

Regents Practice 25 Questions Quiz 2 (27-51 multiple choice)

- 27 Which quantities must be conserved in all chemical reactions?
(1) mass, charge, density (2) mass, charge, energy (3) charge, volume, density (4) charge, volume, energy
- 28 Which phrase describes the distribution of charge and the polarity of a CH_4 molecule?
(1) symmetrical and polar (2) symmetrical and nonpolar
(3) asymmetrical and polar (4) asymmetrical and nonpolar
- 29 What is the charge of the nucleus of an oxygen atom? (1) 0 (2) 8 (3) 2 (4) 16
- 30 Which ion has no electrons? (1) H (2) Na (3) Li (4) Rb
- 31 To break a chemical bond, energy must be (1) absorbed (2) produced (3) destroyed (4) released
- 32 Every chlorine atom has
(1) 7 electrons (2) 17 neutrons (3) a mass number of 35 (4) an atomic number of 17
- 33 Which substance can not be broken down by a chemical change?
(1) ammonia (2) propane (3) methanol (4) phosphorus
- 34 At standard pressure, which substance becomes less soluble in water as temperature increases from 10. to 80.°C?
(1) HCl (2) NaCl (3) KCl (4) NH_4Cl
- 35 Which type of concentration is calculated when the grams of solute is divided by the grams of the solution, and the result is multiplied by 1 000 000?
(1) molarity (2) percent by mass (3) parts per million (4) percent by volume
- 36 Which type of energy is associated with the random motion of atoms and molecules in a sample of air?
(1) chemical energy (2) nuclear energy (3) electrical energy (4) thermal energy
- 37 In which type of chemical reaction does one reactant change into two or more products?
(1) decomposition (2) double replacement (3) single replacement (4) synthesis
- 38 Which statement explains why argon is a Group 18 element?
(1) Argon is a gas at STP. (2) Argon atoms have a stable valence electron configuration.
(3) Argon has a low melting point. (4) Argon atoms have two electrons in the first shell.
- 39 Which element has chemical properties that are most similar to the chemical properties of chlorine?
(1) aluminum (2) krypton (3) bromine (4) sulfur

- 40 What occurs as two atoms of oxygen combine to become a molecule of oxygen?
(1) A bond is formed as energy is absorbed. (2) A bond is formed as energy is released.
(3) A bond is broken as energy is absorbed. (4) A bond is broken as energy is released.
- 41 What is the number of pairs of electrons that are shared between the nitrogen atoms in a molecule of O_2 ?
(1) 1 (2) 3 (3) 2 (4) 6
- 42 Which phrase describes an atom?
(1) a negatively charged nucleus surrounded by positively charged protons
(2) a negatively charged nucleus surrounded by positively charged electrons
(3) a positively charged nucleus surrounded by negatively charged protons
(4) a positively charged nucleus surrounded by negatively charged electrons
- 43 An orbital is defined as a region of the most probable location of
(1) an electron (2) a nucleus (3) a neutron (4) a proton
- 44 The bright-line spectrum of an element in the gaseous phase is produced as
(1) protons move from lower energy states to higher energy states
(2) protons move from higher energy states to lower energy states
(3) electrons move from lower energy states to higher energy states
(4) electrons move from higher energy states to lower energy states
- 45 An atom of lithium-7 has an equal number of
(1) electrons + neutrons (2) electrons + protons (3) positrons + neutrons (4) positrons + protons
- 46 Which set of values represents standard pressure and standard temperature?
(1) 1 atm and 101.3 K (2) 1 kPa and 273 K (3) 101.3 kPa and 0°C (4) 101.3 atm and 273°C
- 47 Which statement about one atom of an element identifies the element?
(1) The atom has 1 proton. (2) The difference between the number of neutrons and protons in the atom is 1.
(3) The atom has 2 neutrons. (4) The sum of the number of protons and neutrons in the atom is 3.
- 48 A substance is classified as either an element or a
(1) compound (2) solution (3) heterogeneous mixture (4) homogeneous mixture
- 49 A solid element that is malleable, a good conductor of electricity, and reacts with oxygen is classified as a
(1) metal (2) noble gas (3) metalloid (4) nonmetal
- 50 Three forms of energy are
(1) chemical, exothermic, and temperature (2) chemical, thermal, and electromagnetic
(3) electrical, nuclear, and temperature (4) electrical, mechanical, and endothermic
- 51 What is the total amount of heat required to vaporize 1.00 gram of $\text{H}_2\text{O}_{(l)}$ at $100.^\circ\text{C}$ and 1 atmosphere?
(1) 4.18 J (2) 373 J (3) 334 J (4) 2260 J