2.7 Metals, Reactivity and the Rock Cycle: Test Pack

Calculator allowed · about 20 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Name three physical properties of metals that distinguish them from non-metals.

(1)

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2 Match the rock type to its formation process: igneous, sedimentary, metamorphic. Processes: formed from cooled molten rock; formed by layers of sediment being compacted and cemented; formed when existing rocks are changed by heat and pressure. Provide the three pairings.

(2)

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3 Which rock type would likely contain fossil shells and why?

(2)

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4 State one environmental problem caused by mining metal ores.

(1)

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5 Magnesium reacts with dilute hydrochloric acid. Write the word equation for the reaction and describe one thing you would see.

(3)

6 Copper is used to make electrical wires. Give two properties of copper that make it suitable for this use.

(2)

7 Explain why a piece of iron will displace copper from copper(II) sulfate solution, but copper will not displace iron from iron(II) sulfate solution.

(4)

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Mark scheme · 2.7 Metals, Reactivity and the Rock Cycle: Test Pack

Question 1

one correct property named (shiny, malleable, good conductor of heat or electricity, ductile, high density, sonorous) cao — **B1**

Answer: **Examples: shiny; malleable; good conductor of electricity (any one of these for 1 mark).**

Question 2

igneous = formed from cooled molten rock — **B1**

sedimentary = formed by compacting and cementing layers of sediment; metamorphic = formed when existing rocks change by heat and pressure (either point scored as second mark) — **B1**

Answer: **Igneous = formed from cooled molten rock. Sedimentary = formed by sediment being compacted and cemented. Metamorphic = formed when existing rocks are changed by heat and pressure.**

Question 3

answer: sedimentary — **M1**

reason: formed from deposited sediments that can include and preserve remains such as shells cao — **A1**

Answer: **Sedimentary rock, because sediments can bury and preserve shells and other remains.**

Question 4

one correct problem: habitat destruction, soil and water pollution, acid mine drainage, landscape scarring, CO_2 emissions from processing, oe — **B1**

Answer: **Mining can cause water pollution, for example acid mine drainage contaminating streams.**

Question 5

reactants: magnesium + hydrochloric acid — **B1**

products: magnesium chloride + hydrogen — **B1**

observation, e.g. bubbles or fizzing, the magnesium gets smaller or disappears, the test tube warms, oe — **B1**

Answer: **magnesium + hydrochloric acid -> magnesium chloride + hydrogen; bubbles of gas are seen and the magnesium disappears.**

Question 6

any one of: good conductor of electricity, ductile (can be drawn into wires), malleable or flexible, unreactive or does not corrode easily, oe — **B1**

a second different property from the list — **B1**

Answer: **It is a good conductor of electricity and it is ductile (it can be drawn out into wires).**

Question 7

state that iron is higher than copper in the reactivity series (more reactive) — **M1**

displacement idea: a more reactive metal will displace a less reactive metal from its compound — **M1**

apply to iron and copper: iron displaces copper ions to form iron(II) sulfate and copper metal — **A1**

therefore copper cannot displace iron because copper is less reactive cao — **A1**

Answer: **Iron is more reactive than copper so iron atoms displace copper ions from copper(II) sulfate, forming iron(II) sulfate and copper metal; copper cannot displace iron because it is less reactive.**

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