

Design & Technology

AQA GCSE

Quality control

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. Registration marks in printing ensure:

- A** The paper is recycled properly
- B** Colour layers align perfectly
- C** Ink dries faster

Q2. A 'go/no go' gauge checks timber by:

- A** Physically testing if a part fits tolerance limits
- B** Measuring wood density
- C** Applying varnish automatically

Q3. A depth stop on a metal drill press prevents:

- A** The machine from overheating
- B** Holes being drilled too deep
- C** Metal from rusting

Q4. Laser power settings for acrylic directly affect:

- A** The sheet's transparency
- B** Cut edge quality and kerf width
- C** Electrical conductivity

Q5. Checking textile print repeats prevents:

- A** Pattern misalignment across fabric lengths
- B** Dyes from fading
- C** Threads from breaking

Q6. UV exposure in PCB making:

- A** Removes copper traces
- B** Hardens photoresist for etching
- C** Makes boards flexible

Q7. Over-etching a PCB would likely cause:

- A** Thin/fragile circuit traces
- B** Poor solder adhesion
- C** Brighter component colours

Q8. Flow soldering differs from hand soldering by:

- A** Using lower temperatures
- B** Mass-producing PCB assemblies
- C** Working only with aluminium

Q9. Choose one of the methods/techniques shown in the table

Dimensional accuracy	Process time	Registration accuracy
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Describe how your chosen method/technique is used to ensure quality control
(3 marks)

Q10a. Explain the purpose of 'quality control' **(2 marks)**

Q10b. Describe one method of 'quality control' that is used when making prototype products **(2 marks)**

Answers

Q1. B

Q2. A

Q3. B

Q4. B

Q5. A

Q6. B

Q7. A

Q8. B

Q9.

Dimensional accuracy	<ul style="list-style-type: none">• Important to ensure products are manufactured within tolerance, eg length, width, thickness, diameter, resistor tolerance.• Use of jigs, templates and stencils to ensure consistent sizing is used.• Adoption of CAD and CAM to work to a very fine tolerance better than a human.• Promote precision, reduce product/component defects
Process time	<ul style="list-style-type: none">• Developing times in PCB manufacture. Avoid over exposure of a PCB board to UV light.• PCB etching limit time in a PCB etch tank to ensure copper tracks are not removed/become porous.• Correct drying and curing times adhered to before loading/product use.
Registration accuracy	<ul style="list-style-type: none">• Check the quality of printing in an image.• A circle with a cross through it is used to check if all inks printed are correctly aligned.• Make sure image is not blurred – circle and cross lines will appear blurred.

Q10a.

- Check or test = 1
- Make sure a product meets a specific standard = 1
- To ensure a manufactured product meets agreed specification criteria = 1

- Guarantees the accuracy of a part or component = 1
- Manufactured to an agreed tolerance = 1
- Fit for purpose
- Suitable/good enough for selling =1

Q10b.

Indicative content: 1 mark responses:

- Visual check/test
- Use a ruler
- Use of a multimeter
- Use a jig/fixture or template
- Use of a go/no go jig
- Testing against a specification
- Check seam strength
- Check seams are neaten
- Check within tolerances
- Testing product to see if it works

2 mark responses:

- Dimensional accuracy, e.g. use of micrometer, Vernier calipers
- Use of jigs and fixtures, e.g. go/no go jigs and depth stops
- Registration mark e.g. CMYB