

# Design & Technology

# Alloying

## Materials required for questions

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- Pencil
- Rubber
- Calculator

## Instructions

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- Use black ink or ball-point pen
- Try to 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
- Don't spend too much time on one question

# Good luck!

**Q1.** Which one of the following materials is an alloy?

- A**      Copper
- B**      Zinc
- C**      Brass

**Q2.** How are particles bonded together in metals?

- A**      Covalent bonds
- B**      Attractive forces between positive and negative ions
- C**      Attractive forces between atoms and delocalised electrons

**Q3.** What is an alloy?

- A**      A mixture of 2 or more elements, where at least 1 is a metal
- B**      A mixture of 3 or more elements, where at least 1 is a metal
- C**      A compound of 2 or more elements where at least 1 element is a metal

**Q4.** Which of these statements about alloys is correct?

- A**      Most alloys are less useful than the individual elements that they are made from
- B**      Most alloys are harder than the individual elements that they are made from
- C**      Most alloys are softer than the individual elements that they are made from

**Q5.** Which of these materials is an alloy?

- A** Steel
- B** Iron
- C** Aluminium

**Q6.** Carbon steel is made from carbon and which other material?

- A** Copper
- B** Iron
- C** Brass

**Q7.** Which one of the following is iron alloyed with to make mild steel?

- A** Zinc
- B** Carbon
- C** Aluminium

**Q8.** Which one of the following not an alloy?

- A** Solder
- B** Bronze
- C** Nickel

**Q9.** A stainless steel fork is made from carbon, iron and other metals. Name two metals that can be alloyed with carbon and iron to make stainless steel. **(2 marks)**

### **Answers**

**Q1.** C

**Q2.** C

**Q3.** A

**Q4.** B

**Q5.** A

**Q6.** B

**Q7.** B

**Q8.** C

**Q9.**

- Chromium
- Nickel
- Molybdenum
- Titanium
- Copper
- Niobium
- Manganese
- Aluminium
- Tin
- Magnesium

One mark per metal.