

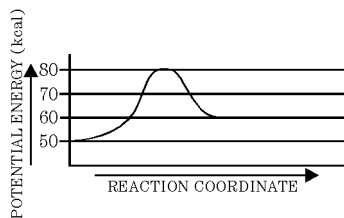
Midterm Final Review

Name: _____

Date: _____

- The gram molecular mass of $\text{Ca}_3(\text{PO}_4)_2$ is
A. 246 g B. 279 g C. 310 g D. 342 g
- What is the gram molecular mass of calcium nitrate, $\text{Ca}(\text{NO}_3)_2$?
A. 164 g B. 150 g C. 102 g D. 70.0 g
- Which equation represents a double replacement reaction?
A. $2 \text{Na} + 2 \text{H}_2\text{O} \rightarrow 2 \text{NaOH} + \text{H}_2$
B. $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
C. $\text{LiOH} + \text{HCl} \rightarrow \text{LiCl} + \text{H}_2\text{O}$
D. $\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O}$
- Given the reaction:
$$\text{Mg(s)} + 2\text{AgNO}_3(\text{aq}) \rightarrow \text{Mg}(\text{NO}_3)_2(\text{aq}) + 2\text{Ag(s)}$$
Which type of reaction is represented?
A. single replacement B. double replacement
C. synthesis D. decomposition
- All chemical reactions have a conservation of
A. mass, only
B. mass and charge, only
C. charge and energy, only
D. mass, charge, and energy
- Which list includes three types of chemical reactions?
A. condensation, double replacement, and sublimation
B. condensation, solidification, and synthesis
C. decomposition, double replacement, and synthesis
D. decomposition, solidification, and sublimation
- What is the percent by mass of oxygen in magnesium oxide, MgO ?
A. 20% B. 40% C. 50% D. 60%
- What is the percent composition by mass of sulfur in the compound MgSO_4 (gram-formula mass = 120. grams per mole)?
A. 20.% B. 27% C. 46% D. 53%
- An atom of carbon-14 contains
A. 8 protons, 6 neutrons, and 6 electrons
B. 6 protons, 6 neutrons, and 8 electrons
C. 6 protons, 8 neutrons, and 8 electrons
D. 6 protons, 8 neutrons, and 6 electrons
- As the number of effective collisions between reacting particles increases, the rate of the reaction
A. decreases B. increases
C. remains the same

11. If the pressure on gaseous reactants is increased, the rate of reaction is increased because there is an increase in the
- A. activation energy B. volume
C. concentration D. heat of reaction
12. In a potential energy diagram, the difference between the potential energy of the products and the potential energy of the reactants is equal to the
- A. heat of reaction
B. entropy of the reaction
C. activation energy of the forward reaction
D. activation energy of the reverse reaction
13. What will change when a catalyst is added to a chemical reaction?
- A. activation energy
B. free energy of reaction
C. potential energy of the reactants
D. potential energy of the products
14. Which conditions will increase the rate of a chemical reaction?
- A. decreased temperature and decreased concentration of reactants
B. decreased temperature and increased concentration of reactants
C. increased temperature and decreased concentration of reactants
D. increased temperature and increased concentration of reactants
15. Increasing the temperature increases the rate of a reaction by
- A. lowering the activation energy
B. increasing the activation energy
C. lowering the frequency of effective collisions between reacting molecules
D. increasing the frequency of effective collisions between reacting molecules
16. What is the total number of moles in 80.0 grams of C_2H_5Cl (gram-formula mass = 64.5 grams/mole)?
17. What is the gram formula mass of $Ca(OH)_2$?
- A. 29 g B. 34 g C. 57 g D. 74 g
18. Given the reaction:
- $$Ca + 2H_2O \rightarrow Ca(OH)_2 + H_2$$
- How many moles of H_2O are needed to exactly react with 2.0 moles of Ca ?
- A. 1.0 B. 2.0 C. 0.50 D. 4.0
19. The potential energy diagram of a chemical reaction is shown. What is the minimum amount of energy required to initiate the forward reaction?



- A. 30 kcal B. 50 kcal
C. 60 kcal D. 80 kcal

1.
Answer: C
2.
Answer: A
3.
Answer: C
4.
Answer: A
5.
Answer: D
6.
Answer: C
7.
Answer: B
8.
Answer: B
9.
Answer: D
10.
Answer: B
11.
Answer: C
12.
Answer: A
13.
Answer: A
14.
Answer: D
15.
Answer: D
16.
Answer: 1.24 mol
17.
Answer: D
18.
Answer: D
19.
Answer: A