

# Design & Technology

## A-Level

# Lamination

## Multiple Choice

### 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
- Use a cross in the box to mark you 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.** Which one of the following processes involves the use of heat? –  
edexcel 2013

- |          |                |                          |
|----------|----------------|--------------------------|
| <b>A</b> | Lamination     | <input type="checkbox"/> |
| <b>B</b> | Vacuum forming | <input type="checkbox"/> |
| <b>C</b> | Turning        | <input type="checkbox"/> |

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

- |          |                       |                          |
|----------|-----------------------|--------------------------|
| <b>A</b> | Cheap to use          | <input type="checkbox"/> |
| <b>B</b> | Good quality finish   | <input type="checkbox"/> |
| <b>C</b> | Comes in small sheets | <input type="checkbox"/> |

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

- |          |                                    |                          |
|----------|------------------------------------|--------------------------|
| <b>A</b> | Can be recycled                    | <input type="checkbox"/> |
| <b>B</b> | Lighter than solid wood            | <input type="checkbox"/> |
| <b>C</b> | Can't be damaged by water/moisture | <input type="checkbox"/> |

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

- |          |                            |                          |
|----------|----------------------------|--------------------------|
| <b>A</b> | Can be shaped into a curve | <input type="checkbox"/> |
| <b>B</b> | Weak material              | <input type="checkbox"/> |
| <b>C</b> | Layers are not visible     | <input type="checkbox"/> |

**Q5. Give 2 properties of manufactured boards (2 marks) – aqa 2019**

Property 1:

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Property 2:

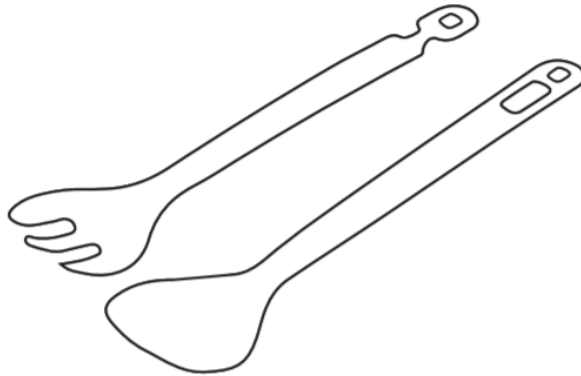
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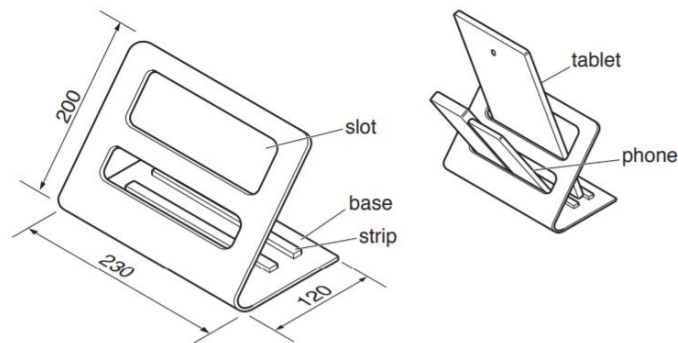
**Q6.** Describe the process of lamination. In the box below, use notes and sketches to describe your chosen process. Identify the equipment used in your chosen process. **(6 marks) – aqa 2019**

**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) – edexcel 2015**

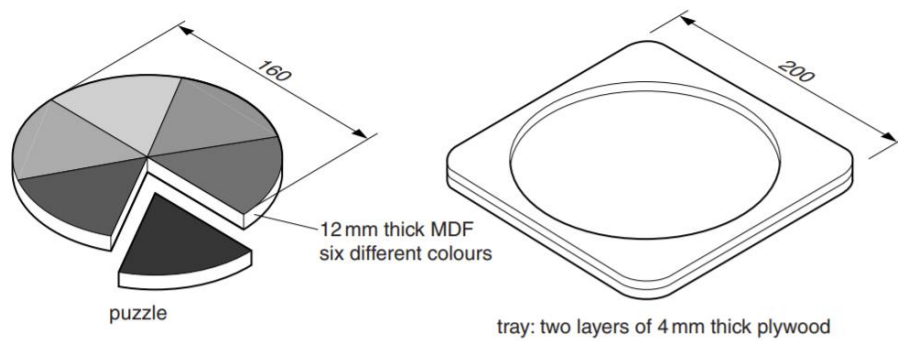
**Q8.** A storage unit to hold mobile phones or tablets, shown below can be made by lamination 5 wood veneers each 1mm thick. Use sketches and notes to show how the laminate could be formed to the shape of the storage unit. **(4 marks) – cie igcse 2019**



**Q9.** Complete the table by stating the manufacturing process used to make each product. -**cie igcse 2019**

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)** –  
**cie 2015**



## 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.**

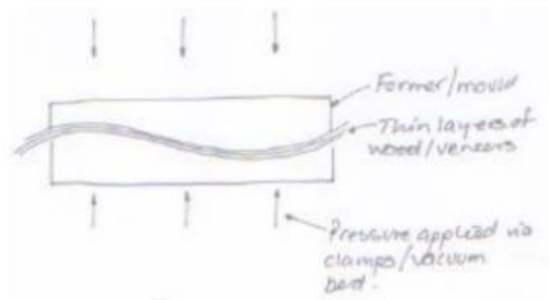
Lamination

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 / 'Cascamite' (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)