



**Subject:** Grade 7 Natural Sciences

**Topic:** Properties of metals, semi-metals and non-metals

**Total:** 30 Marks

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1. gas | gas. 3 marks

**Explanation:**

Chlorine occurs in all three states. At room temperature (25°C), chlorine is a yellow-green gas.

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2. true 2 marks

**Explanation:**

Non-metals break when hammered or when force is applied onto them.

They are not malleable - cannot be hammered into different shapes.

They are not ductile - they cannot be drawn into threads.

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3. C: Oxygen 4 marks

**Explanation:**

Tin is a metal.

Boron and silicon are semi-metals.

Oxygen is a non-metal.

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4. liquid | liquid. 3 marks

**Explanation:**

Bromine is the only non-metal to exist in liquid form at room temperature.

Bromine is also one of only two elements that is liquid at room temperature. The other element is the metal, mercury.

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5. high boiling points | high melting points 4 marks

**Explanation:**

Metallic bonding is the strong attraction between closely packed positive metal ions and a "sea" of delocalised electrons. The attraction between the metal ions and delocalised electrons must be overcome to melt or boil a metal. These attractive forces in a metal are very strong. That is why metals have high melting and boiling points.

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6. Copper | copper. 3 marks

**Explanation:**

Copper (metal) can easily be shaped and drawn into wires.

The plastic (non-metal) around the copper wires is the insulator.

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7. false

2 marks

**Explanation:**

Metals are excellent conductors of heat and electricity.

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8. true

2 marks

**Explanation:**

Semi-metals have properties between those of metals and non-metals.

A semi-metal acts as a conductor when heated and an insulator when cooled - hence the name *semi-conductor*.

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9. D: Zinc

4 marks

**Explanation:**

A metal is hard and shiny.

**Zinc**

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10. Mercury | mercury.

3 marks

**Explanation:**

Mercury is classified as a transition metal as it is ductile, malleable and able to conduct heat and electricity.

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**Total: 30 Marks**