Chapter 01 - The Air We Breathe (Testbank)

**Multiple Choice Questions**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | Of five major gaseous components of air, which is the only one to vary significantly in concentration from place to place and from day to day?

|  |  |
| --- | --- |
| A.  | water vapor  |

|  |  |
| --- | --- |
| B.  | carbon dioxide  |

|  |  |
| --- | --- |
| C.  | nitrogen  |

|  |  |
| --- | --- |
| D.  | argon  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. | Which two gases make up more than 95% of an inhaled breath?

|  |  |
| --- | --- |
| A.  | NO2 and N2  |

|  |  |
| --- | --- |
| B.  | CO2 and O2  |

|  |  |
| --- | --- |
| C.  | O2 and N2  |

|  |  |
| --- | --- |
| D.  | N2 and Ar  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. | What is the primary component of an exhaled breath?

|  |  |
| --- | --- |
| A.  | N2  |

|  |  |
| --- | --- |
| B.  | O2  |

|  |  |
| --- | --- |
| C.  | CO2  |

|  |  |
| --- | --- |
| D.  | H2O  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. | Which component of the air makes up approximately 100 times more of an exhaled breath than of an inhaled breath?

|  |  |
| --- | --- |
| A.  | Ar |

|  |  |
| --- | --- |
| B.  | O2 |

|  |  |
| --- | --- |
| C.  | O3 |

|  |  |
| --- | --- |
| D.  | CO2 |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. | The \_\_\_\_\_\_\_\_ concentration in the air over the desert differs dramatically from that in the air in the tropical rainforest.

|  |  |
| --- | --- |
| A.  | N2  |

|  |  |
| --- | --- |
| B.  | O2  |

|  |  |
| --- | --- |
| C.  | CO2  |

|  |  |
| --- | --- |
| D.  | H2O  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. | Which component of the air is an element?

|  |  |
| --- | --- |
| A.  | H2O  |

|  |  |
| --- | --- |
| B.  | NO2  |

|  |  |
| --- | --- |
| C.  | O2  |

|  |  |
| --- | --- |
| D.  | CO2  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. | Air is a(n)

|  |  |
| --- | --- |
| A.  | element.  |

|  |  |
| --- | --- |
| B.  | compound.  |

|  |  |
| --- | --- |
| C.  | mixture.  |

|  |  |
| --- | --- |
| D.  | pure substance.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. | Which substance is *not* considered to be an air pollutant?

|  |  |
| --- | --- |
| A.  | N2  |

|  |  |
| --- | --- |
| B.  | SO2  |

|  |  |
| --- | --- |
| C.  | NO2  |

|  |  |
| --- | --- |
| D.  | O3  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. | Ozone is considered an air pollutant in the \_\_\_\_\_\_\_\_ but is a valuable protective layer in the \_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| A.  | troposphere; stratosphere  |

|  |  |
| --- | --- |
| B.  | stratosphere; mesosphere  |

|  |  |
| --- | --- |
| C.  | stratosphere; troposphere  |

|  |  |
| --- | --- |
| D.  | mesosphere; stratosphere  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. | A particular sample of air is 2.5% water vapor. Express the concentration of water vapor in parts per million (ppm).

|  |  |
| --- | --- |
| A.  | 0.0000025 ppm  |

|  |  |
| --- | --- |
| B.  | 0.025 ppm  |

|  |  |
| --- | --- |
| C.  | 250 ppm  |

|  |  |
| --- | --- |
| D.  | 25000 ppm  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. | The EPA limit for CO is 9 ppm. Express this number as a percentage.

|  |  |
| --- | --- |
| A.  | 90%  |

|  |  |
| --- | --- |
| B.  | 9%  |

|  |  |
| --- | --- |
| C.  | 0.09%  |

|  |  |
| --- | --- |
| D.  | 0.0009%  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. | The quantity 0.0000064 g expressed in scientific notation is:

|  |  |
| --- | --- |
| A.  | 6.4 × 106 g  |

|  |  |
| --- | --- |
| B.  | 6.4 × 10¯6 g  |

|  |  |
| --- | --- |
| C.  | 6.4 × 107 g  |

|  |  |
| --- | --- |
| D.  | 6.4 × 10¯7 g  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13. | The quantity 8.7 × 105 g expressed in standard decimal notation is:

|  |  |
| --- | --- |
| A.  | 0.000087 g  |

|  |  |
| --- | --- |
| B.  | 870.000 g  |

|  |  |
| --- | --- |
| C.  | 0.0000087 g  |

|  |  |
| --- | --- |
| D.  | 870,000 g  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14. | Which pollutant is present in air as particulate matter?

|  |  |
| --- | --- |
| A.  | soot  |

|  |  |
| --- | --- |
| B.  | ozone  |

|  |  |
| --- | --- |
| C.  | sulfur dioxide  |

|  |  |
| --- | --- |
| D.  | carbon monoxide  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. | What two factors are considered when determining the risk assessment for air pollutants?

|  |  |
| --- | --- |
| A.  | exposure and ppm  |

|  |  |
| --- | --- |
| B.  | percentage and ppm  |

|  |  |
| --- | --- |
| C.  | toxicity and percentage  |

|  |  |
| --- | --- |
| D.  | toxicity and exposure  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. | When assessing the risk of an air pollutant, which does not play a role in considering someone's exposure to the pollutant?

|  |  |
| --- | --- |
| A.  | a person's lung capacity |

|  |  |
| --- | --- |
| B.  | a person's breathing rate |

|  |  |
| --- | --- |
| C.  | the toxicity of the pollutant |

|  |  |
| --- | --- |
| D.  | the concentration in air of the pollutant |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. | The burning of coal produces sulfur dioxide, SO2, a pollutant that slowly reacts in air to form SO3. Sulfur trioxide dissolves into airborne water droplets to form a very corrosive solution of sulfuric acid. Which is a product of burning coal that hastens the transformation of sulfur dioxide into sulfur trioxide?

|  |  |
| --- | --- |
| A.  | carbon dioxide  |

|  |  |
| --- | --- |
| B.  | carbon monoxide  |

|  |  |
| --- | --- |
| C.  | nitrogen dioxide  |

|  |  |
| --- | --- |
| D.  | particles of ash  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. | All of these pollutants can be detected by their odors except:

|  |  |
| --- | --- |
| A.  | CO  |

|  |  |
| --- | --- |
| B.  | O3  |

|  |  |
| --- | --- |
| C.  | SOx  |

|  |  |
| --- | --- |
| D.  | NOx  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. | Which pollutant are you more likely to encounter in dangerous concentrations indoors rather than outdoors?

|  |  |
| --- | --- |
| A.  | nitrogen dioxide  |

|  |  |
| --- | --- |
| B.  | carbon monoxide  |

|  |  |
| --- | --- |
| C.  | ozone  |

|  |  |
| --- | --- |
| D.  | sulfur dioxide  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20. | In general, which airborne material is not likely to be affected by the filters or indoor air handling equipment?

|  |  |
| --- | --- |
| A.  | particulates  |

|  |  |
| --- | --- |
| B.  | pollen  |

|  |  |
| --- | --- |
| C.  | soot  |

|  |  |
| --- | --- |
| D.  | carbon monoxide  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21. | Which color, as used in the Air Quality Index, warns that the level of a pollutant is hazardous, the most dangerous level?

