**TOSS-UP**

CHEMISTRY *Short Answer* Give the principle that states that the number of moles of product formed by an electric current is stochiometrically equivalent to the number of moles supplied.

ANSWER: Faraday’s Law of electrolysis

**TOSS-UP**

PHYSICS *Short Answer* Calculate the total resistance across three resistors connected in parallel, given that the individual resistances are 5 ohms, 3 ohms and 2 ohms.

ANSWER: 1/3 ohms

**TOSS-UP**

CHEMISTRY *Short Answer* Rank the following 3 compounds in terms of greatest to least viscosity.

1. Tetrachloromethane
2. Ethanol
3. Octane

ANSWER: Ethanol, Tetrachoromethane, Octane

**TOSS-UP**

PHYSICS *Short Answer* Which of the following is false about waves?

W) In a longitudinal wave, the section that is disturbed by the passing of the wave move parallel to the wave motion

X) In a transverse wave, the medium moves perpendicular to the direction of wave motion

Y) A spring in harmonic motion is a, example of a pressure wave

Z) Solitons are examples of longitudinal waves

ANSWER: Z) Solitons are examples of longitudinal waves

**TOSS-UP**

CHEMISTRY *Short Answer* Give the isomerism demonstrated by the following two molecules.

1. Dichloroethene
2. Glycine

ANSWER: 1. Geometric Isomerism 2. Chirality/Enantiomers

**TOSS-UP**

PHYSICS *Short Answer* Give the name for the type of diffraction where the rays leave the diffracting object in parallel directions.

ANSWER: Fraunhofer Diffraction

**TOSS-UP**

CHEMISTRY *Multiple Choice* Give the molecule that one would expect to have the highest melting point.

W) Krypton

X) Glucose

Y) Sucrose

Z) Methane

ANSWER: Y) Sucrose

**TOSS-UP**

CHEMISTRY *Multiple Choice* Which of the following best explains why acid rain is formed?

W) Sulfur products are released as part of pollution, and react in the air to form sulfur trioxide

X) Sulfur Products are released as part of pollution, and react in the air to form sulfur dioxide

Y) Trace chloride ions are released into the atmosphere, forming hydrochloric acid

Z) Trace chloride ions are released into the atmosphere, decreasing the pH of rain

ANSWER: X) Sulfur Products are released as part of pollution, and react in the air to form sulfur dioxide

**TOSS-UP**

PHYSICS *Short Answer* In lasers, voltages can sometimes be used to put more electrons in the excited state rather than the ground state. In this process, stimulated emission will occur before spontaneous emission.

ANSWER: Population Inversion