

# 10.4 Uses of Metals

## Question Paper

Level	IGCSE
Subject	Chemistry (0620)
Exam Board	Cambridge International Examinations (CIE)
Topic	Metals
Sub-Topic	10.4 Uses of Metals
Booklet	Question Paper

**Time Allowed:** 35 minutes

**Score:** /29

**Percentage:** /100

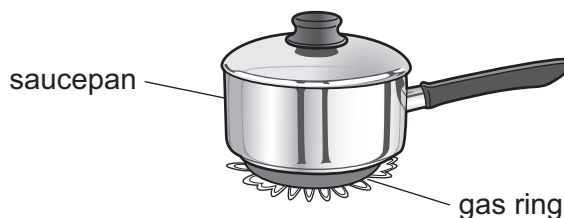
**Grade Boundaries:**

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1 Which statement about the uses of metals is correct?

- A** Aluminium is used in the manufacture of aircraft because of its strength and high density.
- B** Copper is used in electrical wiring because of its strength and high density.
- C** Mild steel is used in the manufacture of car bodies because of its strength and resistance to corrosion.
- D** Stainless steel is used in the construction of chemical plant because of its strength and resistance to corrosion.

2 Copper is sometimes used to make cooking utensils.



Three properties of copper are given.

- 1 corrosion resistant
- 2 good conductor of electricity
- 3 good conductor of heat

Which properties make copper a suitable metal for making cooking utensils?

- A** 1 and 3      **B** 1 only      **C** 2 and 3      **D** 2 only

3 Copper is a transition element used to make saucepans.

Which property is **not** correct for copper?

- A** good conductor of heat
- B** insoluble in water
- C** low melting point
- D** malleable (can be hammered into shape)

4 Which metal would be suitable for all of the following uses?

- making aircraft bodies
- making food containers
- making overhead power cables

- A** aluminium  
**B** brass  
**C** mild steel  
**D** pure iron

5 Which two elements make up mild steel?

- A** aluminium and magnesium  
**B** copper and zinc  
**C** iron and carbon  
**D** tin and lead

6 The table show three uses of aluminium and a reason why aluminium is used for that purpose.

	use	reason
1	aircraft manufacture	high tensile strength
2	overhead electricity cables	low density
3	food containers	resistance to corrosion

Which reasons explain the use?

- A** 1, 2  
**B** 1 and 2 only  
**C** 1 and 3 only  
**D** 2 and 3 only

- 7 Which conditions are necessary to make mild steel from iron?
- A add calcium oxide and blow oxygen through it
  - B heat with calcium oxide
  - C heat with carbon and limestone
  - D heat with nickel and chromium
- 8 What is a major use of aluminium?
- A making brass
  - B making cutlery
  - C making electrical wiring
  - D making food containers
- 9 Which statement is **not** correct?
- A Aluminium is used in food containers because of its resistance to corrosion.
  - B Aluminium is used in the manufacture of aircraft because of its strength and low density.
  - C Mild steel is used in car bodies because of its strength and low density.
  - D Stainless steel is used in chemical plant because of its strength and resistance to corrosion.

11 Some properties of aluminium are listed.

- 1 It has mechanical strength.
- 2 It is resistant to corrosion.
- 3 It has a low density.
- 4 It conducts heat.

Which **three** properties make aluminium useful for making the bodies of aircraft? **A**

- 1, 2 and 3      **B** 1, 2 and 4      **C** 1, 3 and 4      **D** 2, 3 and 4

12 Which object is **least** likely to contain aluminium?

- A** a bicycle frame
- B** a hammer
- C** a saucepan
- D** an aeroplane body

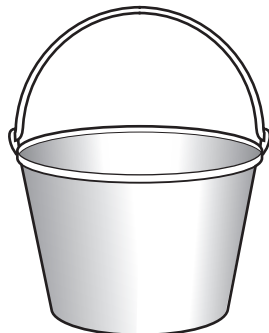
13 A list of properties of aluminium is shown.

- 1 It conducts heat.
- 2 It has a low density.
- 3 It is resistant to corrosion.

Which properties make aluminium useful for making food storage containers?

- A** 1, 2      **B** 1 and 3 only      **C** 1 only      **D** 3 only

14 The diagrams show two items that may be found in the home. Each item contains zinc.



zinc plated bucket



brass door-knocker

In which is zinc used as an alloy?

	bucket	door-knocker
<b>A</b>	✓	✓
<b>B</b>	✓	x
<b>C</b>	x	✓
<b>D</b>	x	x

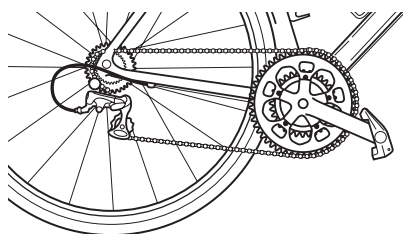
15 The table shows properties of four metals.

Which metal is the most suitable for aircraft construction?

	density	strength	resistance to corrosion
<b>A</b>	high	high	low
<b>B</b>	high	low	low
<b>C</b>	low	high	high
<b>D</b>	low	low	high

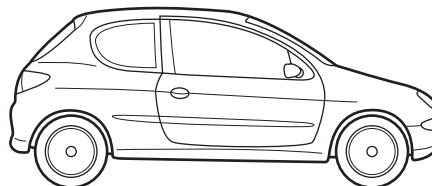
16 Which object is likely to be made from stainless steel?