|  |  |
| --- | --- |
| A.  | orange  |

|  |  |
| --- | --- |
| B.  | green  |

|  |  |
| --- | --- |
| C.  | yellow  |

|  |  |
| --- | --- |
| D.  | maroon  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. | A substance that can be broken down into two or more simpler substances by chemical methods is called a(n)

|  |  |
| --- | --- |
| A.  | compound.  |

|  |  |
| --- | --- |
| B.  | mixture.  |

|  |  |
| --- | --- |
| C.  | element.  |

|  |  |
| --- | --- |
| D.  | isotope.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23. | On a Periodic Table, the columns of elements with similar properties are

|  |  |
| --- | --- |
| A.  | periods.  |

|  |  |
| --- | --- |
| B.  | groups.  |

|  |  |
| --- | --- |
| C.  | rows.  |

|  |  |
| --- | --- |
| D.  | metals.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24. | The most numerous of the elements are the

|  |  |
| --- | --- |
| A.  | metals.  |

|  |  |
| --- | --- |
| B.  | non metals.  |

|  |  |
| --- | --- |
| C.  | metalloids.  |

|  |  |
| --- | --- |
| D.  | noble gases.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25. | Which is *not* a mixture?

|  |  |
| --- | --- |
| A.  | a jar filled with rocks and sand  |

|  |  |
| --- | --- |
| B.  | sea water  |

|  |  |
| --- | --- |
| C.  | a glass of Kool-Aid  |

|  |  |
| --- | --- |
| D.  | sodium chloride  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26. | Which is *not* a pure substance?

|  |  |
| --- | --- |
| A.  | helium  |

|  |  |
| --- | --- |
| B.  | copper wire  |

|  |  |
| --- | --- |
| C.  | air  |

|  |  |
| --- | --- |
| D.  | sucrose  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27. | Which squares contain mixtures?

|  |  |
| --- | --- |
| A.  | II and III only  |

|  |  |
| --- | --- |
| B.  | III and IV only  |

|  |  |
| --- | --- |
| C.  | I, III, and IV only  |

|  |  |
| --- | --- |
| D.  | I and IV only  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28. | Which square(s) contain(s) only an element?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| C.  | I and II only  |

|  |  |
| --- | --- |
| D.  | III and IV only  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29. | Which symbols represent only elements that are metals?

|  |  |
| --- | --- |
| A.  | X and Z  |

|  |  |
| --- | --- |
| B.  | X and Q  |

|  |  |
| --- | --- |
| C.  | P and L  |

|  |  |
| --- | --- |
| D.  | X, R, P, and Q  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30. | Which symbol(s) represent(s) elements in the noble gas family?

|  |  |
| --- | --- |
| A.  | X and Z  |

|  |  |
| --- | --- |
| B.  | P and L  |

|  |  |
| --- | --- |
| C.  | Q  |

|  |  |
| --- | --- |
| D.  | Y  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31. | Which differentiates a compound from a mixture of two or more elements?

|  |  |
| --- | --- |
| A.  | The elements in a compound may be present in varying proportions.  |

|  |  |
| --- | --- |
| B.  | A compound does not exhibit the individual properties of the elements of which it is composed.  |

|  |  |
| --- | --- |
| C.  | A compound is made up of only one element.  |

|  |  |
| --- | --- |
| D.  | A compound cannot be made up of more than two elements.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 32. | Which substance is an element?

|  |  |
| --- | --- |
| A.  | NO2  |

|  |  |
| --- | --- |
| B.  | NaCl  |

|  |  |
| --- | --- |
| C.  | N2  |

|  |  |
| --- | --- |
| D.  | CH4  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 33. | A(n) \_\_\_\_\_\_\_\_\_\_ is a fixed number of atoms held together by chemical bonds in a certain spatial arrangement.

|  |  |
| --- | --- |
| A.  | element  |

|  |  |
| --- | --- |
| B.  | ion  |

|  |  |
| --- | --- |
| C.  | molecule  |

|  |  |
| --- | --- |
| D.  | mixture  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 34. | Which diagram(s) best represent(s) only diatomic molecules?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| C.  | I and II only  |

|  |  |
| --- | --- |
| D.  | II and IV only  |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 35. | Which diagram(s) best represent(s) only molecules?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| C.  | III only  |

|  |  |
| --- | --- |
| D.  | I and II only  |

|  |  |
| --- | --- |
| E.  | IV only  |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 36. | Which diagram(s) best represent(s) only individual atoms?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| C.  | III only  |

|  |  |
| --- | --- |
| D.  | IV only  |

|  |  |
| --- | --- |
| E.  | II and III only  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 37. | Except in the case of hydrocarbons, when naming virtually all compounds made up of two elements, the second element mentioned

|  |  |
| --- | --- |
| A.  | ends in "ide."  |

|  |  |
| --- | --- |
| B.  | is preceded by "mono" (or occasionally "mon").  |

|  |  |
| --- | --- |
| C.  | is always the more metallic element.  |

|  |  |
| --- | --- |
| D.  | is the one present in the greater number of atoms.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 38. | Based on its name, which carbon compound contains the fewest carbon atoms?

|  |  |
| --- | --- |
| A.  | ethanol  |

|  |  |
| --- | --- |
| B.  | methane  |

|  |  |
| --- | --- |
| C.  | chlorobutane  |

|  |  |
| --- | --- |
| D.  | propyl alcohol  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 39. | P2O5 is the chemical formula for

|  |  |
| --- | --- |
| A.  | pentoxygen diphosphide.  |

|  |  |
| --- | --- |
| B.  | diphosphorus pentoxide.  |

|  |  |
| --- | --- |
| C.  | dioxygen pentaphosphide.  |

|  |  |
| --- | --- |
| D.  | monophosphorus pentoxide.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40. | The name of the compound formed by combining carbon atoms   with oxygen atoms   to form   is

|  |  |
| --- | --- |
| A.  | carbon oxide.  |

|  |  |
| --- | --- |
| B.  | monocarbon dioxide.  |

|  |  |
| --- | --- |
| C.  | carbon dioxide.  |

|  |  |
| --- | --- |
| D.  | carbonate.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 41. | During a chemical reaction,

|  |  |
| --- | --- |
| A.  | atoms are rearranged.  |

|  |  |
| --- | --- |
| B.  | some atoms are destroyed and new ones are formed.  |

|  |  |
| --- | --- |
| C.  | some elements are destroyed and new ones are formed.  |

|  |  |
| --- | --- |
| D.  | the law of conservation of matter and mass may be briefly violated.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 42. | Choose the proper coefficients for each substance to balance this equation.\_\_\_\_ C2H4*(g)* + \_\_\_\_ O2*(g)* → \_\_\_\_ CO2*(g)* + \_\_\_\_ H2O*(g)*

|  |  |
| --- | --- |
| A.  | 1, 1, 2, 2  |

|  |  |
| --- | --- |
| B.  | 1, 3, 2, 2  |

|  |  |
| --- | --- |
| C.  | 2, 3, 4, 2  |

|  |  |
| --- | --- |
| D.  | 2, 2, 4, 2  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 43. | Choose the proper coefficients for each substance to yield a balanced equation.

|  |  |
| --- | --- |
| A.  | 1, 1, 1  |

|  |  |
| --- | --- |
| B.  | 2, 1, 1  |

|  |  |
| --- | --- |
| C.  | 2, 1, 2  |

|  |  |
| --- | --- |
| D.  | 1, 1, 2  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 44. | Which is the balanced chemical equation showing hydrogen peroxide (H2O2) decomposing into hydrogen (H2) and oxygen (O2)?

