

1. Which of the following substances is amphoteric (can act as both an acid and a base)?

HCl

NaOH

* H₂O

CH₄

2. Which of the following factors are equal in a reversible chemical reaction that has reached equilibrium?

The number of moles of the reactants and products

The potential energies of the reactants and products

The activation energies of the forward and reverse reactions

*The rates of reaction for the forward and reverse reactions

3. Which of the following is an alkyl halide?

*CH₃Cl

CH₃OH

CH₃COOH

CH₄

4. Which type of reaction occurs when an alcohol reacts with a carboxylic acid to form an ester?

Hydrolysis

*Esterification

Polymerization

Reduction

5. What type of isomerism is exhibited by butane and isobutane?

*Chain isomerism

Geometrical isomerism

Optical isomerism

Functional isomerism

6. Which of the following is an example of a synthetic polymer?

Starch

Cellulose

*Nylon

Glucose

7. The process in which solids directly change to gases is known as _____

- A. Evaporation
- B. Condensation
- C. *Sublimation
- D. Melting

8. What is the mass of 44.6 mL of mercury? (Density of mercury = 13.6 g ml^{-1})

- A. 0.606 Kg
- B. 0.498 Kg
- C. 0.690 Kg
- D. 0.375 Kg

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10. Bond between atoms where electrons are (mostly) transferred from one atom to another is known as _____

- A. Covalent bond
- B. Metallic bond
- C. Ionic bond
- D. Molecular bond