**A**



bicycle chain

**B**



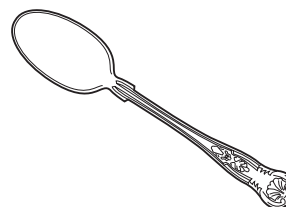
car body

**C**



can of beans

**D**



teaspoon

17 Which row describes the uses of mild steel and stainless steel?

	mild steel	stainless steel
<b>A</b>	car bodies, cutlery	chemical plant, machinery
<b>B</b>	car bodies, machinery	chemical plant, cutlery
<b>C</b>	chemical plant, cutlery	car bodies, machinery
<b>D</b>	chemical plant, machinery	car bodies, cutlery

18 The diagrams show four uses of iron.

In which of these uses is the iron most likely to rust?

A



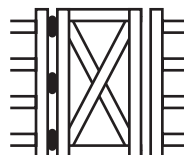
iron bucket  
electroplated  
with zinc

B



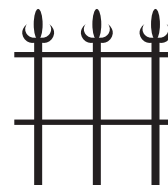
iron cored  
aluminium  
electricity cables

C



iron hinges  
on a gate

D



painted  
iron fence

19 Duralumin is an alloy. It contains aluminium, copper and magnesium.

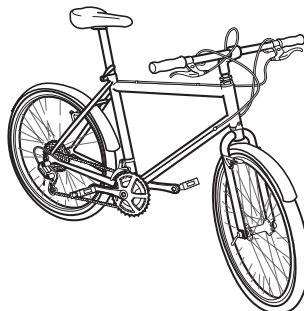
It has many uses including the manufacture of cooking utensils and ships.

Which statement about duralumin and its properties is correct?

- A It is a good conductor of electricity.
- B It is brittle.
- C It is soluble in water.
- D The aluminium, copper and magnesium are chemically combined.



- 20 A new bicycle is being developed.  
Two different materials are used in its construction, both of which must be corrosion resistant.



Which two metals could be used?

- A aluminium and mild steel
  - B aluminium and stainless steel
  - C mild steel and pure iron
  - D pure iron and stainless steel
- 21 Which property makes aluminium ideal for making food containers?
- A conducts electricity
  - B conducts heat
  - C mechanical strength
  - D resistance to corrosion
- 22 Why is aluminium used to make food containers?
- A It has a low density.
  - B It is strong.
  - C It keeps the food hot.
  - D It resists corrosion.

- 23 Which statement about the uses of metals is correct?
- A** Aluminium is used in the manufacture of aircraft as it has a high density.
  - B** Aluminium is used to make food containers as it conducts electricity.
  - C** Stainless steel for cutlery is made by adding other elements to iron.
  - D** Stainless steel is used to make chemical reactors as it corrodes readily.

- 24 Alloy X is strong and has a low density.

Alloy Y is heavy but is resistant to corrosion.

Which could be uses of X and Y?

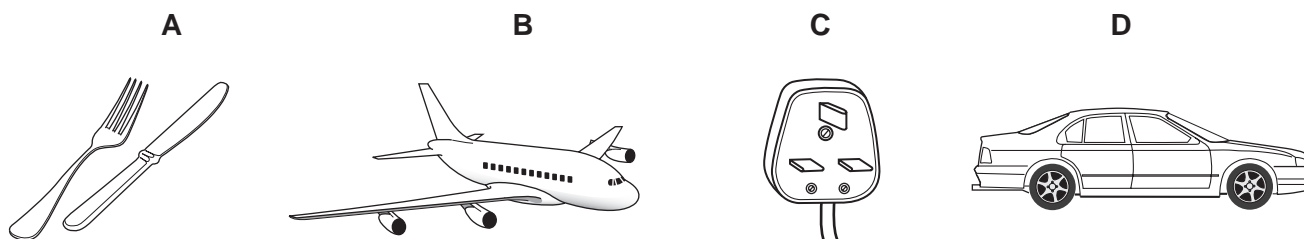
	bridge supports	aircraft	overhead cables
<b>A</b>	X	X	Y
<b>B</b>	X	Y	Y
<b>C</b>	Y	X	X
<b>D</b>	Y	Y	X

25 The properties of a metal are important in deciding its use.

Which row lists a property that is **not** correct for the use given?

	use of the metal	metal property needed
<b>A</b>	aluminium in aircraft wings	low density
<b>B</b>	aluminium in food containers	resists corrosion
<b>C</b>	mild steel in car bodies	high density
<b>D</b>	stainless steel in cutlery	does not rust

26 Which diagram shows a common use of stainless steel?



27 Aluminium is an important metal with many uses.

Some of its properties are listed.

- 1 It is a good conductor of heat.
- 2 It is a reactive metal.
- 3 It has a low density.
- 4 It has an oxide layer that prevents corrosion.

Which set of properties help to explain the use of aluminium for cooking and storing food?

- A** 1, 2 and 3      **B** 1, 2 and 4      **C** 1, 3 and 4      **D** 2, 3 and 4

28 Which object is **least** likely to contain aluminium?

- A a bicycle frame
- B a hammer
- C a saucepan
- D an aeroplane body

29 Stainless steel is an alloy of iron and other metals. It is strong and does not rust but it costs much more than normal steel.

What is **not** made from stainless steel?

- A cutlery
- B pipes in a chemical factory
- C railway lines
- D saucepans