|  |  |
| --- | --- |
| A.  | H2O2 → H2 + O2  |

|  |  |
| --- | --- |
| B.  | H2 + O2 → H2O2  |

|  |  |
| --- | --- |
| C.  | 2 H2 + O2 → 2 H2O2  |

|  |  |
| --- | --- |
| D.  | 2 H2O2 → 2 H2 + O2  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 45. | Which is the balanced chemical equation for the reaction of nitrogen (N2) with oxygen (O2) to form NO?

|  |  |
| --- | --- |
| A.  | 2 NO → N2 + O2  |

|  |  |
| --- | --- |
| B.  | N2 + O2 → NO  |

|  |  |
| --- | --- |
| C.  | N2 + O2 → 2 NO  |

|  |  |
| --- | --- |
| D.  | NO → N2 + O2  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. | Which shows the balanced equation for the reaction of nitrogen (  ), as it is normally found in our atmosphere, with oxygen (  ), as it is normally found in our atmosphere, to form nitrogen dioxide?

|  |  |
| --- | --- |
| A.  |  |

|  |  |
| --- | --- |
| B.  |  |

|  |  |
| --- | --- |
| C.  |  |

|  |  |
| --- | --- |
| D.  |  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 47. | The two main products of the combustion of gasoline in an automobile engine are

|  |  |
| --- | --- |
| A.  | oxygen and carbon monoxide.  |

|  |  |
| --- | --- |
| B.  | sulfur oxides and nitrogen oxides.  |

|  |  |
| --- | --- |
| C.  | sulfur oxides and hydrogen.  |

|  |  |
| --- | --- |
| D.  | water and carbon dioxide.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 48. | Green chemistry is

|  |  |
| --- | --- |
| A.  | the study of how to improve the production of oxygen via photosynthesis.  |

|  |  |
| --- | --- |
| B.  | any chemistry having an agricultural base.  |

|  |  |
| --- | --- |
| C.  | the cause of the higher temperatures and humidity typically found in greenhouses.  |

|  |  |
| --- | --- |
| D.  | the design of products and processes that reduce hazardous substances.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 49. | Catalytic converters reduce the amount of \_\_\_\_\_\_\_\_ in car exhaust.

|  |  |
| --- | --- |
| A.  | O3  |

|  |  |
| --- | --- |
| B.  | CO2  |

|  |  |
| --- | --- |
| C.  | CO  |

|  |  |
| --- | --- |
| D.  | N2  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 50. | Ozone is a secondary pollutant. A secondary pollutant is

|  |  |
| --- | --- |
| A.  | not as hazardous as a primary pollutant.  |

|  |  |
| --- | --- |
| B.  | not produced directly but as the product of the interaction of two or more pollutants.  |

|  |  |
| --- | --- |
| C.  | one that is naturally present in our atmosphere.  |

|  |  |
| --- | --- |
| D.  | one that is less hazardous than a primary pollutant.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 51. | There are approximately 2 × 1022 molecules and atoms in each breath we take and the concentration of CO in the air is approximately 9 parts per million. Approximately how many CO molecules are in each breath we take?3-11-2013

|  |  |
| --- | --- |
| A.  | 2 × 1015 |

|  |  |
| --- | --- |
| B.  | 1.8 × 1017 |

|  |  |
| --- | --- |
| C.  | 2 × 1016 |

|  |  |
| --- | --- |
| D.  | 2 × 1029 |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 52. | Which of the following would be described as "fine particles"?

|  |  |
| --- | --- |
| A.  | SOx  |

|  |  |
| --- | --- |
| B.  | NOx  |

|  |  |
| --- | --- |
| C.  | O3  |

|  |  |
| --- | --- |
| D.  | 2.5 μm diameter soot  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 53. | Which if the following is the chemical symbol for silver?

|  |  |
| --- | --- |
| A.  | Au  |

|  |  |
| --- | --- |
| B.  | Pb  |

|  |  |
| --- | --- |
| C.  | Ag  |

|  |  |
| --- | --- |
| D.  | Fe  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 54. | Which of the following is a pure substance?

|  |  |
| --- | --- |
| A.  | Lemonade  |

|  |  |
| --- | --- |
| B.  | Concrete  |

|  |  |
| --- | --- |
| C.  | Gasoline  |

|  |  |
| --- | --- |
| D.  | Silver wire  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 55. | The lowest (or closest to the ground) layer of our atmosphere is the

|  |  |
| --- | --- |
| A.  | troposphere.  |

|  |  |
| --- | --- |
| B.  | ozone layer.  |

|  |  |
| --- | --- |
| C.  | stratosphere.  |

|  |  |
| --- | --- |
| D.  | mesosphere.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 56. | Which is the following *incorrectly* represents a combustion reaction?

|  |  |
| --- | --- |
| A.  | CH4  + 2 O2 → CO2 + 2 H2O |

|  |  |
| --- | --- |
| B.  | S8  + 8 O2 → 8 SO2 |

|  |  |
| --- | --- |
| C.  | N2  + 2 O2 → 2 NO2 |

|  |  |
| --- | --- |
| D.  | C3H8  +  O2 → 3 CO2 |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 57. | Balance this equation P4 + Cl2 → PCl5 with the smallest whole number coefficients. Choose the answer that is the sum of the coefficients. Do not forget coefficients of "one".

|  |  |
| --- | --- |
| A.  | 7  |

|  |  |
| --- | --- |
| B.  | 9  |

|  |  |
| --- | --- |
| C.  | 11  |

|  |  |
| --- | --- |
| D.  | 13  |

|  |  |
| --- | --- |
| E.  | 15  |

 |

**Check All That Apply Questions**

|  |  |
| --- | --- |
| 58. | Which of the following are examples of technological advances that have reduced air pollution?   \_\_\_\_  Paint with reduced VOCs \_\_\_\_  Catalytic converters \_\_\_\_  Burning gasoline in leaf blowers \_\_\_\_  Low sulfur Diesel fuels  |

**Multiple Choice Questions**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 59. | If 500 mL of air contains 2 x 1022 particles (atoms and molecules), how many particles do you inhale in one day if you breathe 15000 L of air?

|  |  |
| --- | --- |
| A.  | 2 x 1022  |

|  |  |
| --- | --- |
| B.  | 6 x 1026  |

|  |  |
| --- | --- |
| C.  | 1.2 x 1027  |

|  |  |
| --- | --- |
| D.  | 5 x 1024  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 60. | If we assume that the top of Mt. Everest is the highest land mass on earth, hikers who scale its summit are standing in the

|  |  |
| --- | --- |
| A.  | mesosphere.  |

|  |  |
| --- | --- |
| B.  | stratosphere.  |

|  |  |
| --- | --- |
| C.  | troposphere.  |

|  |  |
| --- | --- |
| D.  | ozone layer.  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 61. | Which square(s) contain(s) only one or more compounds?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| C.  | I and IV only  |

|  |  |
| --- | --- |
| D.  | II and III only  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 62. | The chemical formula for nitrogen monoxide is:

|  |  |
| --- | --- |
| A.  | N2O  |

|  |  |
| --- | --- |
| B.  | NO  |

|  |  |
| --- | --- |
| C.  | NO2  |

|  |  |
| --- | --- |
| D.  | N2O3  |

 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 63. | Which correctly pairs an indoor pollutant with its source?

