**Design & Technology**

**AQA GCSE** Logo

Description automatically generated with low confidence

**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 |

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 | * 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 | * 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 tacks are not removed/become porous. * Correct drying and curing times adhered to before loading/product use. |
| Registration accuracy | * 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 neatened
* 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