



Subject: Grade 9 Natural Sciences

Topic: Reactions of non-metals with oxygen

Total: 33 Marks

1. true 2 marks

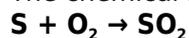
Explanation:

Sulphur dioxide has a pungent, suffocating odour. Sulphur dioxide is a dangerous air pollutant because of its corrosive properties; it irritates the eyes, nose and lungs. It is produced by combustion of coal, fuel oil and gasoline, since these fuels contain sulphur.

2. false 2 marks

Explanation:

The chemical reaction is:



di- means two. There are two oxygen atoms in the product.

Sulphur dioxide is the product.

3. B | blue 4 marks

Explanation:

When sulphur burns it will have a blue flame. When carbon burns (think of coal) it will have an orange glow.

4. B: clear lime water turns milky 4 marks

Explanation:

Limewater is created with calcium hydroxide, or $\text{Ca}(\text{OH})_2$. Named for the mineral, not the fruit, lime reacts with CO_2 in water to form calcium carbonate (CaCO_3), which is white and does not dissolve in water, causing the water to turn cloudy.

5. D: A and B 4 marks

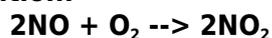
Explanation:

The three allotropes of sulphur are orthorhombic, monoclinic and plastic.

Glass may contain sulphur but it is not an allotrope of sulphur.

6. $2\text{NO} + \text{O}_2 \rightarrow 2\text{NO}_2$ 3 marks

Explanation:



When balancing equations, each element must have the same amount on both sides of the arrow.

7. A: granite

4 marks

Explanation:

Granite is an igneous rock with grains large enough to be seen with the naked eye.

Graphite is an allotrope of carbon. Lead used to be used in pencils but it is non-toxic. Today, graphite is used in pencils because it is non-toxic and rubs off surfaces easily.

8. reactants | non-metal oxide

4 marks

Explanation:

A non-metal will never be a metal. Non-metals are:

- not good conductors of electricity or heat.
- are very brittle in their solid form.
- are not malleable or ductile.

Metals are the complete opposite.

9. allotrope | allotropes

3 marks

Explanation:

Allotropes are different structural modifications of an element - the atoms of the element are bonded together in a different manner.

10. photosynthesis

3 marks

Explanation:

Photosynthesis only occurs in plants. This is why it is so important that we preserve our forests and nature around us. It is the only process that cleans the air for us to be able to breathe.

Total: 33 Marks