

Design & Technology

A-Level

Casting

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 process would have been used to make the metal frame of the g-clamp shown below?



A Casting

☐

B Injection moulding

☐

C Blow moulding

☐

Q2. Which of the following methods can create large sized products

A Sand casting

☐

B Die casting

☐

C Resin casting

☐

Q3. Which of the following is most suitable for large scale manufacture?

A Investment casting

☐

B Sand casting

☐

C Die casting

☐

Q4. Which of the following is true about resin casting?

- | | | |
|----------|-----------------------------|--------------------------|
| A | Expensive | <input type="checkbox"/> |
| B | Toxic fumes can be released | <input type="checkbox"/> |
| C | Slow setting time | <input type="checkbox"/> |

Q5. Which of the following is false about sand casting –

- | | | |
|----------|---------------------|--------------------------|
| A | Inexpensive | <input type="checkbox"/> |
| B | Good surface finish | <input type="checkbox"/> |
| C | Labour intensive | <input type="checkbox"/> |



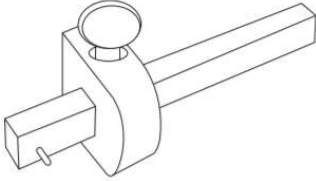
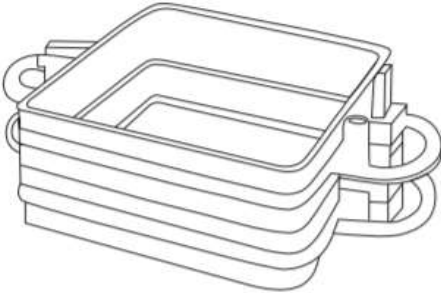
Q6. Which method will have the mould destroyed during casting process?

- | | | |
|----------|--------------------|--------------------------|
| A | Die - casting | <input type="checkbox"/> |
| B | Resin casting | <input type="checkbox"/> |
| C | Investment casting | <input type="checkbox"/> |

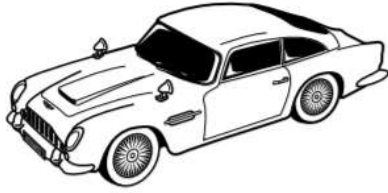
Q7. Which casting method is typically used to make model cars? - self

- | | | |
|----------|--------------------|--------------------------|
| A | Investment casting | <input type="checkbox"/> |
| B | Die casting | <input type="checkbox"/> |
| C | Sand casting | <input type="checkbox"/> |

Q8. Complete the table below by giving the missing names and uses
(4 marks)

Tools/equipment	Name	Use
	First aid kit	
		Protect hearing in the workshop
	Marking gauge	
		For holding a pattern/packing sand into when casting

Q9. The figure below shows a toy car and a machine part. Both are made by the die casting process.

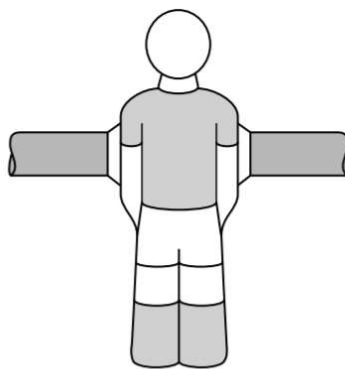


Give 2 benefits of using die casting process to make products. **(2 marks)**

1.

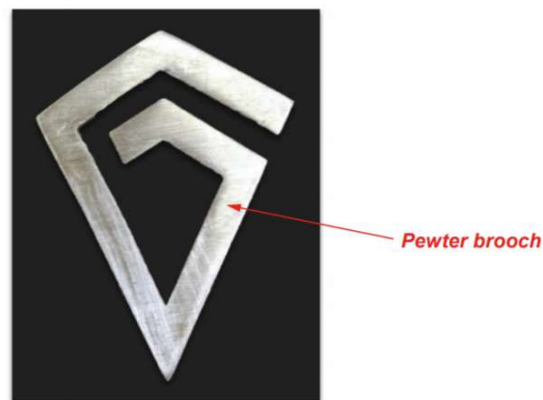
2.

Q10. The figure below shows a player made out of aluminium for a table football set.



Name a process that could be carried out in a school workshop to produce the players using aluminium. **(1 marks)**

Q11. The pewter brooch shown below has been made by the casting process.



Complete the table below by describing all the stages necessary to make the pewter brooch using common workshop tools and equipment. **(5 marks)**

Stage	Description
1	
2	
3	
4	
5	

--	--

Answers

Q1. A

Q2. A

Q3. C

Q4. B

Q5. B

Q6. C

Q7. B

Q8.

	Name	Use
ai		Contains / stores / holds plasters / bandages basic medical supplies Do not accept generic descriptors of first aid kit. (1)
a ii	Ear defenders (1) (only answer)	
a iii		Marking / scoring a line parallel to an edge (1)
a iv	Cope and/or drag / moulding flask (1)	

Q9.

Any two benefits of die casting:

intricate designs possible / reusable moulds / little or no machining

necessary / fast process / identical multiple parts / mass production possible.

[2 × 1 mark]

Q10.

- [Sand] casting

Q11.

- Producing the mould – manually (coping saw/file), laser cutter or CAM router to ‘mill out’ the mould. Suitable materials are referenced for mould.
- Runner to ensure pressure/flow of molten metal.
- Mould could be 2/3 parts that are clamped/secured together after cavity is formed.
- Pewter is heated until molten then poured into Runner.
- After leaving to cool and harden the casting is carefully removed from mould and the sprue cut off.
- 1 mark
Very basic understanding (reference to one of the points above).
- 2 marks
More detail (reference to 2 of the points above).
- 3 marks
Fairly detailed response (reference to 3 of the points above).
- 4 marks
Detailed response (reference to 4 of the points above).
- 5 marks
Highly detailed response (all of the above referenced).