. Promote the product as being environmentally friendly/green/avoid fines (1)
8. Setup production nearer to suppliers / markets (1)
9. Reduce transportation costs (1)
10. Reduce the amount of time required to manufacture the product / Improve manufacturing speed (1)
11. Get the product onto the market more quickly (1)
12. Predict product lifespan/failure (1)
13. Plan/provide improved/longer lasting product/replacement (1)
14. Choose/change materials for future products (1)