ONTARIO CHEMISTRY, GRADE 11, UNIVERSITY PREPARATION (SCH3U) · UNIT B · 25 QUESTIONS

Chemical Reactions — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **In the balanced equation $2H_2 + O_2 \rightarrow 2H_2O$, the coefficient in front of H_2 is**

ANSWER _____

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2 **In the balanced equation $N_2 + 3H_2 \rightarrow 2NH_3$, the coefficient in front of NH_3 is**

ANSWER _____

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3 **In the balanced equation $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$, the coefficient in front of CO_2 is**

ANSWER _____

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4 **In the balanced equation $2Mg + O_2 \rightarrow 2MgO$, the coefficient in front of MgO is**

ANSWER _____

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5 **In the balanced equation $2Al + 3Cl_2 \rightarrow 2AlCl_3$, the coefficient in front of Cl_2 is**

ANSWER _____

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6 **When balancing a chemical equation, you may change**

A coefficients in front of formulas

B subscripts in formulas, changing the compounds themselves to make the numbers work

C the elements involved

D the state symbols only

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7 **A synthesis reaction is one in which**

A one compound breaks into simpler substances

B one element replaces another

C two or more reactants combine to form one product

D an acid reacts with a base

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8 **A decomposition reaction is one in which**

A two reactants combine

B an element replaces another in a compound

C two solutions form a precipitate

D one compound breaks into simpler substances

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9 **Zinc metal placed in copper sulfate solution forms copper metal and zinc sulfate. This is a**

A single displacement reaction

B synthesis reaction

C decomposition reaction

D neutralization reaction

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10 **When silver nitrate solution is mixed with sodium chloride solution, a white precipitate of silver chloride forms. This is a**

A synthesis reaction

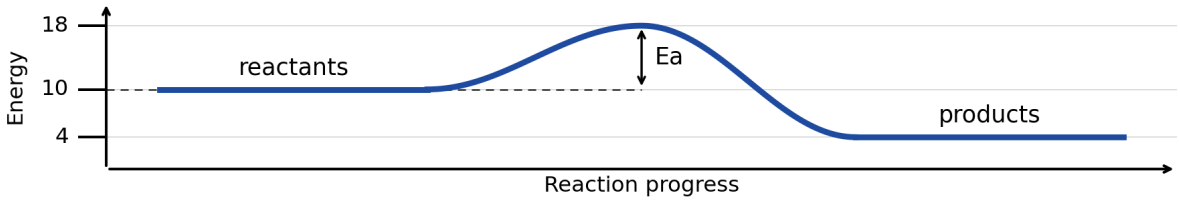
B double displacement reaction

C decomposition reaction

D combustion reaction

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11 **The energy diagram shows reactants at 10, a peak at 18, and products at 4. What is the activation energy?**



ANSWER

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12 **The complete combustion of a hydrocarbon in oxygen produces**

A carbon monoxide only

B hydrogen gas and carbon

C carbon dioxide and water

D oxygen and hydrogen

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13 **Hydrochloric acid reacts with sodium hydroxide. The products are**

A sodium carbonate and hydrogen

B chlorine gas and water

C sodium oxide and hydrogen

D sodium chloride and water

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14 **An acid reacts with a metal carbonate to produce a salt, water, and**

A carbon dioxide gas

B hydrogen gas

C oxygen gas

D nitrogen gas

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15 **An acid reacts with an active metal to produce a salt and**

A oxygen gas

B hydrogen gas

C carbon dioxide gas

D nitrogen gas

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16 **A reaction in which products have less energy than reactants is**

A endothermic

B neutral

C exothermic

D reversible only

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17 **A reaction in which products have more energy than reactants is**

A exothermic

B neutralization only

C decomposition only

D endothermic

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18 **Increasing surface area of a solid reactant generally**

A increases reaction rate

B decreases reaction rate

C does not affect reaction rate

D stops the reaction

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19 **A catalyst increases reaction rate by**

- A increasing reactant energy, so every particle has enough energy to react at once
- B providing a pathway with lower activation energy
- C being used up in the reaction
- D changing the products

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20 **Increasing concentration of reactants generally**

- A decreases reaction rate because fewer particles are available to collide at all
- B has no effect
- C increases reaction rate because collisions are more frequent
- D changes the products

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21 **A precipitate is**

A a gas produced in a reaction, bubbling out of the solution as the reaction proceeds

B a catalyst

C a colour change only

D an insoluble solid formed in a solution reaction

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22 **Which observation is evidence of a chemical reaction?**

A A colour change and gas production in a mixture

B Ice melting

C Water evaporating

D Salt dissolving with no other change

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23 **In a chemical reaction, mass is conserved because**

- **A** atoms are created during the reaction, appearing from nothing as new substances form
- **B** atoms are rearranged, not created or destroyed
- **C** energy is created
- **D** molecules stay the same

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24 **Calcium carbonate heated strongly decomposes into calcium oxide and**

- **A** hydrogen
- **B** oxygen
- **C** carbon dioxide
- **D** water

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25 **Magnesium burning in oxygen forms magnesium oxide. This is a**

A decomposition reaction

B double displacement reaction

C neutralization reaction

D synthesis reaction

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ANSWER KEY

1. 2
2. 2
3. 1
4. 2
5. 3
6. A
7. C
8. D
9. A
10. B
11. 8
12. C
13. D
14. A
15. B
16. C
17. D
18. A
19. B
20. C
21. D
22. A
23. B
24. C
25. D

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