

Design & Technology
AQA A-Level

**National and
international
standards in product
design**

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 does the British Standards Institute (BSI) do?

- A** Develops safety and quality standards for UK products
- B** Promotes artistic design styles
- C** Certifies fashion trends

Q2. What is the main purpose of the Restriction of Hazardous Substances (RoHS) directive?

- A** To control the appearance of packaging
- B** To limit the use of harmful materials in electronic products
- C** To increase battery life in phones

Q3. What does the Mobius Loop symbol indicate on a product?

- A** That it was tested by BSI
- B** That it has no environmental impact
- C** That the product or packaging is recyclable

Q4. Which label certifies that a wood-based product comes from a responsibly managed forest?

- A** Energy Star
- B** FSC
- C** EC Energy Label

Q5. Outline the concept of eco-labelling and the impact on customer buying preferences **(4 marks)**

Q6. Explain the impact of a product recall on a manufacturer of electrical goods **(4 marks)**

Q7a. Define the purpose of the RoHS directive **(2 marks)**

Q7b. State two specific materials that are restricted under the RoHS directive **(2 marks)**

1.

2.

Q8a. Identify the following label and state what it means **(2 marks)**



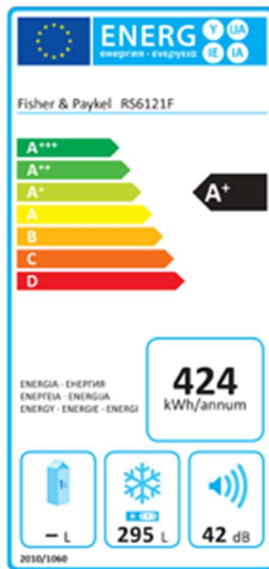
Q8b. Identify the following label and state what it means **(2 marks)**



Q9. Give two reasons why companies conform to International Standards Organisation (ISO) standards **(2 marks)**

Q10. Evaluate the impact of the Waste Electrical and Electronic Equipment (WEEE) Directive on manufacturers of portable electronic hand tools **(6 marks)**

Q11. The image shows a label often found on electronic products. Explain the meaning of the label shown (**2 marks**)



Answers

Q1. A

Q2. B

Q3. C

Q4. B

Q5.

- Eco-labels can raise awareness of environmental issues
- Consumers feel a sense that they are doing the right thing (ethically and morally).
- The use of a recognised eco-label can increase the chance of a customer purchasing the product.
- The wide range of eco-labels can lead to confusion due to lack of clarity on their meaning.
- As eco-labels are voluntary they may not always give a true representation of a company's green credentials.
- 'Green washing', where fake eco-labels are created to confuse consumers, due to the vast number of different labels available, can occur.
- Reference to specific eco-labels and their impact.

Q6.

- The brand image will be damaged from the need for a recall.
- The way the recall is handled will be analysed in the media and may cost jobs and profits.
- All customers who have purchased the product will need contacting.
- Products will need collecting/homes may need visiting for repairs to be conducted.
- The product may need re-designing or adjustments to moulds/tooling.
- All recalled products will need repairing or disposal.
- All disposal will need to comply with WEEE regulations.

All points have an associated cost implication.

Q7a.

Define the purpose of the RoHS directive.

One mark for reference to RoHS preventing/restricting the use of hazardous substances.

One mark for an explanation that restriction is to prevent damage to human health.

Q7b.

- cadmium
- lead
- mercury
- chromium (hexavalent).

Q8a.

One mark for Möbius (Mobius) Loop.

One mark for meaning, ie the product can be recycled.

Q8b.

One mark for (BSI) Kitemark.

One mark for meaning, ie the BSI kitemark assures customers that a product has been tested and is safe and conforms to the relevant British standards for sale in Britain.

Q9.

- Gives customers/consumers etc greater faith/confidence in the company.
- Gives a company a competitive edge.
- Helps regulators to ensure that companies meet specific health safety or environmental conditions.
- Provides reassurances to other companies using their products.
- Increases their relevance in the global marketplace.

Q10.

- Manufacturers are required to provide information for consumers on the correct disposal of appliances.
- Manufacturers must ensure all appliances covered by the WEEE directive display the specific symbol for Electrical and Electronic Equipment (crossed out wheelie bin).
- Manufacturers must provide dismantling guides and recommendations for easy dismantling and material recovery for the recycling industry.
- Manufacturers must organise a take back scheme either directly or indirectly.

- Manufacturers must comply with restrictions in the use of hazardous substances stated in the RoHS (Restriction of Hazardous Substances) Directive. This has led to the reduction in use of heavy metals such as cadmium and mercury in rechargeable batteries and the development of Li ion batteries.
- The WEEE (Waste Electrical and Electronic Equipment) is an EC Directive to manufacturers, requiring them to be registered on the national register of manufacturers.
- Manufacturers are required to make regular declarations of the materials they place on the market.

Q11.

- The label is an eco-label known as the EC energy label.
- The label displays the energy efficiency rating of the product as A+
- Explanation of A+++ to D grade scale
- The label gives product specific information (e.g. sound produced, water usage, energy used.)