|  |  |
| --- | --- |
| A.  | formaldehyde and unvented space heaters  |

|  |  |
| --- | --- |
| B.  | O3 and electrical arcing  |

|  |  |
| --- | --- |
| C.  | radon and glues and solvents  |

|  |  |
| --- | --- |
| D.  | nicotine and paint and paint thinners  |

 |

Chapter 01 - The Air We Breathe (Testbank) Key

**Multiple Choice Questions**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | Of five major gaseous components of air, which is the only one to vary significantly in concentration from place to place and from day to day?

|  |  |
| --- | --- |
| **A.**  | water vapor  |

|  |  |
| --- | --- |
| B.  | carbon dioxide  |

|  |  |
| --- | --- |
| C.  | nitrogen  |

|  |  |
| --- | --- |
| D.  | argon  |

Think about differences in humidity.  |

|  |
| --- |
| *American - Chapter 01 #1Blooms Level: 1. RememberSection: 01.02Topic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. | Which two gases make up more than 95% of an inhaled breath?

|  |  |
| --- | --- |
| A.  | NO2 and N2  |

|  |  |
| --- | --- |
| B.  | CO2 and O2  |

|  |  |
| --- | --- |
| **C.**  | O2 and N2  |

|  |  |
| --- | --- |
| D.  | N2 and Ar  |

Think about the two main components of the atmosphere.  |

|  |
| --- |
| *American - Chapter 01 #2Blooms Level: 1. RememberSection: 01.02Topic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. | What is the primary component of an exhaled breath?

|  |  |
| --- | --- |
| **A.**  | N2  |

|  |  |
| --- | --- |
| B.  | O2  |

|  |  |
| --- | --- |
| C.  | CO2  |

|  |  |
| --- | --- |
| D.  | H2O  |

The main component of an exhaled breath is the same as the main component of an inhaled breath.  |

|  |
| --- |
| *American - Chapter 01 #3Blooms Level: 1. RememberSection: 01.02Topic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. | Which component of the air makes up approximately 100 times more of an exhaled breath than of an inhaled breath?

|  |  |
| --- | --- |
| A.  | Ar |

|  |  |
| --- | --- |
| B.  | O2 |

|  |  |
| --- | --- |
| C.  | O3 |

|  |  |
| --- | --- |
| **D.**  | CO2 |

 |

|  |
| --- |
| *American - Chapter 01 #4Blooms Level: 2. UnderstandSection: 01.02Topic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. | The \_\_\_\_\_\_\_\_ concentration in the air over the desert differs dramatically from that in the air in the tropical rainforest.

|  |  |
| --- | --- |
| A.  | N2  |

|  |  |
| --- | --- |
| B.  | O2  |

|  |  |
| --- | --- |
| C.  | CO2  |

|  |  |
| --- | --- |
| **D.**  | H2O  |

Think about the dry air in the desert.  |

|  |
| --- |
| *American - Chapter 01 #5Blooms Level: 2. UnderstandSection: 01.02Topic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. | Which component of the air is an element?

|  |  |
| --- | --- |
| A.  | H2O  |

|  |  |
| --- | --- |
| B.  | NO2  |

|  |  |
| --- | --- |
| **C.**  | O2  |

|  |  |
| --- | --- |
| D.  | CO2  |

Only one of these contains all the same type of atom.  |

|  |
| --- |
| *American - Chapter 01 #6Blooms Level: 2. UnderstandSection: 01.06Subtopic: ElementsSubtopic: MoleculesTopic: Components of MatterTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. | Air is a(n)

|  |  |
| --- | --- |
| A.  | element.  |

|  |  |
| --- | --- |
| B.  | compound.  |

|  |  |
| --- | --- |
| **C.**  | mixture.  |

|  |  |
| --- | --- |
| D.  | pure substance.  |

There are several substances in air.  |

|  |
| --- |
| *American - Chapter 01 #7Blooms Level: 2. UnderstandSection: 01.06Subtopic: Classification of MatterTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. | Which substance is *not* considered to be an air pollutant?

|  |  |
| --- | --- |
| **A.**  | N2  |

|  |  |
| --- | --- |
| B.  | SO2  |

|  |  |
| --- | --- |
| C.  | NO2  |

|  |  |
| --- | --- |
| D.  | O3  |

One if these is the primary component of uncontaminated air while the rest are pollutants.  |

|  |
| --- |
| *American - Chapter 01 #8Blooms Level: 1. RememberSection: 01.03Subtopic: Classification of MatterTopic: Components of MatterTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. | Ozone is considered an air pollutant in the \_\_\_\_\_\_\_\_ but is a valuable protective layer in the \_\_\_\_\_\_\_\_\_\_.

|  |  |
| --- | --- |
| **A.**  | troposphere; stratosphere  |

|  |  |
| --- | --- |
| B.  | stratosphere; mesosphere  |

|  |  |
| --- | --- |
| C.  | stratosphere; troposphere  |

|  |  |
| --- | --- |
| D.  | mesosphere; stratosphere  |

Remember that we live in the troposphere.  |

|  |
| --- |
| *American - Chapter 01 #9Blooms Level: 2. UnderstandSection: 01.02Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. | A particular sample of air is 2.5% water vapor. Express the concentration of water vapor in parts per million (ppm).

|  |  |
| --- | --- |
| A.  | 0.0000025 ppm  |

|  |  |
| --- | --- |
| B.  | 0.025 ppm  |

|  |  |
| --- | --- |
| C.  | 250 ppm  |

|  |  |
| --- | --- |
| **D.**  | 25000 ppm  |

Percent is parts per hundred. One hundred is 10,000 times less than one million.  |

|  |
| --- |
| *American - Chapter 01 #10Blooms Level: 3. ApplySection: 01.02Subtopic: MeasurementsTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. | The EPA limit for CO is 9 ppm. Express this number as a percentage.

|  |  |
| --- | --- |
| A.  | 90%  |

|  |  |
| --- | --- |
| B.  | 9%  |

|  |  |
| --- | --- |
| C.  | 0.09%  |

|  |  |
| --- | --- |
| **D.**  | 0.0009%  |

Percent is parts per hundred. One hundred is 10,000 times less than one million.  |

|  |
| --- |
| *American - Chapter 01 #11Blooms Level: 3. ApplySection: 01.02Subtopic: MeasurementsTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. | The quantity 0.0000064 g expressed in scientific notation is:

|  |  |
| --- | --- |
| A.  | 6.4 × 106 g  |

|  |  |
| --- | --- |
| **B.**  | 6.4 × 10¯6 g  |

|  |  |
| --- | --- |
| C.  | 6.4 × 107 g  |

|  |  |
| --- | --- |
| D.  | 6.4 × 10¯7 g  |

Negative powers of ten move the decimal to the left.  |

|  |
| --- |
| *American - Chapter 01 #12Blooms Level: 3. ApplySection: 01.03Subtopic: Scientific NotationTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13. | The quantity 8.7 × 105 g expressed in standard decimal notation is:

|  |  |
| --- | --- |
| A.  | 0.000087 g  |

|  |  |
| --- | --- |
| B.  | 870.000 g  |

|  |  |
| --- | --- |
| C.  | 0.0000087 g  |

|  |  |
| --- | --- |
| **D.**  | 870,000 g  |

Positive powers of ten move the decimal to the right.  |

|  |
| --- |
| *American - Chapter 01 #13Blooms Level: 3. ApplySection: 01.03Subtopic: MeasurementsSubtopic: Scientific NotationTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14. | Which pollutant is present in air as particulate matter?

