

Design & Technology
AQA A-Level

Selecting appropriate tools, equipment and processes

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. Why is it important to use the correct tool for a specific task?

- A** It slows down the process for better results
- B** It improves accuracy, safety, and efficiency
- C** It guarantees the product will be mass-produced

Q2. What is a key safety rule in a workshop environment?

- A** Ignore personal protective equipment if working slowly
- B** Use machinery without training if the tool looks easy
- C** Keep long hair tied back and wear safety goggles when appropriate

Q3. How does batch production differ from mass production?

- A** Batch production creates custom one-off items only
- B** Batch production creates a set number of products; mass production is continuous
- C** Mass production uses hand tools only

Q4. What is one reason to select a manufacturing process like injection moulding over 3D printing for a product?

- A** Injection moulding is slower but easier to customise
- B** 3D printing is the only process that works at large scale
- C** Injection moulding is more efficient for producing large quantities of identical parts

Answers

Q1. B

Q2. C

Q3. B

Q4. C

Q5.

- Manufacturers produce products with standardised fittings to allow for a range of alternative features to be added based on customer requirements.
- The addition of pigments into standardised forming processes allows for a basic level of personalisation/variety within a product range.
- The use of editable standardised computer files/images.
- Post-production personalisation through engraving can allow for personalisation of products.
- Online applications allow customers to 'design' their own products, such as cars, using a predetermined set of options.

Examples

- Coca Cola uses digital printing on bottle labels to produce named bottles.
- Ikea produce modular furniture 'systems' such as PAX etc that allow consumers to build their own wardrobe online through a 3D CAD model and generate a parts list for collection in store.
- Personalisation of glassware and other objects that can be etched either by laser or acid etching is an option after purchase of a standard mass-produced product.
- Vinyl wrapping is becoming more popular in the vehicle industry, either for the addition of company decals to the side of a van or for a full wrap in a colour or finish that is not available directly from the manufacturer.
- Personalised trainers.
- The use of digital printing on flat surface labels allows for the adjustment of images much more readily than through offset lithography where plates would have to be changed.