

AP Chemistry

Name: \_\_\_\_\_ Score: \_\_\_\_\_

1. Select **all** signs that suggest a chemical reaction.

- ☐ a colour change
- ☐ a gas bubbling out
- ☐ a precipitate forming

*Tick every correct option.*

2. A spectator ion is one that...

- ☐ appears unchanged on both sides
- ☐ forms the precipitate
- ☐ is created in the reaction

3. Observing bubbles and a temperature rise is which level?

- ☐ macroscopic
- ☐ particulate
- ☐ symbolic

4. Burning wood into ash and smoke is a...

- ☐ chemical change
- ☐ physical change
- ☐ no change

5. In  $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$ , how many moles of water form from 3 mol of  $\text{O}_2$  (excess  $\text{H}_2$ )?

\_\_\_\_\_ mol

6. 30 mL of acid is neutralized by 15 mL of 0.2 M base (1 to 1). The acid's molarity (in M)?

\_\_\_\_\_ M

7.  $A + B \rightarrow AB$  is which type of reaction?

- ☐ synthesis
- ☐ decomposition
- ☐ combustion

8. In the Bronsted-Lowry model, an acid is a substance that...

- ☐ donates a proton ( $\text{H}^+$ )

☐ accepts a proton

☐ donates an electron

9. In a chemical reaction, the total mass of reactants equals the total mass of products.

☐ True      ☐ False

10. You must balance the equation before reading off the mole ratio.

☐ True      ☐ False

## AP Chemistry

1. **a colour change; a gas bubbling out; a precipitate forming**

Colour change, gas, and a precipitate all hint at new substances.

2. **appears unchanged on both sides**

Spectators do not change, so they cancel out.

3. **macroscopic**

What you directly see and measure is the macroscopic level.

4. **chemical change**

New substances (ash, gases) form, so it is chemical.

5. **6 mol**

The ratio is 1 O<sub>2</sub> to 2 H<sub>2</sub>O, so  $3 \times 2 = 6$  mol.

6. **0.1 M**

$M_a(30) = (0.2)(15) = 3$ , so  $M_a = 0.1$  M.

7. **synthesis**

Two things combining into one is a synthesis.

8. **donates a proton (H<sup>+</sup>)**

An acid is a proton donor; a base is a proton acceptor.

9. **True**

Atoms are conserved, so mass is conserved.

10. **True**

The coefficients only give the correct ratio when balanced.