|  |  |
| --- | --- |
| **A.**  | soot  |

|  |  |
| --- | --- |
| B.  | ozone  |

|  |  |
| --- | --- |
| C.  | sulfur dioxide  |

|  |  |
| --- | --- |
| D.  | carbon monoxide  |

Particulate matter is solid not gaseous.  |

|  |
| --- |
| *American - Chapter 01 #14Blooms Level: 1. RememberSection: 01.02Subtopic: Fundamental DefinitionsTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. | What two factors are considered when determining the risk assessment for air pollutants?

|  |  |
| --- | --- |
| A.  | exposure and ppm  |

|  |  |
| --- | --- |
| B.  | percentage and ppm  |

|  |  |
| --- | --- |
| C.  | toxicity and percentage  |

|  |  |
| --- | --- |
| **D.**  | toxicity and exposure  |

Remember that some things are poisonous in a short time frame and others are toxic after long time frames.  |

|  |
| --- |
| *American - Chapter 01 #15Blooms Level: 2. UnderstandSection: 01.03Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. | When assessing the risk of an air pollutant, which does not play a role in considering someone's exposure to the pollutant?

|  |  |
| --- | --- |
| A.  | a person's lung capacity |

|  |  |
| --- | --- |
| B.  | a person's breathing rate |

|  |  |
| --- | --- |
| **C.**  | the toxicity of the pollutant |

|  |  |
| --- | --- |
| D.  | the concentration in air of the pollutant |

 |

|  |
| --- |
| *American - Chapter 01 #16Blooms Level: 2. UnderstandSection: 01.03Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. | The burning of coal produces sulfur dioxide, SO2, a pollutant that slowly reacts in air to form SO3. Sulfur trioxide dissolves into airborne water droplets to form a very corrosive solution of sulfuric acid. Which is a product of burning coal that hastens the transformation of sulfur dioxide into sulfur trioxide?

|  |  |
| --- | --- |
| A.  | carbon dioxide  |

|  |  |
| --- | --- |
| B.  | carbon monoxide  |

|  |  |
| --- | --- |
| C.  | nitrogen dioxide  |

|  |  |
| --- | --- |
| **D.**  | particles of ash  |

This transformation takes place on solid particles.  |

|  |
| --- |
| *American - Chapter 01 #17Blooms Level: 2. UnderstandSection: 01.11Topic: Environmental ChemistryTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. | All of these pollutants can be detected by their odors except:

|  |  |
| --- | --- |
| **A.**  | CO  |

|  |  |
| --- | --- |
| B.  | O3  |

|  |  |
| --- | --- |
| C.  | SOx  |

|  |  |
| --- | --- |
| D.  | NOx  |

Remember that you might need a detector for this substance in your home for protection.  |

|  |
| --- |
| *American - Chapter 01 #18Blooms Level: 1. RememberSection: 01.03Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. | Which pollutant are you more likely to encounter in dangerous concentrations indoors rather than outdoors?

|  |  |
| --- | --- |
| A.  | nitrogen dioxide  |

|  |  |
| --- | --- |
| **B.**  | carbon monoxide  |

|  |  |
| --- | --- |
| C.  | ozone  |

|  |  |
| --- | --- |
| D.  | sulfur dioxide  |

This comes from the incomplete combustion of hydrocarbon fuels.  |

|  |
| --- |
| *American - Chapter 01 #19Blooms Level: 1. RememberSection: 01.02Subtopic: States of MatterTopic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20. | In general, which airborne material is not likely to be affected by the filters or indoor air handling equipment?

|  |  |
| --- | --- |
| A.  | particulates  |

|  |  |
| --- | --- |
| B.  | pollen  |

|  |  |
| --- | --- |
| C.  | soot  |

|  |  |
| --- | --- |
| **D.**  | carbon monoxide  |

Filters cannot trap gases.  |

|  |
| --- |
| *American - Chapter 01 #20Blooms Level: 2. UnderstandSection: 01.02Subtopic: States of MatterTopic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21. | Which color, as used in the Air Quality Index, warns that the level of a pollutant is hazardous, the most dangerous level?

|  |  |
| --- | --- |
| A.  | orange  |

|  |  |
| --- | --- |
| B.  | green  |

|  |  |
| --- | --- |
| C.  | yellow  |

|  |  |
| --- | --- |
| **D.**  | maroon  |

This is similar to other color-coded warning systems.  |

|  |
| --- |
| *American - Chapter 01 #21Blooms Level: 1. RememberSection: 01.04Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. | A substance that can be broken down into two or more simpler substances by chemical methods is called a(n)

|  |  |
| --- | --- |
| **A.**  | compound.  |

|  |  |
| --- | --- |
| B.  | mixture.  |

|  |  |
| --- | --- |
| C.  | element.  |

|  |  |
| --- | --- |
| D.  | isotope.  |

Mixtures are separable by physical means.  |

|  |
| --- |
| *American - Chapter 01 #23Blooms Level: 1. RememberSection: 01.06Subtopic: Classification of MatterSubtopic: Fundamental DefinitionsTopic: Components of MatterTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23. | On a Periodic Table, the columns of elements with similar properties are

|  |  |
| --- | --- |
| A.  | periods.  |

|  |  |
| --- | --- |
| **B.**  | groups.  |

|  |  |
| --- | --- |
| C.  | rows.  |

|  |  |
| --- | --- |
| D.  | metals.  |

Periods and rows go across.  |

|  |
| --- |
| *American - Chapter 01 #24Blooms Level: 1. RememberSection: 01.06Subtopic: Periodic TableTopic: Components of MatterTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24. | The most numerous of the elements are the

|  |  |
| --- | --- |
| **A.**  | metals.  |

|  |  |
| --- | --- |
| B.  | non metals.  |

|  |  |
| --- | --- |
| C.  | metalloids.  |

|  |  |
| --- | --- |
| D.  | noble gases.  |

These are green in the periodic table in your textbook.  |

|  |
| --- |
| *American - Chapter 01 #26Blooms Level: 1. RememberSubtopic: Periodic TableTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25. | Which is *not* a mixture?

|  |  |
| --- | --- |
| A.  | a jar filled with rocks and sand  |

|  |  |
| --- | --- |
| B.  | sea water  |

|  |  |
| --- | --- |
| C.  | a glass of Kool-Aid  |

|  |  |
| --- | --- |
| **D.**  | sodium chloride  |

Mixtures include more than one pure substance.  |

|  |
| --- |
| *American - Chapter 01 #28Blooms Level: 2. UnderstandSection: 01.06Subtopic: Fundamental DefinitionsSubtopic: Properties of MatterTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26. | Which is *not* a pure substance?

|  |  |
| --- | --- |
| A.  | helium  |

|  |  |
| --- | --- |
| B.  | copper wire  |

|  |  |
| --- | --- |
| **C.**  | air  |

|  |  |
| --- | --- |
| D.  | sucrose  |

Mixtures are not pure substances.  |

|  |
| --- |
| *American - Chapter 01 #29Blooms Level: 2. UnderstandSection: 01.06Subtopic: Properties of MatterTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27. | Which squares contain mixtures?

