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Design & Technology
AQA A-Level

Wood 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. What is a key advantage of steam bending timber?

A Requires no specialised equipment

B Allows for tight curves without weakening the wood

C Suitable for mass-producing flat panels

Q2. Which machine process is used to create cylindrical timber components like table legs?

A Milling

B Routering

C Turning

Q3. Which joint is quick to assemble and common in flat-pack furniture?

A Mortise and tenon

B Half-lap joint

C Knock-down (KD) fittings

Q4. What type of screw is designed to create its own thread in pre-drilled timber?

A Machine screw

B Coach bolt

C Wood screw

Q5. Name 2 wood joints that could have been used for the wooden chair below **(2 marks)**

1. _____

_____

2. _____

_____

Q6. Describe the process of forming a timber product using lamination **(6 marks)**

_____

_____

_____

_____

_____

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Q7. Describe the process of steam bending timber **(6 marks)**

Answers

Q1. B
Q2. C
Q3. C
Q4. C

Q5.

- Dowel joint
- Mortise and tenon joint
- Butt joint
- Housing joint

Q6.

- Several thin layers of veneer or thin plywood (1.2 mm – 3 mm thickness) can successfully be combined to the required thickness
- Adhesive is placed between each layer
- A two part former is used and pressure applied with clamps or a press while the lamination dries
- Excess adhesive from the moulding process can be removed
- A bag press or vacuum bag could be used with a styrofoam mould or equivalent former
- Simple curved shapes can be achieved
- Cross linked adhesive or 'cascamite' can be used to create a stronger glued joint
- Lamination can be trimmed to size once formed
- Laminated products can also be achieved by combining several sheets of kerfed flexible MDF.

Q7.

- Wood Selection – A suitable hardwood, such as ash or oak, is chosen due to its flexibility and long grain structure.
- Steaming – The wood is placed in a steam box, where it is exposed to steam (around 100°C) for a period of time, typically one hour per inch of thickness.
- Softening – The heat and moisture soften the lignin (the natural glue in wood), making the wood pliable.
- Bending – The hot, flexible wood is quickly removed and clamped around a former or jig to achieve the desired curve.

- Fixing – The wood is held in place until it cools and dries, allowing it to retain the new shape.
- Finishing – Once dry, the bent wood is removed from the jig and can be trimmed, sanded, or joined as needed.