

Design & Technology

AQA GCSE

Metals and alloy

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. Which one of the following is ferrous?

- A** Aluminium
- B** Zinc
- C** Iron

Q2. Aluminium is used in the manufacture of cooking pots because it has which property?

- A** Malleability
- B** Thermal conductivity
- C** Electrical conductivity

Q3. Copper is used for wiring because of what property?

- A** It is ductile
- B** It is soft
- C** It is brittle

Q4. What might stainless steel be used to make?

- A** Kitchen utensils
- B** Ship propellers
- C** Magnets

Q5a. What is an alloy (2 marks)

Q5b. Name one alloy (1 mark)

Q5c. Explain why metals are alloyed (2 marks)

Answers

Q1. C

Q2. B

Q3. A

Q4. A

Q5a.

- A mixture of two or more metals
- To create a new metal (alloy) with improved properties

Q5b.

- Brass
- Bronze
- Duralumin
- Pewter
- Steel (accept any specifically named steel eg die steel (tool steel), high speed steel (HSS), stainless steel)

Q5c.

- Where a mixture of at least 2 metals are combined to give enhanced properties
- To produce a tough corrosion resistant material eg stainless steel
- Titanium can be alloyed with other metals like aluminium and vanadium for increased strength, better corrosion resistance and easier workability
- Alloying metals can improve working properties and improve aesthetics

Possible reference to examples of use to enhance explanation:

- Stainless steel – cutlery to make hard wearing and corrosion resistant
- Brass – copper and zinc for brass musical instruments due to workability into different forms and profiles