6. Only some elements can be used to reduce a particular metal oxide to the metal.

At 700 °C

- zinc oxide cannot be reduced by carbon or iron
- copper oxide can be reduced by both carbon and zinc
- iron oxide cannot be reduced by carbon.

(a) Explain what is meant by 'reduce'.

.....

(1)

(b) Put the elements carbon, copper, iron and zinc in order of **decreasing** reactivity at 700 °C, explaining your reasoning.

(i) order of reactivity: .....

.....

(3)

(ii) explanation: .....

.....

.....

(3)

(c) Explain why you would expect iron to react with copper oxide at 700 °C. Give a word equation for the reaction.

(i) explanation: .....

.....

(1)

(ii) equation:

iron .....

\+ ⟶ +

copper oxide .....

(2)

(d) In the commercial extraction of iron using a blast furnace, iron oxide is reduced by carbon. What can you deduce about the blast furnace?

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