|  |  |
| --- | --- |
| A.  | II and III only  |

|  |  |
| --- | --- |
| **B.**  | III and IV only  |

|  |  |
| --- | --- |
| C.  | I, III, and IV only  |

|  |  |
| --- | --- |
| D.  | I and IV only  |

Mixtures will have different substances in the same box.  |

|  |
| --- |
| *American - Chapter 01 #30Blooms Level: 3. ApplySection: 01.06Section: 01.07Subtopic: MoleculesSubtopic: Properties of MatterTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28. | Which square(s) contain(s) only an element?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| **B.**  | II only  |

|  |  |
| --- | --- |
| C.  | I and II only  |

|  |  |
| --- | --- |
| D.  | III and IV only  |

Elements will only have one type of atom in the box.  |

|  |
| --- |
| *American - Chapter 01 #31Blooms Level: 3. ApplySection: 01.06Section: 01.07Subtopic: ElementsSubtopic: Fundamental DefinitionsTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29. | Which symbols represent only elements that are metals?

|  |  |
| --- | --- |
| **A.**  | X and Z  |

|  |  |
| --- | --- |
| B.  | X and Q  |

|  |  |
| --- | --- |
| C.  | P and L  |

|  |  |
| --- | --- |
| D.  | X, R, P, and Q  |

Non-metals reside in the upper right corner of the periodic table.  |

|  |
| --- |
| *American - Chapter 01 #33Blooms Level: 2. UnderstandSubtopic: Periodic TableTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30. | Which symbol(s) represent(s) elements in the noble gas family?

|  |  |
| --- | --- |
| A.  | X and Z  |

|  |  |
| --- | --- |
| B.  | P and L  |

|  |  |
| --- | --- |
| **C.**  | Q  |

|  |  |
| --- | --- |
| D.  | Y  |

Noble gases are in the far right column of the periodic table.  |

|  |
| --- |
| *American - Chapter 01 #34Blooms Level: 1. RememberSection: 01.06Subtopic: Scientific MethodTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31. | Which differentiates a compound from a mixture of two or more elements?

|  |  |
| --- | --- |
| A.  | The elements in a compound may be present in varying proportions.  |

|  |  |
| --- | --- |
| **B.**  | A compound does not exhibit the individual properties of the elements of which it is composed.  |

|  |  |
| --- | --- |
| C.  | A compound is made up of only one element.  |

|  |  |
| --- | --- |
| D.  | A compound cannot be made up of more than two elements.  |

Remember that compounds are elements bound together by chemical bonds.  |

|  |
| --- |
| *American - Chapter 01 #35Blooms Level: 3. ApplySection: 01.06Subtopic: Classification of MatterSubtopic: Fundamental DefinitionsTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 32. | Which substance is an element?

|  |  |
| --- | --- |
| A.  | NO2  |

|  |  |
| --- | --- |
| B.  | NaCl  |

|  |  |
| --- | --- |
| **C.**  | N2  |

|  |  |
| --- | --- |
| D.  | CH4  |

Only one has just one symbol in the formula.  |

|  |
| --- |
| *American - Chapter 01 #37Blooms Level: 2. UnderstandSection: 01.06Section: 01.07Subtopic: ElementsTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 33. | A(n) \_\_\_\_\_\_\_\_\_\_ is a fixed number of atoms held together by chemical bonds in a certain spatial arrangement.

|  |  |
| --- | --- |
| A.  | element  |

|  |  |
| --- | --- |
| B.  | ion  |

|  |  |
| --- | --- |
| **C.**  | molecule  |

|  |  |
| --- | --- |
| D.  | mixture  |

Remember which of these have more than one element that are also bonded together.  |

|  |
| --- |
| *American - Chapter 01 #38Blooms Level: 1. RememberSection: 01.07Subtopic: Fundamental DefinitionsSubtopic: MoleculesTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 34. | Which diagram(s) best represent(s) only diatomic molecules?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| **B.**  | II only  |

|  |  |
| --- | --- |
| C.  | I and II only  |

|  |  |
| --- | --- |
| D.  | II and IV only  |

The prefix di- means two.  |

|  |
| --- |
| *American - Chapter 01 #39Blooms Level: 2. UnderstandSection: 01.07Subtopic: ElementsSubtopic: MoleculesTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 35. | Which diagram(s) best represent(s) only molecules?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| C.  | III only  |

|  |  |
| --- | --- |
| **D.**  | I and II only  |

|  |  |
| --- | --- |
| E.  | IV only  |

Molecules have multiple atom bound together.  |

|  |
| --- |
| *American - Chapter 01 #40Blooms Level: 2. UnderstandSection: 01.07Subtopic: Classification of MatterSubtopic: ElementsSubtopic: MoleculesTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 36. | Which diagram(s) best represent(s) only individual atoms?

|  |  |
| --- | --- |
| A.  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| **C.**  | III only  |

|  |  |
| --- | --- |
| D.  | IV only  |

|  |  |
| --- | --- |
| E.  | II and III only  |

The atoms are not bound to other atoms.  |

|  |
| --- |
| *American - Chapter 01 #41Blooms Level: 2. UnderstandSection: 01.07Subtopic: ElementsSubtopic: MoleculesTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 37. | Except in the case of hydrocarbons, when naming virtually all compounds made up of two elements, the second element mentioned

|  |  |
| --- | --- |
| **A.**  | ends in "ide."  |

|  |  |
| --- | --- |
| B.  | is preceded by "mono" (or occasionally "mon").  |

|  |  |
| --- | --- |
| C.  | is always the more metallic element.  |

|  |  |
| --- | --- |
| D.  | is the one present in the greater number of atoms.  |

Remember that more non-metallic atoms go second and have this ending.  |

|  |
| --- |
| *American - Chapter 01 #42Blooms Level: 2. UnderstandSection: 01.08Subtopic: NomenclatureTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 38. | Based on its name, which carbon compound contains the fewest carbon atoms?

|  |  |
| --- | --- |
| A.  | ethanol  |

|  |  |
| --- | --- |
| **B.**  | methane  |

|  |  |
| --- | --- |
| C.  | chlorobutane  |

|  |  |
| --- | --- |
| D.  | propyl alcohol  |

Mother Eats Peanut Butter  |

|  |
| --- |
| *American - Chapter 01 #43Blooms Level: 2. UnderstandSection: 01.08Subtopic: NomenclatureTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 39. | P2O5 is the chemical formula for

|  |  |
| --- | --- |
| A.  | pentoxygen diphosphide.  |

|  |  |
| --- | --- |
| **B.**  | diphosphorus pentoxide.  |

|  |  |
| --- | --- |
| C.  | dioxygen pentaphosphide.  |

|  |  |
| --- | --- |
| D.  | monophosphorus pentoxide.  |

See table 1.6 for the naming prefixes.  |

|  |
| --- |
| *American - Chapter 01 #44Blooms Level: 2. UnderstandSection: 01.08Subtopic: NomenclatureTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40. | The name of the compound formed by combining carbon atoms   with oxygen atoms   to form   is

|  |  |
| --- | --- |
| A.  | carbon oxide.  |

|  |  |
| --- | --- |
| B.  | monocarbon dioxide.  |

|  |  |
| --- | --- |
| **C.**  | carbon dioxide.  |

|  |  |
| --- | --- |
| D.  | carbonate.  |

Count your atoms and remember that there is no prefix on a lone element that is named first.  |

|  |
| --- |
| *American - Chapter 01 #45Blooms Level: 2. UnderstandSection: 01.08Subtopic: MeasurementsTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 41. | During a chemical reaction,

|  |  |
| --- | --- |
| **A.**  | atoms are rearranged.  |

|  |  |
| --- | --- |
| B.  | some atoms are destroyed and new ones are formed.  |

|  |  |
| --- | --- |
| C.  | some elements are destroyed and new ones are formed.  |

|  |  |
| --- | --- |
| D.  | the law of conservation of matter and mass may be briefly violated.  |

