

Transition elements

Question Paper 1

Level	IGCSE
Subject	Chemistry (0620/0971)
Exam Board	Cambridge International Examinations (CIE)
Topic	The Periodic Table
Sub-Topic	Transition elements
Booklet	Question Paper 1

Time Allowed: 30 minutes

Score: /25

Percentage: /100

Grade Boundaries:

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

1. The table gives information about four elements.

Which element is a transition metal?

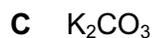
	colour of element	electrical conductivity of element	colour of oxide
A	black	high	colourless
B	colourless	low	white
C	grey	high	red
D	yellow	low	colourless

2. The sulfate of element F is green.

Which other properties is element F likely to have?

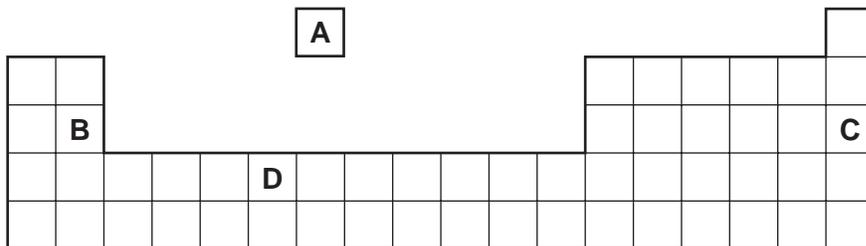
	density	melting point
A	high	high
B	high	low
C	low	high
D	low	low

3. Which compound is likely to be coloured?



9. The positions of four elements are shown on the outline of the Periodic Table.

Which element forms a coloured oxide?



The diagram shows an outline of the periodic table with four elements marked in boxes:

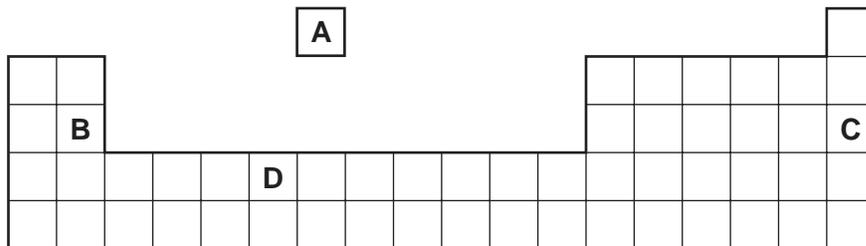
- A**: Located in the top right corner, above the noble gases.
- B**: Located in the second period, second group (alkali metals).
- C**: Located in the second period, eighth group (halogens).
- D**: Located in the fourth period, fourth group (transition metals).

10. Which element is a transition metal?

	colour of chloride	melting point of element / °C
A	white	113
B	white	1495
C	yellow	113
D	yellow	1495

11. The positions of four elements are shown on the outline of the Periodic Table.

Which element forms a coloured oxide?



The diagram shows an outline of the periodic table with four elements marked in boxes:

- A**: Located in the top right corner, above the noble gases.
- B**: Located in the second period, second group (alkali metals).
- C**: Located in the second period, eighth group (halogens).
- D**: Located in the fourth period, fourth group (transition metals).

12. An element X has the two properties listed.

- 1 It acts as a catalyst.
- 2 It forms colourless ions.

Which of these properties suggest that X is a transition element?

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

13. Which properties of the element titanium, Ti, can be predicted from its position in the Periodic Table?

	can be used as a catalyst	conducts electricity when solid	has low density	forms coloured compounds
A	✓	✓	✓	x
B	✓	✓	x	✓
C	✓	x	✓	✓
D	x	✓	✓	✓

14. Which is **not** a characteristic property of transition metals?

- A** act as catalysts
- B** form coloured compounds
- C** high melting point
- D** low density

15. Which of the following could be a transition element?

	melting point in °C	density in g/cm ³	colour	electrical conductor
A	114	4.9	purple	no
B	659	2.7	grey	yes
C	1677	4.5	grey	yes
D	3727	2.3	black	yes

16. The table gives information about four elements, P, Q, R and S.

	melting point in °C	electrical conductivity of element when solid	density in g/cm ³	colour of iodide of element
P	98	good	0.97	white
Q	-39	good	13.53	red
R	1410	poor	2.33	colourless
S	1535	good	7.87	green

Which elements could be transition elements?

- A** P, Q and S **B** Q and S only **C** R and S only **D** S only

17.. Osmium is a transition element.

Which row gives the expected properties of osmium?

	melting point	density	compounds formed
A	high	high	coloured
B	high	high	white
C	high	low	white
D	low	high	coloured

18 Which row describes the properties of a typical transition element?

	melting point	forms coloured compounds	can act as a catalyst
A	high	no	no
B	high	yes	yes
C	low	no	yes
D	low	yes	no

19 Which properties do the elements chromium, iron and vanadium have in common?

- 1 They all conduct electricity.
- 2 They, or their compounds, can act as catalysts.
- 3 They all form coloured compounds.

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

20 Some properties of element X are shown.

melting point in °C	98
boiling point in °C	883
reaction with cold water	gives off H ₂ gas
reaction when heated with oxygen	burns to give a white solid

In which part of the Periodic Table is X found?

- A** Group I
- B** Group VII
- C** Group VIII
- D** transition elements

24 The table shows the symbols of three metals with names that begin with the letter C.

Which row correctly shows the melting point of the metals?

	Co	Cr	Cs
A	high	high	high
B	high	high	low
C	low	low	high
D	low	low	low

25 The table compares the properties of Group I elements with those of transition elements.

Which entry in the table is correct?

	property	Group I elements	transition elements
A	catalytic activity	low	high
B	density	high	low
C	electrical conductivity	low	low
D	melting point	high	low