

# Design & Technology

## AQA GCSE

# Surface treatments and finishes

### Materials required for questions

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- Pencil
- Rubber
- Calculator

### Instructions

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- 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

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- 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 UV varnishing preferred for magazine covers?

- A**      Lowest cost option
- B**      Instant curing and high gloss
- C**      Recyclable finish

**Q2.** Dip coating is ideal for which application?

- A**      Medical catheters
- B**      Electronic chips
- C**      Structural steel beams

**Q3.** Which metal finish is most eco-friendly?

- A**      Electroplating
- B**      Powder coating
- C**      Chrome plating

**Q4.** In powder coating, why is the metal heated before dipping?

- A**      To improve electrical conductivity
- B**      To remove surface impurities
- C**      To melt the polymer powder for adhesion

**Q5.** Select one of the following materials/systems from the table below

Papers and boards	Timbers	Metals	Polymers	Textiles	Electronic and mechanical systems
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For your chosen material, describe one surface finish/treatment and how it is applied to your chosen material **(3 marks)**

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## Answers

Q1. B

Q2. A

Q3. B

Q4. C

Q5.

### 1. Papers and Boards

#### Example Answer:

- *Material:* Papers and boards
- *Finish:* UV varnishing
- *Application:*
  1. "UV varnish applied with roller/curtain coater"
  2. "Cured instantly under UV lamps"

#### Other Acceptable Finishes:

- Lamination, foil stamping, screen printing
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### 2. Timbers

#### Example Answer:

- *Material:* Timbers
- *Finish:* Tanalising
- *Application:*
  1. "Timber vacuum-sealed in preservative tank"
  2. "High pressure forces Tanalith E into wood grain"

#### Other Acceptable Finishes:

- Oil waxing, varnishing, heat treatment
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### 3. Metals

#### Example Answer:

- *Material:* Metals
- *Finish:* Powder coating
- *Application:*
  1. "Metal pre-heated to 230°C"
  2. "Dipped in polymer powder that melts on contact"

#### Other Acceptable Finishes:

- Anodizing, electroplating, galvanizing
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### 4. Polymers

**Example Answer:**

- *Material:* Polymers
- *Finish:* Dip coating
- *Application:*
  1. "Polymer part submerged in coating solution"
  2. "Withdrawn at controlled speed for even layer"

**Other Acceptable Finishes:**

- Laser etching, plasma treatment, textured molding
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**5. Textiles****Example Answer:**

- *Material:* Textiles
- *Finish:* Fluoropolymer stain protection
- *Application:*
  1. "Sprayed/immersed in liquid repellent"
  2. "Heat-cured to bond to fibers"

**Other Acceptable Finishes:**

- Digital printing, mercerization, anti-microbial coating
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**6. Electronic/Mechanical Systems****Example Answer:**

- *Material:* Electronic systems
- *Finish:* Conformal coating
- *Application:*
  1. "PCB cleaned and masked"
  2. "Acrylic coating sprayed then UV-cured"

**Other Acceptable Finishes:**

- Potting, solder masking, lubricant impregnation