Remember that the laws of conservation of mass and energy are always followed in chemical reactions.  |

|  |
| --- |
| *American - Chapter 01 #46Blooms Level: 2. UnderstandSection: 01.09Subtopic: ElementsSubtopic: MoleculesTopic: Components of MatterTopic: Study of Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 42. | Choose the proper coefficients for each substance to balance this equation.\_\_\_\_ C2H4*(g)* + \_\_\_\_ O2*(g)* → \_\_\_\_ CO2*(g)* + \_\_\_\_ H2O*(g)*

|  |  |
| --- | --- |
| A.  | 1, 1, 2, 2  |

|  |  |
| --- | --- |
| **B.**  | 1, 3, 2, 2  |

|  |  |
| --- | --- |
| C.  | 2, 3, 4, 2  |

|  |  |
| --- | --- |
| D.  | 2, 2, 4, 2  |

Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through.  |

|  |
| --- |
| *American - Chapter 01 #47Blooms Level: 3. ApplySection: 01.09Subtopic: Chemical FormulasSubtopic: Writing and Balancing Chemical EquationsTopic: Chemical ReactionsTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 43. | Choose the proper coefficients for each substance to yield a balanced equation.

|  |  |
| --- | --- |
| A.  | 1, 1, 1  |

|  |  |
| --- | --- |
| B.  | 2, 1, 1  |

|  |  |
| --- | --- |
| **C.**  | 2, 1, 2  |

|  |  |
| --- | --- |
| D.  | 1, 1, 2  |

 Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through  |

|  |
| --- |
| *American - Chapter 01 #48Blooms Level: 3. ApplySection: 01.09Subtopic: Chemical FormulasSubtopic: Writing and Balancing Chemical EquationsTopic: Chemical Reactions* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 44. | Which is the balanced chemical equation showing hydrogen peroxide (H2O2) decomposing into hydrogen (H2) and oxygen (O2)?

|  |  |
| --- | --- |
| **A.**  | H2O2 → H2 + O2  |

|  |  |
| --- | --- |
| B.  | H2 + O2 → H2O2  |

|  |  |
| --- | --- |
| C.  | 2 H2 + O2 → 2 H2O2  |

|  |  |
| --- | --- |
| D.  | 2 H2O2 → 2 H2 + O2  |

 Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through  |

|  |
| --- |
| *American - Chapter 01 #49Blooms Level: 3. ApplySection: 01.09Subtopic: Writing and Balancing Chemical EquationsTopic: Chemical Reactions* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 45. | Which is the balanced chemical equation for the reaction of nitrogen (N2) with oxygen (O2) to form NO?

|  |  |
| --- | --- |
| A.  | 2 NO → N2 + O2  |

|  |  |
| --- | --- |
| B.  | N2 + O2 → NO  |

|  |  |
| --- | --- |
| **C.**  | N2 + O2 → 2 NO  |

|  |  |
| --- | --- |
| D.  | NO → N2 + O2  |

 Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through  |

|  |
| --- |
| *American - Chapter 01 #50Blooms Level: 2. UnderstandSection: 01.09Subtopic: Writing and Balancing Chemical EquationsTopic: Chemical Reactions* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. | Which shows the balanced equation for the reaction of nitrogen (  ), as it is normally found in our atmosphere, with oxygen (  ), as it is normally found in our atmosphere, to form nitrogen dioxide?

|  |  |
| --- | --- |
| A.  |  |

|  |  |
| --- | --- |
| B.  |  |

|  |  |
| --- | --- |
| **C.**  |  |

|  |  |
| --- | --- |
| D.  |  |

Oxygen and nitrogen are diatomic molecules as found in nature.  |

|  |
| --- |
| *American - Chapter 01 #51Blooms Level: 2. UnderstandSection: 01.09Subtopic: Writing and Balancing Chemical EquationsTopic: Chemical Reactions* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 47. | The two main products of the combustion of gasoline in an automobile engine are

|  |  |
| --- | --- |
| A.  | oxygen and carbon monoxide.  |

|  |  |
| --- | --- |
| B.  | sulfur oxides and nitrogen oxides.  |

|  |  |
| --- | --- |
| C.  | sulfur oxides and hydrogen.  |

|  |  |
| --- | --- |
| **D.**  | water and carbon dioxide.  |

All hydrocarbon combustion reactions make these two products.  |

|  |
| --- |
| *American - Chapter 01 #52Blooms Level: 1. RememberSection: 01.10Subtopic: Writing and Balancing Chemical EquationsTopic: Chemical ReactionsTopic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 48. | Green chemistry is

|  |  |
| --- | --- |
| A.  | the study of how to improve the production of oxygen via photosynthesis.  |

|  |  |
| --- | --- |
| B.  | any chemistry having an agricultural base.  |

|  |  |
| --- | --- |
| C.  | the cause of the higher temperatures and humidity typically found in greenhouses.  |

|  |  |
| --- | --- |
| **D.**  | the design of products and processes that reduce hazardous substances.  |

This is about cleaner chemistry in all fields.  |

|  |
| --- |
| *American - Chapter 01 #53Blooms Level: 1. RememberSection: 01.05Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 49. | Catalytic converters reduce the amount of \_\_\_\_\_\_\_\_ in car exhaust.

|  |  |
| --- | --- |
| A.  | O3  |

|  |  |
| --- | --- |
| B.  | CO2  |

|  |  |
| --- | --- |
| **C.**  | CO  |

|  |  |
| --- | --- |
| D.  | N2  |

Think about which is a direct tailpipe pollutant.  |

|  |
| --- |
| *American - Chapter 01 #55Blooms Level: 1. RememberSection: 01.10Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 50. | Ozone is a secondary pollutant. A secondary pollutant is

|  |  |
| --- | --- |
| A.  | not as hazardous as a primary pollutant.  |

|  |  |
| --- | --- |
| **B.**  | not produced directly but as the product of the interaction of two or more pollutants.  |

|  |  |
| --- | --- |
| C.  | one that is naturally present in our atmosphere.  |

|  |  |
| --- | --- |
| D.  | one that is less hazardous than a primary pollutant.  |

This has nothing to do with safety.  |

|  |
| --- |
| *American - Chapter 01 #57Blooms Level: 1. RememberSection: 01.12Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 51. | There are approximately 2 × 1022 molecules and atoms in each breath we take and the concentration of CO in the air is approximately 9 parts per million. Approximately how many CO molecules are in each breath we take?3-11-2013

|  |  |
| --- | --- |
| A.  | 2 × 1015 |

|  |  |
| --- | --- |
| **B.**  | 1.8 × 1017 |

|  |  |
| --- | --- |
| C.  | 2 × 1016 |

|  |  |
| --- | --- |
| D.  | 2 × 1029 |

 |

|  |
| --- |
| *American - Chapter 01Blooms Level: 3. ApplySection: 01.14Subtopic: Dimensional Analysis / Unit ConversionSubtopic: MeasurementsSubtopic: Scientific NotationTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 52.*(p. 23)* | Which of the following would be described as "fine particles"?

