

Properties of metals

Question Paper 1

Level	IGCSE
Subject	Chemistry (0620/0971)
Exam Board	Cambridge International Examinations (CIE)
Topic	Metals
Sub-Topic	Properties of metals
Booklet	Question Paper 1

Time Allowed: 36 minutes

Score: /30

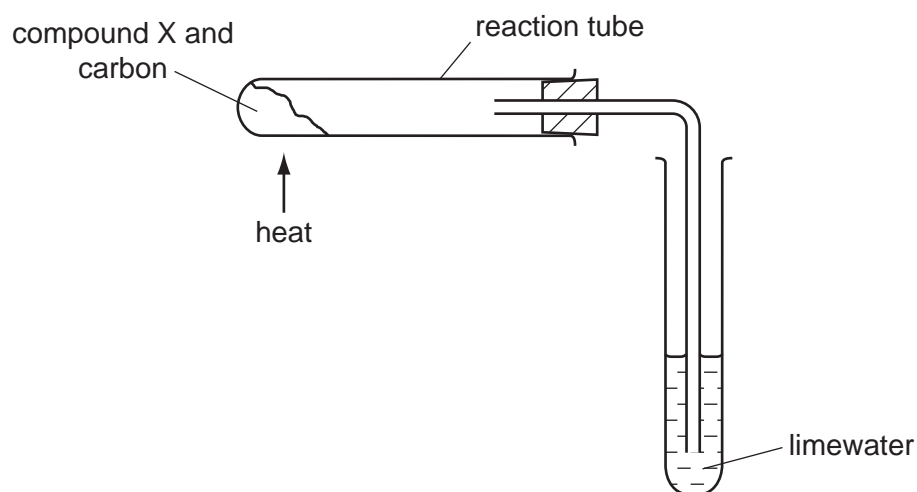
Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	68%	60%	53%	48%	40%	33%	<25%

1. Which statement about alloys is **not** correct?
- A Alloys are more expensive than the metals they are made from.
 - B Alloys are mixtures of different metals.
 - C Alloys are not as strong as the metals they are made from.
 - D Alloys conduct electricity well.

2. Compound X is heated with carbon using the apparatus shown.



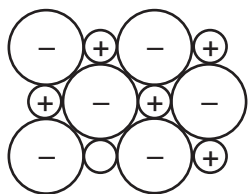
A brown solid is formed in the reaction tube and the limewater turns cloudy.

What is compound X?

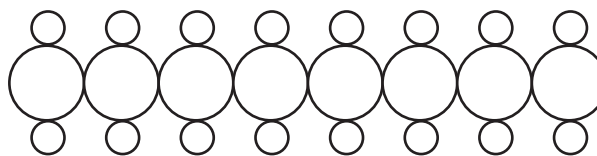
- A calcium oxide
 - B copper(II) oxide
 - C magnesium oxide
 - D sodium oxide
3. Which property do **all** metals have?
- A They are soluble in water.
 - B They conduct electricity.
 - C They have high melting points.
 - D They react with dilute sulfuric acid.

7. Which diagram could represent the structure of an alloy?

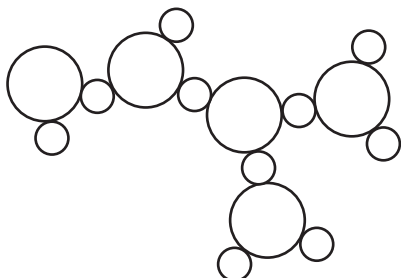
A



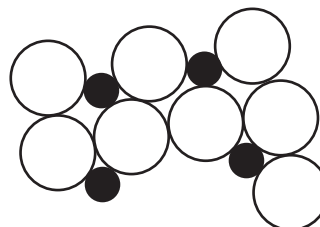
B



C



D



8. Which property do **all** metals have?

- A** Their boiling points are low.
- B** Their densities are low.
- C** They conduct electricity.
- D** They react with water.

9. Copper, iron and zinc are all used as pure metals.

Which of these three metals are also used in alloys?

	copper	iron	zinc
A	✓	✓	✓
B	✓	✓	x
C	x	✓	✓
D	x	x	✓

10. Some properties of four elements are shown in the table.

Which element is a metal?

	melting point/°C	electrical conductivity when liquid	electrical conductivity when solid
A	-7	low	low
B	801	high	low
C	1535	high	high
D	3550	low	low

11. Which statements are correct?

- 1 Metals are often used in the form of alloys.
- 2 Stainless steel is an alloy of iron.
- 3 Alloys always contain more than two metals.

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

12. Which statement is true about **all** metals?

- A They are attracted to a magnet.
- B They are weak and brittle.
- C They may be used to form alloys.
- D They react with water.

13. Brass is an alloy of copper and zinc.

Which statement is correct?

- A Brass can be represented by a chemical formula.
- B Brass is formed by a chemical reaction between copper and zinc.
- C The alloy will dissolve completely in dilute hydrochloric acid.
- D The zinc in the alloy will dissolve in dilute hydrochloric acid.

14. Which substance is a metal?

	electrical conductivity (solid)	electrical conductivity (molten)
A	high	high
B	high	low
C	low	high
D	low	low

15. Brass is used in electrical equipment.

It contains two1..... elements. Together they form2..... .

Which words correctly complete gaps 1 and 2?

	1	2
A	metallic	a covalent compound
B	metallic	an alloy
C	non-metallic	a covalent compound
D	non-metallic	an alloy

16. The three statements below about aluminium are all correct.

- 1 Aluminium has an oxide ore.
- 2 Aluminium is extracted from its ore by electrolysis.
- 3 Aluminium is used to make cooking utensils.

