

Design & Technology

A-Level

Lamination

Multiple Choice

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
- Use a cross in the box to mark you 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. Which one of the following processes involves the use of heat?

A Lamination

☐

B Vacuum forming

☐

C Turning

☐

Q2. Which one of the following statements is true about lamination?

A Cheap to use

☐

B Good quality finish

☐

C Comes in small sheets

☐

Q3. Which one of the following statements is true about lamination?

A Can be recycled

☐

B Lighter than solid wood

☐

C Can't be damaged by water/moisture

☐

Q4. Which one of the following statements is true about lamination?

A Can be shaped into a curve

☐

B Weak material

☐

C Layers are not visible

☐

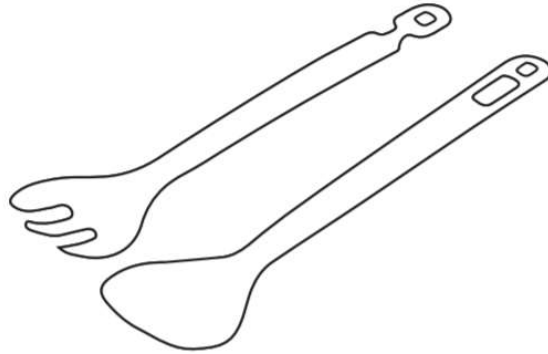
Q5. Give 2 properties of manufactured boards **(2 marks)**

Property 1:

Property 2:

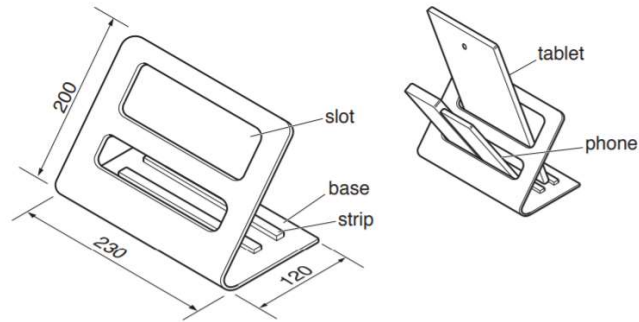
Q6. Describe the process of lamination. In the box below, use notes and sketches to describe your chosen process. Identify the equipment used in your chosen process. **(6 marks)**

Q7. Salad servers can be laminated from thin layers of wood.






Use notes and sketches in the space below to show the laminating process. **(3 marks)**

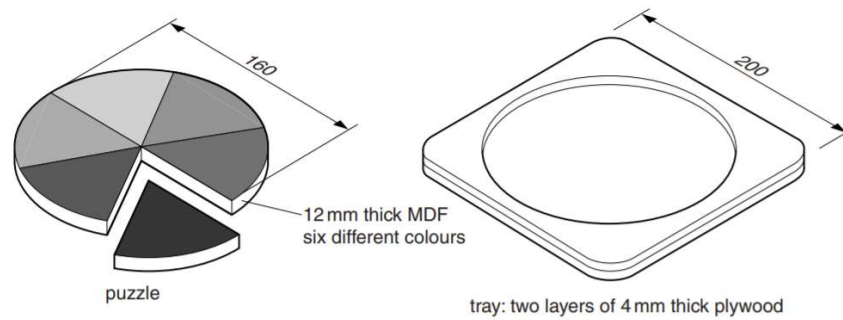
Q8. A storage unit to hold mobile phones or tablets, shown below can be made by lamination 5 wood veneers each 1mm thick. Use sketches and notes to show how the laminate could be formed to the shape of the storage unit. **(4 marks)**



Q9. Complete the table by stating the manufacturing process used to make each product.

Product	Manufacturing process
 metal model toy vehicle	
 plastic tubes	
 wooden chair legs	

Q10. The figure below shows a child's puzzle toy.



Use sketches and notes to show how the top and bottom pieces of plywood could be glued and clamped together.

Name a suitable adhesive and the type of cramps used. **(4 marks)**

Answers

Q1. B

Q2. A

Q3. B

Q4. A

Q5.

1 mark for each property correctly identified.

Indicative content:

- Look for reference to MDF, plywood and chipboard as per
- specification NOT cardboard
- Available in sheets of a consistent quality
- Good sound proofing if qualified, e.g. board thickness and application
- Large/standard size of boards means several parts can be
- 'nested' of one sheet and cut out
- Excellent surface finish (to accept a spray paint finish or a laminate)
- Consistent board thickness available
- Free from natural defects, e.g. knots
- Free from inconsistencies in physical characteristics, e.g. grain direction
- Stability e.g. no warping or twisting like natural wood
- Insulation e.g. can prevent transfer of electrical current and use in engineered timber for buildings (glulam) requires less energy to heat and cool.
- Good strength to weight ratio
- Not shaped and cut
- Not easy to cut
- Not easy to recycle

Accept all other valid responses

Q6.

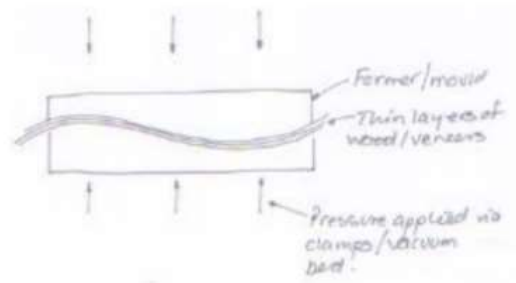
Lamination

Expect reference to lamination of paper, plastics, textiles or wood. Looking for reference to use in order to improve strength, stability, flexibility and possibly aesthetics, Possible consideration of laminating machine with polymer pouches to stiffen and water proof card. Gluing layers of veneer under pressure (clamps) with adhesive using formers. Fabric interfacing to stiffen collars and caps on clothing.

Q7.

Notes and sketches used to show / cover the following points:

- Thin layers of wood / slats / veneer /soaked wood (1)
- Glue is applied / PVA / 'Casamite' (1)
- Held under pressure in former with clamps / vacuum pump / glue sets (1)



(Preparation of materials and process covered) 3 x 1

Can award 2 marks if layers and glue are mentioned without a former to make a flat sheet

Q8.

- Sketches showing: layers of wood veneers glued (1)
- Use of a former/formers (0–2)
- Method of clamping laminate to retain shape, including vacuum bag (1)

Q9.

Metal models: die casting (1)

Plastic tubes: extrusion (1)

Wooden chair: lamination, steam bending (1)

Q10.

- Top and bottom pieces of plywood shown clamped together (0–2)
- At least 2 cramps shown or statement refers to use of cramps plural.
- Suitable glue: PVA, Cascamite, synthetic resin, Gorilla glue. (1)
- **Do not** award marks for Araldite/epoxy resin.
- Suitable cramps: G cramps, F cramps. (1)