|  |  |
| --- | --- |
| A.  | SOx  |

|  |  |
| --- | --- |
| B.  | NOx  |

|  |  |
| --- | --- |
| C.  | O3  |

|  |  |
| --- | --- |
| **D.**  | 2.5 μm diameter soot  |

Remember that these are solids and not gases.  |

|  |
| --- |
| *American - Chapter 01 #59Blooms Level: 2. UnderstandSection: 01.02Subtopic: Classification of MatterTopic: Components of MatterTopic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 53. | Which if the following is the chemical symbol for silver?

|  |  |
| --- | --- |
| A.  | Au  |

|  |  |
| --- | --- |
| B.  | Pb  |

|  |  |
| --- | --- |
| **C.**  | Ag  |

|  |  |
| --- | --- |
| D.  | Fe  |

Silver was known during ancient times and has an unusual symbol.  |

|  |
| --- |
| *American - Chapter 01 #61Blooms Level: 1. RememberSubtopic: Periodic TableTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 54. | Which of the following is a pure substance?

|  |  |
| --- | --- |
| A.  | Lemonade  |

|  |  |
| --- | --- |
| B.  | Concrete  |

|  |  |
| --- | --- |
| C.  | Gasoline  |

|  |  |
| --- | --- |
| **D.**  | Silver wire  |

Remember that pure substances have only one component.  |

|  |
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| *American - Chapter 01 #62Blooms Level: 2. UnderstandSection: 01.06Subtopic: Classification of MatterTopic: Components of Matter* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 55. | The lowest (or closest to the ground) layer of our atmosphere is the

|  |  |
| --- | --- |
| **A.**  | troposphere.  |

|  |  |
| --- | --- |
| B.  | ozone layer.  |

|  |  |
| --- | --- |
| C.  | stratosphere.  |

|  |  |
| --- | --- |
| D.  | mesosphere.  |

Think about which layer we live in and that is its relative warm.  |

|  |
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| *American - Chapter 01 #64Blooms Level: 1. RememberSection: 01.05Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 56. | Which is the following *incorrectly* represents a combustion reaction?

|  |  |
| --- | --- |
| A.  | CH4  + 2 O2 → CO2 + 2 H2O |

|  |  |
| --- | --- |
| B.  | S8  + 8 O2 → 8 SO2 |

|  |  |
| --- | --- |
| C.  | N2  + 2 O2 → 2 NO2 |

|  |  |
| --- | --- |
| **D.**  | C3H8  +  O2 → 3 CO2 |

 |

|  |
| --- |
| *American - Chapter 01Blooms Level: 3. ApplySection: 01.09Subtopic: Writing and Balancing Chemical EquationsTopic: Chemical Reactions* |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 57. | Balance this equation P4 + Cl2 → PCl5 with the smallest whole number coefficients. Choose the answer that is the sum of the coefficients. Do not forget coefficients of "one".

|  |  |
| --- | --- |
| A.  | 7  |

|  |  |
| --- | --- |
| B.  | 9  |

|  |  |
| --- | --- |
| C.  | 11  |

|  |  |
| --- | --- |
| D.  | 13  |

|  |  |
| --- | --- |
| **E.**  | 15  |

Be sure to balance all elements on either side of the equation and add all the coefficients including any "ones".  |

|  |
| --- |
| *American - Chapter 01 #67Section: 01.09Subtopic: Writing and Balancing Chemical EquationsTopic: Chemical Reactions* |

**Check All That Apply Questions**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 58. | Which of the following are examples of technological advances that have reduced air pollution?

|  |  |
| --- | --- |
| **X** | Paint with reduced VOCs  |
| **X** | Catalytic converters  |
| \_\_ | Burning gasoline in leaf blowers  |
| **X** | Low sulfur Diesel fuels  |

One if these is a major cause of outdoor pollution while the others are improvements.  |

|  |
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| *American - Chapter 01 #68Blooms Level: 2. UnderstandSection: 01.10Section: 01.11Section: 01.12Topic: Environmental Chemistry* |

**Multiple Choice Questions**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 59. | If 500 mL of air contains 2 x 1022 particles (atoms and molecules), how many particles do you inhale in one day if you breathe 15000 L of air?

|  |  |
| --- | --- |
| A.  | 2 x 1022  |

|  |  |
| --- | --- |
| **B.**  | 6 x 1026  |

|  |  |
| --- | --- |
| C.  | 1.2 x 1027  |

|  |  |
| --- | --- |
| D.  | 5 x 1024  |

Remember that 500 mL is 0.5L and make sure your units cancel when you do the calculation.  |

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| *American - Chapter 01 #69Blooms Level: 3. ApplySection: 01.14Subtopic: Dimensional Analysis / Unit ConversionSubtopic: MeasurementsSubtopic: Scientific NotationTopic: Components of Matter* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 60. | If we assume that the top of Mt. Everest is the highest land mass on earth, hikers who scale its summit are standing in the

|  |  |
| --- | --- |
| A.  | mesosphere.  |

|  |  |
| --- | --- |
| B.  | stratosphere.  |

|  |  |
| --- | --- |
| **C.**  | troposphere.  |

|  |  |
| --- | --- |
| D.  | ozone layer.  |

Remember that they are still on land and this layer encompasses all the land.  |

|  |
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| *American - Chapter 01 #70Blooms Level: 2. UnderstandSection: 01.05Topic: Environmental Chemistry* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 61. | Which square(s) contain(s) only one or more compounds?

|  |  |
| --- | --- |
| **A.**  | I only  |

|  |  |
| --- | --- |
| B.  | II only  |

|  |  |
| --- | --- |
| C.  | I and IV only  |

|  |  |
| --- | --- |
| D.  | II and III only  |

Different compounds will have different combinations of different elements.  |

|  |
| --- |
| *American - Chapter 01 #71Blooms Level: 2. UnderstandSection: 01.06Subtopic: ElementsSubtopic: MoleculesSubtopic: States of MatterTopic: Components of Matter* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 62. | The chemical formula for nitrogen monoxide is:

|  |  |
| --- | --- |
| A.  | N2O  |

|  |  |
| --- | --- |
| **B.**  | NO  |

|  |  |
| --- | --- |
| C.  | NO2  |

|  |  |
| --- | --- |
| D.  | N2O3  |

Remember your prefixes for naming molecules.  |

|  |
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| *American - Chapter 01 #73Blooms Level: 2. UnderstandSection: 01.07Subtopic: NomenclatureTopic: Components of Matter* |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 63. | Which correctly pairs an indoor pollutant with its source?

|  |  |
| --- | --- |
| A.  | formaldehyde and unvented space heaters  |

|  |  |
| --- | --- |
| **B.**  | O3 and electrical arcing  |

|  |  |
| --- | --- |
| C.  | radon and glues and solvents  |

|  |  |
| --- | --- |
| D.  | nicotine and paint and paint thinners  |

Think about the sources of nicotine, radon and formaldehyde.  |

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| *American - Chapter 01 #75Blooms Level: 2. UnderstandSection: 01.13Topic: Environmental Chemistry* |

Chapter 01 - The Air We Breathe (Testbank) Summary

|  |  |
| --- | --- |
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