1. Why is the Eiffel Tower painted regularly?

   ☐ To change its melting point

   ☐ To make it conduct electricity

   ☐ To stop the iron rusting

   ☐ To make it heavier

2. For a reaction to happen, particles must:

   ☐ be far apart

   ☐ be the same size

   ☐ collide with enough energy

   ☐ be at low temperature

3. A catalyst speeds up a reaction by:

   ☐ raising the activation energy

   ☐ lowering the activation energy

   ☐ being used up

   ☐ cooling the reaction

4. A reversible reaction is shown by the symbol:

   ☐ $\rightarrow$

   ☐ $+$

   ☐ $\rightleftharpoons$

   ☐ $=$

5. What did the Oppau plant make from 1913?

   ☐ Ammonia

   ☐ Steel

   ☐ Sulfuric acid

   ☐ Petrol

6. In terms of oxygen, oxidation is the loss of oxygen.

   ☐ True ☐ False

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☐ True ☐ False

8. Which increase the rate of reaction? (Select all that apply.)

   ☐ lower temperature

   ☐ higher temperature

   ☐ larger surface area (smaller pieces)

   ☐ higher concentration

   Tick every correct option.

9. A steeper gradient on a rate graph means a slower reaction.

   ☐ True ☐ False

10. At equilibrium, the reactions have completely stopped.

    ☐ True ☐ False

1. **To stop the iron rusting**

   Paint keeps out oxygen and water.

2. **collide with enough energy**

   Collisions need at least the activation energy.

3. **lowering the activation energy**

   A lower Ea means more successful collisions.

4. $\rightleftharpoons$

   The $\rightleftharpoons$ sign shows a reversible reaction.

5. **Ammonia**

   Using Haber's reaction.

6. **False**

   False. Oxidation is the gain of oxygen; reduction is the loss of oxygen.

7. **False**

   No new substance forms.

8. **higher temperature; larger surface area (smaller pieces); higher concentration**

   Lower temperature slows the rate.

9. **False**

   False. The gradient measures the rate: a steeper line means more product per unit time, so a faster reaction.

10. **False**

    Both reactions continue at the same rate – it is dynamic.

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