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Design & Technology
AQA A-Level

Environmental issues

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
- For the multiple choice questions, circle your 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 is a key responsibility of designers regarding environmental issues?

A Choosing the cheapest materials regardless of source

B Using sustainable materials and components where possible

C Avoiding any changes to traditional manufacturing methods

Q2. Why is excessive packaging considered harmful to the environment?

A It reduces the shelf life of the product

B It increases the chances of the product being recycled

C It creates more waste, especially if made from non-recyclable plastics

Q3. Which of the following best supports sustainable product design?

A Using mixed materials that are hard to recycle

B Designing for short-term use only

C Selecting recyclable or biodegradable materials

Q4. What is one way manufacturers can reduce environmental impact during packaging design?

A Use single-use plastics for durability

B Increase the amount of packaging to protect the product

C Use minimal and recyclable materials to reduce waste

Q5. A logo is to be applied to a gift box using either foil blocking or embossing. Evaluate the suitability of these two processes in terms of environmental issues **(4 marks)**

Q6. Discuss how designers and manufacturers can reduce the environmental impact of products through material and packaging choices **(6 marks)**

Answers

Q1. B
Q2. C
Q3. C
Q4. C

Q5.
Environmental issues:

- Embossed packages can be easily recycled due to the single material use.
- Embossing can be performed on FSC certified papers, and cards

Q6.

- Use of sustainable materials such as recycled metals, FSC-certified wood, or bioplastics
- Avoiding non-renewable or non-recyclable materials (e.g. polystyrene, PVC)
- Designing for longer product life to reduce waste
- Choosing minimal packaging to reduce material usage
- Selecting recyclable, biodegradable, or reusable packaging
- Avoiding mixed-material packaging that is difficult to recycle
- Considering the energy and resources used in material extraction and production