In which of these statements can '**aluminium**' be replaced by '**iron**' and still be correct?

	1	2	3
A	✓	✓	✓
B	✓	✓	x
C	✓	x	✓
D	x	✓	✓

17. Statement 1: An aluminium alloy containing a small amount of copper is stronger than pure aluminium.

Statement 2: Alloys are made by mixing molten metals together and allowing them to cool.

Which of the following is true?

- A Both statements are correct and statement 2 explains statement 1.
 - B Both statements are correct but statement 2 does not explain statement 1.
 - C Statement 1 is correct but statement 2 is not correct.
 - D Statement 2 is correct but statement 1 is not correct.
18. Which property is shown by **all** metals?
- A They are extracted from their ores by heating with carbon.
 - B They conduct electricity.
 - C They form acidic oxides.
 - D They react with hydrochloric acid to form hydrogen.
19. Which statement about aluminium is **not** correct?
- A It is resistant to corrosion.
 - B It is strong and has a high density.
 - C It is used in food containers.
 - D It is used in the manufacture of aircraft.

20. Which statements about the general properties of metals are correct?

- 1 conduct electricity when solid
- 2 form acidic oxides
- 3 high melting point

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

21. Some properties of four elements W, X, Y and Z are listed.

- 1 W melts at 1410 °C and forms an acidic oxide.
- 2 X has a high density and is easily drawn into wires.
- 3 Y acts as a catalyst and its oxide reacts with acids.
- 4 Z is a red-brown solid used to make alloys.

Which of the elements are metals?

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

22. M is a shiny silver metal. It has a melting point of 1455 °C. Many of its compounds are green.

What is metal M?

- A** aluminium
- B** copper
- C** mercury
- D** nickel

23. Which element is a metal?

	charge on element ion	electrical conductivity
A	negative	low
B	positive	high
C	negative	high
D	positive	low

24. Pure metals conduct electricity and can be hammered into different shapes.

Why are metals sometimes used as alloys?

- A** Alloys are cheaper than the metals they are made from.
- B** Alloys are easier to hammer into different shapes.
- C** Alloys are harder and keep their shape better.
- D** Alloys conduct electricity better.

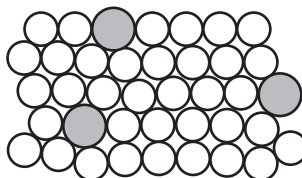
25. A substance, X, has the following properties.

- 1 It has a high melting point.
- 2 It conducts electricity in the solid and liquid states.
- 3 It is malleable.
- 4 It had a high density.

What is X?

- A** a ceramic
- B** copper
- C** graphite
- D** sodium chloride

26. The diagram represents the structure of substance S.



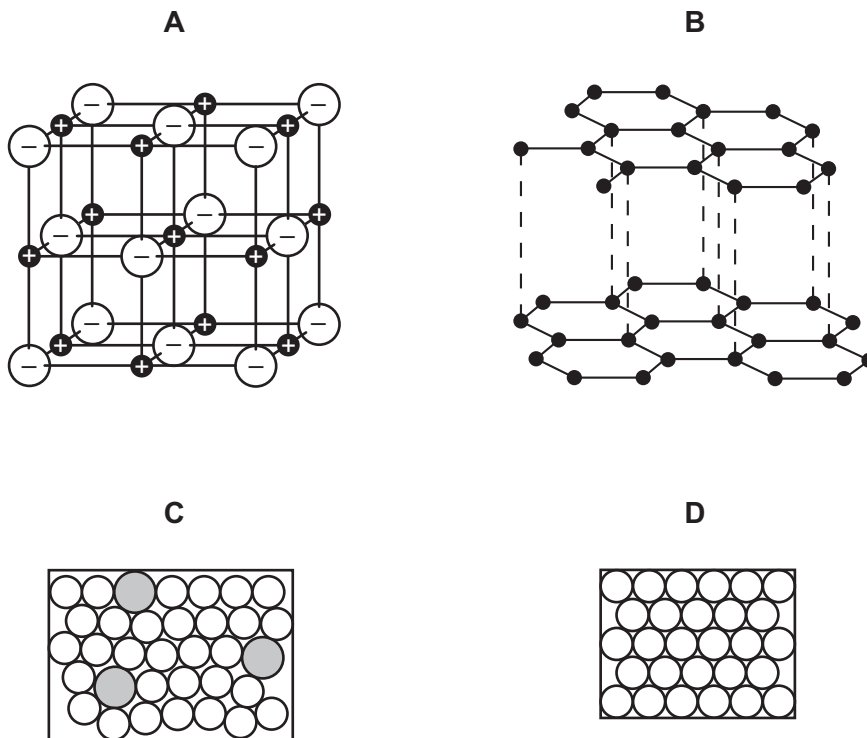
What is S?

- A an alloy
 - B an ionic solid
 - C a macromolecule
 - D a pure metal
27. Aluminium is the most common metal in the Earth's crust.

Which is **not** a property of aluminium?

- A low density
 - B resistance to corrosion
 - C good conductor of electricity
 - D poor conductor of heat
28. Which metal is commonly used to form alloys with a non-metallic element?
- A copper
 - B iron
 - C magnesium
 - D zinc

29. Which diagram shows the structure of an alloy?



30. Which statement is true for **all** metals?

- A** Their atoms lose one or more electrons when they react.
- B** They are brittle.
- C** They do not conduct electricity when solid.
- D** They melt at low temperatures when they are heated.