Sriram Pendyala

Science Bowl

Chemistry Questions: Set #1: 30 Short Answer Questions CH 2-4

1. Chemistry: Short Answer: What was the name of the German chemist that laid the foundations to modern chemistry in the 16th century with the development of systematic metallurgy?

ANSWER: George Bauer

1. Chemistry: Short Answer: What was the name of the chemist that experimented in the 1800s, following Lavosier’s lead, and developed the law of definite proportion?

ANSWER: Joseph Proust

1. Chemistry: Short Answer: What was the name of the chemistry that published *A New System of Chemical Philosophy* in 1808 and founded the law of multiple proportions?

ANSWER: John Dalton

1. Chemistry: Short Answer: What was the name of the physicist and chemistry that was a codiscoverer of Boron, and developed the first process for the manufacturing of sulfuric acid along with achievements in the gases that allowed Avagadro to propose his hypothesis?

ANSWER: Joseph Gay-Lussac

1. Chemistry: Short Answer: What was the name of the model of the atom created in the 1800s that predicted that electrons were embedded in a sphere of positive charge?

ANSWER: Plum-pudding model

1. Chemistry: Short Answer: Give the name for the following binary ionic compound: Na4Te.

ANSWER: Sodium Telluride

1. Chemistry: Short Answer: Give the formula for the following binary ionic compound: Hg2(SCN)2.

ANSWER: Mercury (I) Thiocyanate, Mercurous Thiocyanate

1. Chemistry: Short Answer: Give the name for the following binary compound: Li2O2.

ANSWER: Lithium Peroxide

1. Chemistry: Short Answer: Give the formula for the following acid: Hydrocyanic acid.

ANSWER: HCN

1. Chemistry: Short Answer: Name the following binary covalent compound: N2O5.

ANSWER: Dinitrogen Pentoxide

1. Chemistry: Short Answer: What is the area of study that considers the quantities of materials consumed and produced in chemical reactions?

ANSWER: Chemical Stoichiometry

1. Chemistry: Short Answer: Given the following clues, name the scientific device. This device passes atoms or molecules into a beam of electrons that ionize the atoms or molecules. These positive ions then accelerate under the influence of a magnetic field and are displaced, and the device measures the displacement to analyze the sample.

ANSWER: Mass Spectrometer

1. Chemistry: Short Answer: What is the name for the property of each element on the periodic table that is the average of the atomic weights, in AMUs, for each isotope of an element, and is stated in grams?

ANSWER: Atomic Mass

1. Chemistry: Short Answer: What is the name of the number equal to the number of carbon atoms in exactly 12 grams of pure Carbon-12?

ANSWER: The mole, Avagadro’s Number

1. Chemistry: Short Answer: Give the balanced chemical reaction for the Haber Process.

ANSWER: N2 (g) + 3H2 (g) → 2NH3 (g)

1. Chemistry: Short Answer: What is the name of the reactant that is consumed first in a chemical reaction where reactants are not mixed in correct stoichiometric ratios?

ANSWER: Limiting reactant (reagent)

1. Chemistry: Short Answer: What is the name of a solution in which water is the dissolving medium, or solvent?

ANSWER: Aqueous Solution

1. Chemistry: Short Answer: What is the name of the process where an ionic solid, dissolving in water, is split apart by polar water molecules into individual cations and anions?

ANSWER: Hydration

1. Chemistry: Short Answer: What is the name of the Swedish chemist and physicist that first theorized that the conductivity of solutions arose from the presence of ions in the solution?

ANSWER: Arrhenius

1. Chemistry: Short Answer: What type of electrolyte would acetic acid most likely be when dissolved in water in a 1 M solution?

ANSWER: Weak Electrolyte

1. Chemistry: Short Answer: What is name of a solution whose concentration is known?

ANSWER: Standard Solution

1. Chemistry: Short Answer: What volume of 0.45 M Sulfuric Acid must be used to prepare 1.5 L of 0.10 M Sulfuric Acid?

ANSWER: 1/3 L

1. Chemistry: Short Answer: What is the name of a reaction in which the mixing of two solutions forms an insoluble solid substance?

ANSWER: Precipitation Reaction

1. Chemistry: Short Answer: What is the name of the chemical equation in a precipitation reaction that states the products and reactants as ions, such as in their dissociated forms?

ANSWER: Complete Ionic Equation

1. Chemistry: Short Answer: Write the net ionic equation for the addition of Sulfuric Acid to solution containing Aqueous Barium Nitrate if Barium Sulfate is insoluble.

ANSWER: Ba2+(aq) + SO42-(aq) → BaSO4 (s)

1. Chemistry: Short Answer: What is the name of the aqueous solution, in a titration, that we do not know the concentration of?

ANSWER: Analyte

1. Chemistry: Short Answer: What is the name of the point in a titration where the indicator changes color?

ANSWER: Endpoint

1. Chemistry: Short Answer: In the redox reaction where chlorine reacts with water to produce aqueous hydrochloric acid and oxygen gas, name the element being oxidized and the element being reduced.

ANSWER: Oxygen, Chlorine

1. Chemistry: Short Answer: In the combustion of methane in the presence of excess oxygen, identify the oxidizing agent and the reducing agent.

ANSWER: O2, CH4

1. Chemistry: Short Answer: Write the oxidation half reaction of the reaction of the aqueous ions Ce4+ + Sn2+ → Ce3+ + Sn4+

ANSWER: Sn2+ → Sn4+ (+ 4e-)